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Gambling and the Health of the Public: Adopting a Public Health Perspective

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During the last decade there has been an unprecedented expansion of legalized gambling throughout North America. Three primary forces appear to be motivating this growth: (1) the desire of governments to identify new sources of revenue without invoking new or higher taxes; (2) tourism entrepreneurs developing new destinations for entertainment and leisure; and (3) the rise of new technologies and forms of gambling (e.g., video lottery terminals, powerball mega-lotteries, and computer offshore gambling). Associated with this phenomenon, there has been an increase in the prevalence of problem and pathological gambling among the general adult population, as well as a sustained high level of gambling-related problems among youth. To date there has been little dialogue within the public health sector in particular, or among health care practitioners in general, about the potential health impact of gambling or gambling-related problems. This article encourages the adoption of a public health perspective towards gambling. More specifically, this discussion has four primary objectives:

1. Create awareness among health professionals about gambling, its rapid expansion and its relationship with the health care system;

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2. Place gambling within a public health framework by examining it from several perspectives, including population health, human ecology and addictive behaviors;
3. Outline the major public health issues about how gambling can affect individuals, families and communities;
4. Propose an agenda for strengthening policy, prevention and treatment practices through greater public health involvement, using the framework of The Ottawa Charter for Health Promotion as a guide.

By understanding gambling and its potential impacts on the public's health, policy makers and health practitioners can minimize gambling's negative impacts and appreciate its potential benefits.

KEY WORDS: gambling; addictions; public health; social policy; mental health; prevention; public policy; community health.

INTRODUCTION AND BACKGROUND

> Public health has had remarkable success with interventions to reduce early death. It has succeeded in removing many morbidity risks. . . . Now we must accept the challenge of reducing the risks that compromise quality of life.
>
> William H. Foege, Former Director, Centers for Disease Control & Prevention, United States Public Health Service (Foege, 1998, p. 355).

Humans have gambled since the beginning of recorded history. Gambling activities have been understood from moral, mathematical, economic, social, psychological, cultural and, more recently, biological perspectives (Bergh, Sodersten, & Nordin, 1997; Comings, 1998; DeCaria, Begaz, & Hollander, 1998; Quinn, 1891; Rose, 1986; Rosecrance, 1985; Shaffer, Stein, Gambino, & Cummings, 1989; Skinner, 1969; Taber, 1987). Nevertheless, public health professionals have not applied their perspectives to gambling. By understanding gambling and its potential impacts on the public's health, policy makers and health practitioners can minimize gambling's negative impacts and appreciate its potential benefits.

For example, the classic public health model for communicable disease that examines the interaction among host, agent, environment and vector can be instructive for gambling. It can stimulate an understanding of gambling phenomena, elucidate the determinants of disordered gambling and point to a range of interventions. For gambling, the "host" is the individual who chooses to gamble and who may be at risk for developing problems depending on their neurobiology, psy-

chology and behavior patterns. The "agent" represents the specific gambling activities in which players engage (e.g., lotteries, slot machines, casino table games, bingo, horse race betting). The "vector" can be thought of as money. The "environment" is both the gambling venue and the family, socio-economic, cultural and political context within which gambling occurs (e.g., whether it is legal, how available it is, and whether it is socially sanctioned or promoted). Like all public health problems, there is a complex relationship among these factors that can produce a range of possible undesired outcomes. As applied to gambling, this public health paradigm invites consideration of a broad range of prevention and treatment strategies directed toward various elements of the model.

Curiously, the public health perspective has been absent from the contemporary dialogue on gambling-related problems. Contemporary public health perspectives can address not only the biological and behavioral dimensions related to gambling and health, but also the social and economic determinants such as income, employment and poverty. A public health viewpoint also can lead to the design of more comprehensive and effective strategies for preventing and treating gambling-related problems. In addition, a public health perspective encourages public policy makers to distinguish acceptable from unacceptable risks. Given the array of advantages associated with the adoption of a public health strategy for understanding, responding and regulating gambling-related matters, this article will encourage the adoption of a public health approach to gambling. More specifically, this paper has four primary objectives:

1. Create awareness among public health professionals about gambling, its rapid expansion and its relationship with the health care system;
2. Place gambling within a public health framework by (a) examining it from several viewpoints including population health, health promotion and human ecology, and (b) comparing it to other addictions;
3. Outline the major public health issues related to gambling's potential effect on individuals, families and communities;
4. Propose an agenda to strengthen policy, research and practice through greater public health involvement, utilizing the framework of The Ottawa Charter for Health Promotion.

Gambling and Gamblers

To begin, we are defining gambling as risking something of value on the outcome of an event when the probability of winning is less than certain. Gamblers have variable awareness that they are putting something of value at risk, that the bet is irreversible, and that the outcome of the gambling is determined by chance (e.g., Ladouceur & Walker, 1998). Gambling as a human endeavor has been well described in both ancient and modern times (Fleming, 1978). During various periods in history problems associated with this activity have been recognized and characterized in personal, social and economic terms (e.g., greed, crime, and social costs). One area of gambling, however, that has received little attention occurs in the financial world of day trading, commodity and future markets, and hedge funds. Although not traditionally defined as gambling, high-risk and impulsive financial trading represents an important and emerging area of activity that can have profound impact on individuals and social institutions.

In this article, we view gambling as a spectrum of activities that can range from non-problem to "problem" and "pathological" gambling; we acknowledge that there are both positive and negative dimensions associated with the activity.

The Growth of Gambling During the Modern Era

Three primary forces appear to be motivating the growth of gambling throughout North America: (1) the desire of governments to identify new sources of revenue without invoking new or higher taxes; (2) tourism entrepreneurs developing new destinations for entertainment and leisure; and (3) the rise of new technologies and forms of gambling (e.g,. video lottery terminals [VLTs], powerball mega-lotteries, and Internet offshore gambling).

Since New Hampshire reintroduced a legalized state-sponsored lottery more than 30 years ago, North Americans have embraced legalized gambling in unprecedented numbers and new ways. During the 1990s, there have been dramatic increases in the types of gambling available (including casino, lottery, charity bingo) and in the locations where gambling is accessible (including expansion to Native American

reservations, riverboats and border communities). In Canada during 1996, 82 percent of households spent money on at least one of the following legal gambling activities: government and nongovernment lotteries, raffles, casinos, slot machines and bingo (Marshall, 1998). Corporate profits in the gaming entertainment and related hospitality industries have soared. Figures for the United States leisure economy in 1996 show gross gambling revenues were $47.6 billion, which was greater than the combined revenues of $40.8 billion from film box office, recorded music, cruise ships, spectator sports and live entertainment (Christiansen, 1998).

In Canada, gambling is regulated under federal law, the Criminal Code of Canada adopted in 1892. Only governments can "manage and conduct" gaming ventures or authorize charitable gaming under license. Private sector ownership is prohibited. Over the years, periodic amendments to the sections on gambling have permitted its growth, but only since the 1970s have lotteries and casinos been operating legally. In 1985, computers, video, and slot devices were legalized and the Provinces were given exclusive control of gambling (Campbell & Smith, 1998). In 1997, Canadians wagered $6.8 billion (CAN) on some form of government-run gambling activity, 2.5 times the amount wagered in 1992, with casinos and VLTs accounting for almost 60% of all government gambling revenue. Profits for provincial governments have also risen dramatically. By 1997, all provinces were receiving at least 3% of total government revenue from gambling (Marshall, 1998).

All of this gambling activity has occurred within a new and expanded public policy framework. As noted, during the 1990s, the fiscal and economic needs of states, provinces and local governments has been the primary driving force behind the explosion of gambling in North America. The strategy has been to stimulate local economic development through gambling-related jobs, thereby creating new government revenues without increasing income tax. In the United States, the proliferation of cruise ship and riverboat gaming has been a mechanism to circumvent gambling restrictions imposed by existing state laws. To attract customers from outside localities, the casino industry has expanded the entertainment packages offered at tourist destinations such as Las Vegas, Nevada, Atlantic City, New Jersey and Niagara Falls, Ontario to include arts, entertainment and sporting events. The United States has promoted the leisure and recreational aspects of gambling,

whereas Canada has emphasized the social benefit to charities, nonprofit and community service agencies (Campbell & Smith, 1998).

The long-term social, economic and health impact arising from the dramatic expansion of gaming only recently has begun to be examined thoroughly or debated in the public policy arena, for example, with the report of the National Gambling Impact Study Commission (National Gambling Impact Study Commission, 1999). Controversy consistently surrounds the shifting social and political environment that has permitted the growth of gambling. For governments, there is considerable ambivalence as to the appropriate balance between new gambling programs and regulating policies. For example, the Government of Ontario, Canada, one of the larger owners of gambling operations in North America, reversed its policy to expand charity casinos throughout the province following widespread local controversy. Some church groups oppose the expansion of gambling on moral and ethical grounds. The casino industry strenuously lobbies states and municipalities for opportunities to offer its gaming entertainment. Local communities engage in vigorous debate as to the impact of gambling on the community (e.g., safety, and quality of life for their neighborhoods and families; Hornblower, 1996). State and provincial councils on compulsive or pathological gambling provide public education and referral services, as well as advocacy for people and their families affected by gambling-related problems that require treatment services and insurance reimbursement for such care.

Health Care System Involvement

How did gambling become a health care matter? Spiritual leaders, healers, caregivers, and health practitioners throughout history have given both counsel and condemnation to people seeking help for difficulties related to gambling. However, it was not until 1972 that Dr. Robert Cluster, a physician working at the Veterans' Administration hospital in Brecksville, Ohio, first proposed a clinical entity, which he termed compulsive gambling. In 1980, the American Psychiatric Association incorporated "pathological gambling" into its diagnostic and statistical manual (American Psychiatric Association, 1980) and thus legitimated this entity within the mainstream mental health field. The latest iteration of the *Diagnostic and Statistical Manual of Mental Disorders* (i.e., DSM-IV; American Psychiatric Association, 1994) requires 5 of 10

criteria to be satisfied for clinicians to make a diagnosis of pathological gambling. In addition, to make a diagnosis of pathological gambling, DSM-IV requires that the presence of a manic condition not provide a better explanation of the gambling behavior. Table 1 summarizes these 10 diagnostic criteria.

Table 1
Diagnostic Criteria of DSM-IV

"The essential feature of Pathological Gambling is persistent and recurrent maladaptive gambling behavior that disrupts personal, family, or vocational pursuits. The diagnosis is not made if the gambling behavior is better accounted for by a manic episode" (American Psychiatric Association, 1994). To be eligible for a DSM-IV diagnosis, a person must satisfy at least 5 of the following 10 criteria:

1. preoccupied with gambling (e.g., preoccupied with reliving past gambling experiences, handicapping or planning the next venture, or thinking of ways to get money with which to gamble)
2. needs to gamble with increasing amounts of money in order to achieve the desired excitement
3. restlessness or irritability when attempting to cut down or stop gambling
4. gambles as a way of escaping from problems or relieving a dysphoric mood (e.g., feelings of helplessness, guilt, anxiety, depression)
5. after losing money gambling, often returns another day to get even ("chasing" one's losses)
6 lies to family members, therapist, or others to conceal the extent of involvement with gambling
7. committed illegal acts, such as forgery, fraud, theft, or embezzlement to finance gambling
8. jeopardized or lost a significant relationship, job, education or career opportunity because of gambling
9. relies on others to provide money to relieve a desperate financial situation caused by gambling (i.e., a "bailout")
10. Has repeated unsuccessful efforts to control, cut back, or stop gambling

In addition to the DSM-IV, there have been other attempts to improve the identification of people with gambling-related problems. For example, to assist treatment providers in clinical screening and case finding, Lesieur and Blume developed the South Oaks Gambling Screen (SOGS) to identify patients with gambling-related problems (Lesieur & Blume, 1987). Another contribution to the field came from *Gamblers Anonymous* (GA), established in 1957 as a self-help fellowship to assist compulsive gamblers. Based on the principles and practices of *Alcoholics Anonymous,* GA produced a self-assessment tool, the GA 20 questions. By 1997, 25 such screening devices had been identified (Shaffer, Hall, & VanderBilt, 1997).

Originally, religious organizations had responsibility for dealing with troubled gamblers. In 1972, the first gambling treatment program in North America began in the United States as an outgrowth of an alcohol program at the Veterans Administration hospital in Brecksville, Ohio. With improved screening, assessment and diagnosis, treatment for gambling-related problems gradually began to appear elsewhere. State supported programs emerged in the early to mid 1980s. Maryland was the first state to provide department of mental health funding for gambling-specific treatment programs. Although clinicians dedicate few treatment programs only to the treatment of gambling disorders, these programs have been expanding recently. One major factor responsible for stimulating the growth of these treatment programs has been the expansion of government-sponsored gambling and the associated revenues that are flowing to governments because of this growth. Public policy makers have elected to stimulate the development of new gambling opportunities to address fiscal needs without having to raise the tax base. They have been sensitized by advocates to the issue of problem and pathological gambling; recognizing their social responsibility, they have developed and funded treatment programs in response. Most of these new clinical programs have emerged within addiction treatment and mental health settings. For example, in 1994, the province of Alberta, Canada mandated responsibility for addressing problem gambling to the provincially funded Alberta Drug and Alcohol Commission (ADDAC). This development was associated with the rapid growth of provincial revenues from Alberta owned casinos and VLTs.

In the United States and Canada, as treatment options emerged, there has been a shift away from religious organizations having the

responsibility for helping people who have trouble with their gambling. Now, the specialized mental health and addiction system is primarily accountable for the formal treatment of individuals who experience gambling-related problems. Nevertheless, church groups still are involved heavily in efforts to limit the expansion of gambling (e.g., the National Coalition Against Legalized Gambling in the United States and the United Church of Canada). In the United States, gambling treatment is now, arguably, an accepted and expanding part of the mental health and addiction establishment. In both the United States and Canada, the primary organizational providers of care for troubled gamblers are free standing addiction services. Most of these services are state- or province-sponsored, though some of these programs are part of private treatment facilities (e.g., Trimeridian, 1999).

In spite of these developments in the diagnosis and treatment of disordered gambling behaviors, DSM-IV reflects conceptual ambivalence about the validity of pathological gambling as a mental disorder. For example, the DSM-IV includes a very important but rarely cited cautionary note: "inclusion here, for clinical and research purposes, of a diagnostic category such as Pathological Gambling or Pedophilia does not imply that the condition meets legal or other nonmedical criteria for what constitutes mental disease, mental disorder, or mental disability. The clinical and scientific considerations involved in categorization of these conditions as mental disorders may not be wholly relevant to legal judgments, for example, that take into account such issues as individual responsibility, disability determination, and competency" (American Psychiatric Association, 1994, p. xxvii). In addition to these concerns of psychiatrists and other mental health workers, primary care providers have not yet embraced gambling screens as part of their routine practice pattern. However, these matters are beginning to change. For instance, in 1997 the Canadian Medical Association (CMA) carried out a needs assessment for physician practice in the area of problem gambling as the first phase of a project to develop office resources (Rowan, Galasso, & Colbran-Smith, 1998). Similarly, *Gamblers Anonymous* is becoming more visible, although more so in the United States where there is a stronger 12-step self-help tradition.

To help develop an appreciation of gambling from a public health perspective, the following section will examine public health involvement to date.

Public Health Involvement

Major segments of the public have been uneasy about the rapid growth of casino gambling (e.g., Kandarian, 1998; WEFA Group, ICR Survey Research Group, Lesieur, & Thompson, 1997). Yet, public health largely has been absent from the social and economic policy decisions surrounding the legalization and expansion of gambling. In addition, there has been little attention focussed on gambling as a public health matter. This may be due to a lack of awareness, lack of interest, or a belief that this is not a matter appropriate for public health involvement. However, three areas of public health interest have emerged: (1) public policy, (2) research, and (3) public health practice. In the following discussion, we will examine each of these areas.

Public Policy

Only recently has gambling garnered attention on the public policy agenda. The Canadian National Council of Welfare published a report in 1996 that recommended restrictions on certain types of gambling (National Council of Welfare, 1996). In 1998, The Canadian Council of Churches, representing eighteen Christian denominations, wrote the federal Minister of Justice urging the establishment of an independent review of the impact of province-sponsored gambling in Canada.

In 1993, the Canadian Public Health Association identified gambling as a public health issue by adopting a formal resolution at its annual general meeting seeking funds to coordinate a national health impact assessment of regulated gambling in Canada, but its efforts were subsequently unsuccessful. Interest in the gambling issue continued and, in 1999, a second resolution related to the impact of VLTs was approved. At the 1996 conference of the Canadian Foundation on Compulsive Gambling, Wynne presented a paper on gambling as a public policy issue (Wynne, 1997). The Canadian Centre on Substance Abuse has shown only a recent interest with its National Working Group on Addiction Policy producing its first discussion paper on problem gambling in 1998.

In 1997, President Clinton established the National Gambling Impact Study Commission to examine the social and economic impacts

of gambling in the United States. This commission held hearings throughout the United States and its report was sent to the President, Congress, Governors, and Tribal Leaders in June of 1999. Interestingly, there were no public health officials or public health specialists sitting on this body. The National Gambling Impact Study Commission contracted with the National Academy of Science's National Research Council to provide a scientific analysis of the existing research literature on pathological gambling (National Research Council, 1999). Its final report, *Pathological Gambling: A Critical Review,* (1999) is now available. This represents the first such study by a national scientific organization. Also in 1999, the National Council of Legislators from Gaming States created the Public Sector Gaming Commission to study the social and economic impact of gambling as it pertains to state and local governments. With respect to a public communication policy on gambling, the United States Supreme Court, in June 1999, ruled unanimously in favor of casino advertising as commercial free speech, striking down a 65-year-old ban on broadcast advertising of casino gambling (Greenhouse, 1999).

The American Public Health Association has no formal policy regarding gambling; its Alcohol Tobacco and Other Drug section has not dealt with the issue (Ringwalt, 1999). The National Association for Public Health Policy based in Washington D.C. has not yet undertaken policy discussions, statements or actions on the matter of gambling (Carroll, 1999). The American Medical Association, in June 1994, adopted a resolution citing the addictive potential of gambling and called on states to set aside a fixed percentage of gambling revenues for education, prevention and treatment of this "gambling compulsive behavior" (American Medical Association, 1994).

In both Canada and the United States, well-known stakeholder, lobby and interest groups reflect the full spectrum of gambling-related public policy positions, that is, from advocacy to abolition.

Research

In 1977, Kallick, Suits, Dielman, and Hybels conducted the first national study on the prevalence of pathological gambling (Kallick, Suits, Dielman, & Hybels, 1979). By 1997, there were 152 prevalence studies reported in Canada and the United States, with more than half of these completed after 1992 (Shaffer, Hall, & Vander Bilt, 1997). In

1997, Shaffer, Hall, and Vander Bilt released a monograph with the first comprehensive estimate of disordered gambling prevalence in the United States and Canada (Shaffer et al., 1997). Shaffer et al. used a meta-analytic strategy to synthesize existing estimates of disordered gambling prevalence. Shaffer et al. organized their estimates of disordered gambling by levels (Shaffer & Hall, 1996). Essentially, level 2 gamblers are those people who report sub-clinical problems (e.g., those who report an insufficient number to be considered "pathological" by DSM-IV standards or "probable pathological" by the SOGS). Level 3 gamblers satisfy the classification criteria of diagnostic instruments as having a serious gambling-related condition or syndrome. Table 2[2] provides estimates of the prevalence of gambling disorders and compares these estimates with prevalence estimates of alcohol and other drug dependence. In addition, this table provides the prevalence of the common cold to provide readers with a comparison to a common disorder.

Shaffer et al. (1997; 1999) found that rates of gambling disorders during the past 25 years were high but relatively stable among youth and adult treatment populations. However, although the prevalence was lower among the general adult population, the evidence suggested

Table 2
Prevalence of Pathological Gambling and Other Disorders

Disorder	*Past Year*	*Lifetime*
Level 3 (e.g., Pathological Gambling)[a]	0.9%	1.5%
Alcohol Dependence[b]	7.2%	14.1%
Drug Dependence[b]	2.8%	7.5%
Level 3 *AND* Level 2 Gambling[a]	2.9%	5.4%
Alcohol Dependence *AND* Abuse[b]	9.7%	23.5%
Drug Dependence *AND* Abuse[b]	3.6%	11.9%
Common Cold[c]	23.0%	N/A

[a]National Research Council (1999) analysis of Shaffer et al. (1997) data;
[b]National Comorbidity Survey (Kessler et al., 1994);
[c]Centers for Disease Control and Prevention estimate calculated based on 1995 U.S. population of 263 million (Centers for Disease Control, and Prevention, 1999).

that there was an increasing rate of disordered gambling. Male gender, youth and concurrent substance abuse or mental illness placed individuals at increased risk of developing a gambling-related problem.

The United States National Research Council of the National Academy of Science directed by the National Gambling Impact Study Commission convened a committee to review the scientific literature on pathological gambling. It reanalyzed the United States database used in the Shaffer et al. (1997) study to offer an additional national estimate of pathological and problem gambling in the general adult population. These prevalence estimates were somewhat lower but in agreement with Shaffer et al. (1999) study (National Research Council, 1999).

In 1999, as a component of the United States' National Gambling Impact Study Commission report, the National Opinion Research Center (NORC) published only the second national prevalence study using a new survey instrument. This study estimated the lifetime prevalence of pathological gambling for the United States general adult population to be 1.2%; NORC's estimate of pathological and problem gambling combined was about 2.5% of the adult population (Gerstein et al., 1999a). To date, there is only one published prospective longitudinal study of disordered gambling incidence, and this was not the primary purpose of this research (Cunningham-Williams, Cottler, Compton, & Spitznagel, 1998).

A comprehensive search of MEDLINE, Health-STAR, Current Contents and Web of Science databases revealed only a small number of gambling-related articles in public health journals or articles in public health journals or articles published in peer reviewed journals that had gambling-related titles and were of public health relevance. Table 3 summarizes the dates, formats and sources of these public health articles.

To date, the *Canadian Public Health Association Journal* has not published any articles dedicated to gambling.

Public Health Practice

The first community-based initiatives in public awareness concerning the risks of gambling and the existence of a medical condition called "compulsive gambling" were promulgated through non public health organizations. The United States National Council on Problem

Table 3
Gambling Articles of Public Health Relevance

Name of Journal	*Date*	*Title*	*Authors*	*Description*
American Journal of Public Health	1994	The Prevalence & Demographics of Pathological Gamblers: Implications for Public Health	Rachel A. Volberg	Article
American Journal of Public Health	1998	Taking Chances: Problem Gamblers & Mental Health Disorders—Results From the St. Louis Epidemiologic Catchment Area Study	Renee M. Cunningham-Williams, Linda B. Cottler et al.	Article
American Journal of Public Health	1998	Problem gamblers, problem substance users, and dual-problem individuals: an epidemiological study.	William Feigelman, Lynn Wallisch, Henry Lesieur	Article
American Journal of Public Health	1999	Estimating the Prevalence of Disordered Gambling Behavior in the United States & Canada: A Research Synthesis	Howard J. Shaffer, Matthew N. Hall, & Joni Vander Bilt	Article
Journal of Public Health Policy	1981	Lottery Justice	Dan E. Beauchamp	Editorial
British Medical Journal	1995	Gambling with the nation's health? The Social impact of the National Lottery needs to be researched	Martin McKee, Franco Sassi	Editorial

British Medical Journal	1995	Gambling with the nation's health? Inability to reason statistically is prime cause of lottery fever	Raj Persaud	Letter
British Medical Journal	1995	Gambling with the nation's health? Doctors should concentrate on more serious issues.	Frada Eskin	Letter
Canadian Medical Association Journal	1996	Physicians say government-approved love affair with gambling sure to cause problems	Gil Kezwer	Cover Story
Medical Journal of Australia	1988	What's the big deal?: Aboriginal gambling in the Kimberly region	Ernest Hunter & Randolph Sparo	Aboriginal Health
Journal of the American Medical Association	1968	Gambling & the Gambler	Anonymous	Editorial
Journal of the American Medical Association	1989	In treating the pathological gambler, MDs must overcome the attitude, 'Why bother?'	Dennis L. Breo	At Large
Journal of the American Medical Association	1996	For Some American Indians, Casino Profits Are a Good Bet for Improving Health Care	Joan Stephenson	Medical News & Perspective
Journal of Occupational & Environmental Medicine	1998	Exposure of Casino Employees to Environmental Tobacco Smoke	Douglas Trout, John Decker, Charles Mueller, John Bernert, James Pirkle	Article

Table 3 (*Continued*)

Name of Journal	*Date*	*Title*	*Authors*	*Description*
American Journal of Industrial Medicine	1999	Gambling, Drinking, Smoking & Other Health Risk Activities Among Casino Employees	Howard J. Shaffer, Matthew N. Hall, & Joni Vander Bilt	Article
New England Journal of Medicine	1988	Vegas Neuropathy	Howard R. Jarrell	Letter to Editor
American Psychologist	1986	A Public Mental Health Issue. Risk-Taking Behavior & Compulsive Gambling	Cecil P. Peck	Article
Psychological Reports	1989	Suicides at the Casino	David Lester, Donald Jason	Article

Gambling was founded in 1972 and the Canadian Foundation on Compulsive Gambling in 1983. The Connecticut Council on Problem Gambling was established in 1980 and became the first state affiliate of the United States National Council on Problem Gambling. Mississippi, Iowa and Minnesota pioneered early public health strategies. State councils on compulsive gambling primarily operate public education and gambling help lines, forms of primary secondary prevention. The Missouri Gaming Commission offers a unique, lifetime, voluntary exclusion program for the problem gambler.[3] In Canada the first public expenditures for gambling-related health services were made in New Brunswick during 1993 to fund its help line service. Currently, 9 out of 10 provinces allocate monies for gambling treatment.

Throughout North America, only a limited number of local health departments have been engaged in the debate about gambling and its impact on the public's health and welfare. For example, a Canadian Medical Officer of Health in Mississauga, Ontario proposed community criteria which local governments must meet before introducing video lottery terminals (VLTs) (Cole, 1998). Atlantic City, New Jersey, a major destination casino resort, participates in the Healthy Cities Project, an international public health movement that it joined in 1993 (Anthony, 1998). A community health assessment carried out in 1996 identified adolescent health, substance abuse and violence as essential health issues. While this assessment acknowledged the economic benefits of casinos, it also recognized that casino employees noted workplace stress as a concern.

In 1998, the Addiction Research Foundation, a division of the Toronto-based Center for Addiction and Mental Health, reported on the impact of a casino in Niagara Falls, Canada one year after its opening (Room, Turner, & Ialomiteanu, 1998). The research found that residents of Niagara Falls gambled more and gambling-related problems had increased since the introduction of the casino. However, the residents report enjoying their casino and believe the casino created less severe problems than had been anticipated. On Prince Edward Island, a group of family doctors successfully persuaded the provincial government to remove VLTs from convenience stores. At the federal level, Health Canada has yet to show a strong interest in gambling but has changed its addiction program name to Alcohol, Drugs and Dependency Issues to acknowledge the existence of gambling addiction. Neither the American nor Canadian Public Health

Associations have identified gambling as an established public health interest category.

To support the development of a new public health perspective for gambling, the remainder of this article will focus on the application of a public health paradigm and its value for understanding gambling and dealing with gambling-related problems.

AN ANALYSIS OF GAMBLING FROM A PUBLIC HEALTH VANTAGE POINT

The Value of a Public Health Perspective

As we begin to develop this new public health approach toward gambling, it is fundamental that we first consider the reasons this is a valuable perspective. Unlike narrower clinical models of gambling, a public health perspective addresses all levels of prevention as well as treatment and rehabilitation issues. It promotes the welfare of individuals by fostering healthy, strong and safe families, communities, and workplaces. It views the individual within a social milieu and explores the influence of cultural, family, and community values on behavior. It looks not only at the behavior of individuals but at organizational and political behavior. It examines public policy (e.g., income, education, health care, and employment) and asks whether the policy fosters or discourages health. It views behaviors along a health-related continuum (i.e., health enhancing or illness producing, rather than as the sick/well dichotomy of health care practice). A public health vantage point encourages the application of a conceptual continuum to the range of risk, resiliency, and protective factors that can influence the development and maintenance of gambling-related problems. A public health perspective also offers an integrated dynamic approach that emphasizes a "systems" view rather than a primary focus solely on individuals or isolated events. It addresses opportunities as well as constraints. By appreciating these relationships and interactions, a public health perspective allows for a comprehensive analysis of the biological, behavioral, social and economic determinants of health and illness. It also leads to multiple strategies and points of intervention.

Although we are advancing a public health model for understanding and responding to gambling-related concerns, it is worth noting

that this position is not without its potential opposition. Perhaps a public health posture will stimulate new ethical concerns about an activity that can result in significant harm or abuse. Similar concerns have arisen regarding the promotion of low-level alcohol use to enhance cardiovascular health (Harrison, 1998). Likewise, a public health strategy toward gambling could result in a community health backlash around the introduction of a public health agenda for what is commonly thought of as a "vice." This situation could arouse conflict with other health service providers (e.g., addiction, mental health, and prevention specialists) because of increased competition for available but limited funds, lack of agreement regarding its priority or resentment about the need to integrate gambling into currently funded programs. By embracing the gambling issue, organized public health groups could provoke anger and resistance from other established health interest groups that become concerned about the risk of losing their niche within the broader community. Notwithstanding the fact that these matters also deserve consideration, our purpose is to focus on the value of adopting a public health model for understanding and dealing with gambling and gambling-related problems.

The following section explores gambling through five primary domains within a contemporary public health perspective: (1) concepts of health and illness, (2) health promotion, (3) epidemiology and disease control, (4) population health, and (5) human ecology. This discussion will review these major conceptual themes, strategies and methodologies and highlight common ground for understanding and dealing with gambling. In addition, this section will focus on gambling within its broadest context including considerations of public policy, community health and individual problems.

Concepts of Health and Illness

The World Health Organization (World Health Organization, 1984; World Health Organization, 1986) characterizes health as the extent to which an individual or group is able, on the one hand, to realize aspirations and satisfy needs and, on the other hand, to change and cope with their environment. It is a positive concept emphasizing social and personal resources as well as physical capacities. Health is viewed as a dynamic process and as a resource for living rather than an end in itself. The achievement of optimal health is facilitated by bal-

ancing its physical, emotional, intellectual, social, and spiritual dimensions. There is a well-being continuum (Travis & Ryan, 1981) ranging from optimal health through disease, disability and death. The medical care paradigm establishes an arbitrary constellation of signs, symptoms and tests, which define a case at a point along this health/illness continuum.

A public health viewpoint encourages consideration of gambling activities as a continuous variable. More specifically, people's gambling behavior can range from none to a great deal. At many points along this continuum, people can experience problems associated with their gambling, though these difficulties tend to emerge more among frequent gamblers who wager at higher levels. The point of demarcation between moderate and severe problems and addiction is somewhat arbitrary. Figure 1 illustrates a gambling behavior continuum.

The American Psychiatric Association, in its DSM-IV, classifies "pathological gambling" as a mental disorder from the impulse control disorder category. Technically, impulse disorders are not addictions, though addictive behaviors often have an impulse control component. Both impulse disorders and addictive behavior patterns reflect a continuum of activities. A public health perspective encourages a more comprehensive analysis than that suggested by existing diagnostic nomenclature. For example, the DSM-IV does not include provisions for gambling-related problems that fail to satisfy the diagnostic criteria for

Figure 1
Spectrum of Gambling Behavior

the most serious form of this disorder. As with other health problems (e.g., alcohol misuse that does not satisfy criteria for abuse or dependence disorders), sub-clinical gambling problems are meaningful, have social costs, and influence the health and welfare of the public. These problem behaviors lend themselves to various secondary prevention strategies, including screening in clinical settings and problem gambling help lines.

We will utilize these broad concepts of health and illness later when we discuss the negative consequences of gambling, suggest potential health benefits and introduce the notions of healthy and unhealthy gambling.

Risk and Society

All human activity contains some degree of risk.[4] North American society encourages risk-taking and novelty-seeking behaviors through a plethora of folkways and mores. Epidemiologists have studied behavioral risk factors for illness, injury and death extensively. Public health workers characterize risk factors with terms such as predisposing, precipitating, enabling or reinforcing (e.g., Evans, Barer, & Marmor, 1994; Green & Kreuter, 1991).

High-risk behavior can result in negative health consequences. When problems arise from risk-taking activities (e.g., drug taking, drinking, unprotected sex, driving dangerously), there inevitably is an impassioned plea for the development and implementation of prevention initiatives. On the other hand, some behaviors are health enhancing, maintaining, or protective (e.g., exercise and low-fat diets). For example, the 1980s spawned a powerful personal health movement that focussed on healthy lifestyles, informed choice and self-responsibility. This movement stimulated the public's attention to improve their health by regulating diet, exercise, stress, smoking and drug and alcohol consumption.

In the face of few and often conflicting health-related messages, the public's attitude toward gambling has been ambivalent and often perplexed. For example, messages about gambling involvement often reflect concurrent approval, discouragement and reward. Industry and government advertising promotes "gaming entertainment" as an attractive way to spend discretionary recreational dollars; simultaneously, health interests have shaped messages to caution about the risks of

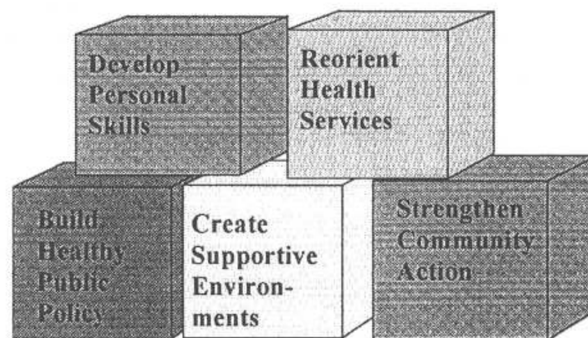
gambling and poverty. Similarly, opponents of gambling have focused on and promoted the issue of gambling-related crime.

Regardless of the existing messages, as a recreational risk-taking, sensation-seeking, and novelty-seeking activity, gambling can have a variety of consequences. Gambling behavior can stimulate both adverse and healthy consequences. Public health workers have an opportunity if not a social obligation to clarify the messages about gambling and its potential positive and negative consequences (e.g., Klein et al., 1993; Latour, 1996). We will explore this notion in more detail later in this article.

Health Promotion

To enhance individual well-being and strengthen communities, public health practitioners have employed a health promotion strategy. Health promotion denotes all processes that empower individuals and communities to take control over and improve their well-being (World Health Organization, 1984; World Health Organization, 1986). In 1986, the World Health Organization produced The Ottawa Charter and Framework, a landmark document on health promotion (World Health Organization, Health and Welfare Canada, & Canadian Public Health Association, 1986). As Figure 2 illustrates, this document outlined five primary strategies for public health action:

Figure 2
The Ottawa Charter for Health Promotion



A. *build healthy public policy* to ensure that policy initiatives in every sector promote health-sustaining conditions;
B. *create supportive environments*, that is, establish physical, social, economic, cultural and spiritual environment that maintain and enhance the health of people;
C. *strengthen community action* so that communities have the capacity to set priorities and make decisions on issues that affect health;[5]
D. *develop personal skills* to enable people to have the knowledge and tools to meet life's challenges and to contribute to society; and
E. *reorient health services* to recognize the needs of the whole person and foster partnerships among providers and users.

An appreciation of these concepts is central to exploring the relationship between gambling and health. Later in this article, we will use these health promotion strategies to form the framework for public health action steps and recommendations in the field of gambling.

Mental Health Promotion

Mental health promotion is the process of enhancing the capacity of individuals and communities to take control over their lives and improve their mental health. It uses strategies that foster supportive environments and individual resilience (Centre of Health Promotion, 1997; National Assembly of National Voluntary Health and Social Welfare Organizations, 1994). Mental health promotion principles include a holistic approach to mental health, meaningful participation by consumers in decision-making that effects them and a belief in the intrinsic capacity of people for determining their mental health (Joubert & Raeburn, 1997; Mauricette, 1998; Willinsky & Pape, 1997). A mental health promotion approach to gambling allows for an exploration of both the potential health benefits as well as the negative consequences as part of an overall consideration of gambling's impact on individuals and communities.

Epidemiology and Disease Control

Scientists have applied epidemiological and communicable disease control concepts and nomenclature (i.e., epidemic, pandemic,

endemic, and hyperendemic)[6] to other health and social problems such as crack cocaine and violent crime. Some observers have noted that the magnitude of contemporary gambling suggests that North America is experiencing an "epidemic" of gambling (e.g., American Academy of Pediatrics, 1998). However, epidemiological research (Shaffer, Hall, & Vander Bilt, 1997) suggests the need for a more complex analysis. For example, within substance abuse and psychiatric populations, the prevalence of disordered gambling as a health problem remains "endemic." However, within the general adult population, the increasing prevalence suggests that an "epidemic" model may better apply. To clarify this kind of characterization, prospective epidemiological studies are needed for specific risk groups, sub-populations and geographic regions.

To characterize gambling problems in a more precise nomenclature than currently exists, the vocabulary of communicable disease control may be helpful. Worldwide, one may speak of the expansion of gambling as a "pandemic." Groups at risk of developing gambling-related harms may be termed highly "susceptible." From a public health perspective, we can characterize the prevention of gambling-related problems as a form of "prophylaxis," and coping skills as the development of "resistance." "Virulence" may develop as a result of advances in technology such as VLTs. Unwanted gambling environments could be thought of as "contaminated" and a "reservoir" for problems. There may be a need for "quarantine" and "disinfection." However, strategies to control gambling-related problems also may produce "adverse reactions" (e.g., side effects). This representation of gambling is not to suggest either a pro-gambling or anti-gambling position, but rather to portray gambling-related problems from a disease control perspective. This point of view is integral to a public health posture toward gambling.

There are useful lessons to be learned about a public health response to emerging gambling issues from the experience with AIDS during the early 1980s. Although there are sharp differences between gambling disorders and acquired immuno-deficiency syndrome (AIDS), each has been associated with stigma, high-risk behavior, and professional indifference. The history of AIDS and organized public health reminds us that initially there was sparse public health attention and a sense of denial that something new and important was emerging. Resources were not adequately mobilized and the impact

on communities was poorly appreciated. The complexity of the epidemiology was underestimated. For example, (1) there was difficulty in establishing and agreeing upon a case definition, (2) there were no reliable screening instruments and (3) diagnosis relied almost exclusively on clinical signs and symptoms in the absence of a "gold standard." Stable and reliable monitoring and reporting systems were not in place initially with either AIDS or disordered gambling. Therefore, scientists had limited opportunity to obtain epidemiological data, assess the spread of these disorders, or develop adequate control and disease management strategies.

For gambling, the AIDS legacy is to understand the way the public health system can focus on emerging issues, shift priorities and resources and create new public health action agendas and innovative approaches.

Population Health

Discussion among health professionals regarding the impact of gambling and health has focussed primarily on individuals and their risk of gambling addiction. Within society at-large, decisions about gambling expansion often revolve around the debate between potential economic benefits and social costs to the community as well as to the impact on vulnerable groups and at different life stages.

Population health is a framework that attempts to improve the health status of the entire population. Population health examines the economic and social determinants of health and provides an explanation of health beyond the biomedical (Evans et al., 1994). Population health scientists analyze empirical data to describe the relationship of income, employment, poverty, social status and community economic development to the health status of geographic communities and other population groups. A particular focus is the variance in health status indicators among subgroups within the general population.

Population health studies demonstrate that economic well-being in general and income in particular are key determinants of health. Wealth and its generation or loss is largely correlated with the health status of various segments of the population. Population health studies can contribute a scientific basis to public health and provide a vehicle to analyze and understand the central questions and controversies in

the gambling and health field. Issues that could be addressed through population health methodology include the following:

- Do low-income groups spend a higher percentage of income on gambling than middle- or upper-income groups?
- Do the elderly spend a higher percentage of income on gambling than other adult groups and thus redistribute wealth away from this vulnerable population?
- Do types of gambling (e.g., bingo, casino, lottery, and pari-mutuel) have a social class differential and if so, what are the implications for health status and social policy?
- Does the general adult population spend discretionary or essential income on gambling?
- Is job creation in the gaming and leisure sector "new" or merely a redistribution of employment within a community?
- What are the long-term economic impacts of gambling on local communities (e.g., job creation, viability of gaming industry, growth in tourism and hospitality sector, local government revenue, income and property tax)?
- What are both the short- and long-term social impacts of gambling (e.g., crime, mental health, mental illness, substance abuse, and gambling addiction) and what are the key indices to be measured?

There is some evidence that lotteries, bingo games and casinos attract disproportionate numbers of seniors and members of the community from lower socio-economic strata (e.g., Clotfelter & Cook, 1989; Lopes, 1987). If further research substantiates this data, then gambling serves a role similar to a voluntary regressive tax for low income and vulnerable groups by placing a heavy burden on them in generating government revenue. This is a major social policy issue and deserves additional in-depth study.

On the other hand, charity gaming represents a powerful example of the positive contribution of gambling revenues to strengthen community capacity and support a variety of worthy local programs. Similarly, Native American gaming, particularly in the United States, has reshaped the economic base of many tribes and created new revenue streams for health, social and educational programs.

A population health analysis of gambling can assist policy makers,

local planners, and community members to understand its implications within a broad health framework. It can contribute scientific study to the key societal challenges of creating and sustaining economic prosperity, social stability and personal well-being.

Human Ecology

A human ecology paradigm integrates human health, environmental and economic concerns with concepts of interdependency, sustainability and community (Chu & Simpson, 1994). There are three human ecology concepts relevant to gambling: (1) the classic public health model for communicable diseases, (2) environmental risk appraisal, and (3) community health assessment.

Classic Public Health Model. As described previously in the introduction, the classic public health model for communicable disease control can be applied to understanding the gambling phenomenon and its health consequences. As noted earlier, this model elucidates the interaction among host, agent, environment and vector (Figure 3). The complex interaction among these factors can produce a range of possible adverse outcomes. As applied to gambling, this model can describe the determinants of disordered gambling and their interrelationships (Figure 4). This model also invites consideration of a broad range of prevention and treatment strategies directed at various features in the model.

Figure 3

A Public Health View of Comunicable Disease

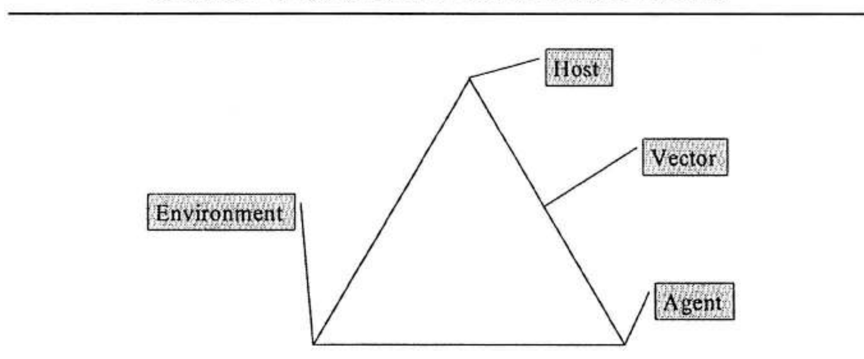
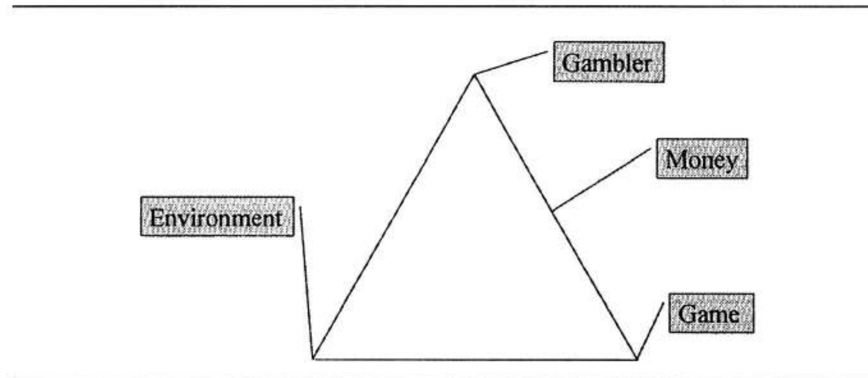


Figure 4
A Public Health View of Disordered Gambling



Environmental Risk Appraisal. Environmental health approaches utilize the methodology of comprehensive risk and impact assessment (Simpson, 1994; Stokols, 1992). New pesticides, for example, must undergo rigorous toxicology assessment incorporating both risk/benefit and economic analysis before licensing. When a community considers introducing a new waste disposal facility, there is a requirement for a comprehensive environmental impact study before approval.

When political and corporate decision-makers consider new forms and venues for gambling, we suggest that local communities adopt standards and procedures for determining environmental impact similar to those applied in other areas of development. In both environmental health issues and gambling, people tend to be accepting as long as it is "not in my back yard." With gambling, the tendency has been to site casinos at destination resorts, on riverboats and Native reserves. In the future, when public policy makers site gambling venues, there will be a need to assess the public health implications for the host communities. These consequences include health status, economic sustainability, projected social costs and benefits, the effect on the physical environment and the impact on local community values. To facilitate a balanced risk appraisal of environmental risks, communities need both an analytic framework and consultation guidelines to guide the process.

Community Health Assessment. Community health assessment is intended to provide information to community stakeholders and em-

power them to make decisions on community direction and important local matters (Durch, Bailey, & Stoto, 1997). It has been associated with the Healthy Communities and Healthy Cities Movement of the WHO (Hancock & Duhl, 1986). The focus of a community health assessment is on the assets, capacities and needs; this focus permits public health workers to strengthen the fabric of community life and improve community health (Hancock & Minkler, 1997; Kretzmann & McKnight, 1993). It takes into consideration the various sectors within the community such as education, criminal justice, health care and recreation. When community is defined as the municipal boundaries of a local jurisdiction, there is opportunity to involve local government in the health agenda. In reviewing a wide range of literature, Hancock and Duhl (1986) suggest the key elements of a healthy community include a sustainable ecosystem, a non-exploitative environment, basic needs of safety and work, and a vital and diverse economy.

As applied to gambling expansion and community impact, there is an opportunity for local communities and their elected officials to use this methodology. First there is the necessity to articulate the purpose, intent and objectives of introducing new gambling. If a decision is made to proceed, then the community can determine the key indicators it wishes to measure and monitor over time. This data can form the basis of an accountability framework to evaluate outcomes, make comparisons with other jurisdictions and determine success. We suggest that the indicators selected be in three categories: quality of life,[7] health status and economic vitality.

CONSIDERING AN ADDICTIONS PERSPECTIVE

Conceptual Considerations[8]

Clinicians, researchers, and the public generally consider problem and pathological gambling to reside within the domain of addictive behaviors (Orford, 1985; Shaffer, 1996; Shaffer, 1997a). An addiction definition of problem gambling is that of a disorder characterized by a continuous or periodic feeling of loss of control over gambling, preoccupation with gambling and money with which to gamble, irrational thinking about odds and winning, and continuation of gambling despite adverse consequences to self, family, and work.[9] A model for understanding the dynamics of alcohol and other drug addiction has

been described that explores the relationship and contribution of drug, set and setting to the drug use experience (Zinberg, 1975; Zinberg, 1984). This paradigm resembles the classic public health triad of host, agent and environment for communicable disease and is congruent with the model proposed for gambling (see Figures 3 and 4).

Although there are important commonalities between disordered gambling and substance abuse, there also are significant differences. For example, gamblers, in contrast to substance abusers, do not introduce chemicals into their bodies to achieve the desired effects. Thus, there is no toxic damage to organs due to substances (e.g., liver cirrhosis in alcoholism or chronic obstructive lung disease with smoking). In spite of no need to detoxify pathological gamblers for chemical dependence—though there is evidence reported that physical withdrawal symptoms from pathological levels of gambling do exist (e.g., Wray & Dickerson, 1981)—pathological gamblers experience psychological withdrawal. Further, in spite of the absence of psychoactive drug use, there is emerging evidence that like alcoholism and chemical dependence, gambling disorders are related to genetic vulnerabilities (e.g., Comings, 1998) that include a tendency for novelty seeking (e.g, Benjamin et al., 1996; Ebstein et al., 1996) and potentially pathological shifts in neurotransmitters (e.g., Bergh et al., 1997; DeCaria et al., 1998). Finally, the social perception of stigma is common to the full range of addictive behaviors including pathological gambling (Shaffer, 1987; Shaffer, 1991).

In the following section, we will examine the shared concepts among gambling and alcohol, tobacco, and illicit drug use. In addition, we will consider the practical implications for gambling from each of these areas.

Comparing Gambling with Other Addictive Behaviors

Beverage Alcohol and Drinking. From the perspective of prevention and control strategies, the public health experience with beverage alcohol provides a strong parallel to gambling. Both alcohol and gambling are legal for adults, heavily marketed and highly regulated. Governments earn substantial tax revenue from each industry. Each industry positions itself as an entertainment or a recreational pursuit. Both alcohol and gambling were prohibited early in the twentieth century but are now sanctioned by government. Prevention efforts primarily focus on personal responsibility and healthy choices for adults.

Laws prohibit underage drinking and gambling. Messages directed to young people emphasize understanding peer pressure, promoting healthy lifestyles, and teaching refusal skills.

Responsible alcohol use programs and guidelines are well established in the field. They include low risk drinking guidelines, recommendations to avoid binge drinking, municipal alcohol policies to reduce liability, moderation approaches for treating problem drinking, server intervention programs, limiting alcohol availability, and industry messages promoting responsible drinking. The themes of social responsibility and associated strategies noted for alcohol have application to the gambling field. A corporate example of social responsibility was recently illustrated by the American Gaming Association with their new responsible gaming PROGRESS initiative (American Gaming Association, 1999).

In the area of health promotion, there is extensive public information directed to various segments of the population about the use and potential abuse of alcohol. Public health messages in the alcohol field address issues such as choice, consumption and risk. For example, there is the public policy theme recommending that if people choose to drink, they should do so moderately and in low risk situations. To date, no similar broad public awareness and communication strategy exists for gambling. A comprehensive public awareness and education program needs to be developed.

In recent years, there has been recognition of health benefits associated with alcohol. Empirical research has demonstrated that low-level alcohol consumption in older adults can be preventive and reduce mortality due to coronary heart disease (Ashley, Ferrence, Room, Rankin, & Single, 1994; Rehn, Bondy, Sempos, & Vuong, 1997). There has evolved the notion of "healthy drinking," the introduction of guidelines for low-risk drinking, and recently, labels on wine bottles suggesting health benefits. Although the epidemiological evidence is lacking in the gambling field, the notion of "healthy gambling" is a concept worthy of exploration and evaluation. Acknowledging both the risks and benefits of alcohol use as a public health strategy suggests that a similar balanced approach to gambling may be appropriate. Later, we will propose a number of gambling-related potential health benefits to consider.

Tobacco and Smoking. Smoking has been considered a major public health issue since the publication of the first United States Surgeon

General Report on Smoking and Health (U.S. Department of Health, 1964). This landmark report outlined the powerful epidemiological relationship between smoking and lung cancer. However, the tobacco industry continued unabated cigarette production and advertising, and challenged the scientific basis of the health findings. The tobacco industry also resisted collaborative efforts with public health workers to find solutions for the negative consequences of smoking and using other tobacco products. Consequently, there is currently a firestorm of legal action against the tobacco industry and a groundswell of negative public opinion against smoking in all its dimensions.

The gambling industry has an opportunity to learn from these mistakes. Recently there has been the creation of the Gaming Entertainment Research and Education Foundation, established to foster research and public education in the gambling field. People from academia, health care and the gaming industry compose its board of directors. The National Center for Responsible Gaming funds independent, peer reviewed research in neurobiological and behavioral dimensions of problem gambling and its prevention. Gambling-related activities, like cigarette use, hold the potential for product liability litigation. For example, as in the case of nicotine and tobacco, gambling products such as video lottery terminals (VLTs) have now been implicated in lawsuits claiming that they cause addiction (National Research Council, 1999). To date, none of these gambling-related suits has been successful.

In the tobacco field, significant progress toward a comprehensive public health approach came as a result of the second-hand smoke issue. When people realized that smoking could harm not only the individual smoker but non-users as well, public opinion shifted significantly in support of stronger tobacco control. Similarly, problem gamblers have the potential to cause harm to other members of the community. Gambling problems have been linked to family violence, child neglect and abuse, financial problems and crime (Bland, Newman, Orn, & Stebelsky, 1993; Blaszczysnki & McConaghy, 1994; Brown, 1987a; Ladouceur, Boisvert, Pepin, Loranger, & Sylvain, 1994; Lesieur & Rothschild, 1989; Lorenz & Shuttlesworth, 1983). The gambling industry has the opportunity to acknowledge and fully address the array of issues that lead to harmful family and community consequences. The casino industry already has made significant strides toward dealing with child neglect. For example, there is the American Gaming

Association program to keep unattended minors out of gaming facilities developed in partnership with the United States National Center for Missing and Exploited Children (American Gaming Association, 1998). Through the engagement of key stakeholders in meaningful dialogue and action, the gambling industry has the capacity to produce public awareness messages and prevention and harm reduction strategies. These messages and strategies can minimize or avoid both future health and social problems for others and the potential for public backlash against the industry.

Illicit Drugs. Like illicit drug use, gambling has a mystique, excitement and allure. Both gambling and drug use have been unlawful at periods during the 20th century. The illicit drug trade and gambling have the acquisition of money as a central purpose. Both represent the concept of big business. In the minds of some, these activities are linked together and have been associated with spawning deviant subcultures of crime and prostitution. These concerns have stimulated the implementation of a variety of costly law enforcement activities to prevent and combat social problems. Pleasurable experiences are associated with both activities, as illustrated by terms such as gaming entertainment and recreational drug use. At the same time, there is a strong moral dimension to both activities. These mixed messages create tensions among high-risk groups, such as youth, as to what constitutes socially desirable behavior. Both drugs and gambling exhibit jurisdictional inconsistencies. For example, an illicit drug such as marijuana can be available legally for medical purposes in some states but not in others. Similarly, certain types of gambling remain legal in some jurisdictions and not others within North America. Dice games, for example, are part of casino life in the Untied States; in Canada, the Criminal Code did not permit dice games in casinos until 1999. These shifting policies can result in considerable public confusion and controversy.

Technology plays a significant role in both drug and gambling addiction. Biotechnology has resulted in cheaper and purer drugs and more efficient drug delivery systems (e.g., smokable crack). Computer and information technology has produced new gambling products such as VLTs, often termed the crack cocaine of gambling because of the rapid action and stimulating subjective experience. Like stimulant drugs, VLTs are characterized by speed of action and powerful reward

properties that make them attractive (National Research Council, 1999).

In spite of the similarities, there are significant differences between illicit drug use and gambling. With the exception of limited medical purposes, drugs are strictly illegal. There is "zero tolerance" policy stated in workplaces and schools. The United States drug policy has been characterized as a "war on drugs." Strict legal penalties for drug trafficking and possession are enforced. Drugs are responsible for many social ills and health problems (e.g., violent crimes and AIDS). Gambling is legal, highly regulated, and widely marketed and promoted as a leisure activity by government and the gaming industry. Gambling revenues benefit governments, communities and legitimate business interests.

Finally, hard reduction strategies[10] are well established in the drug field as evidenced by needle exchange and methadone maintenance programs for heroin dependence. Canada's National Drug Strategy has been based on harm reduction principles. These concepts have application to the gambling field and will be addressed in the policy section that follows.

AN ASSESSMENT OF THE PUBLIC HEALTH IMPACT OF GAMBLING

General Considerations

There is a tradition in public health to address important, unpopular and somewhat controversial issues. During recent years, this has included framing violence in society and gun control as legitimate areas for public health involvement. A public health approach to gambling is valuable because it offers a broad viewpoint on gambling per se and not solely a focus on the more specific matter of gambling addiction. This position is consistent with public health approaches toward school, tobacco and other drugs.

Balancing Costs and Benefits

As mentioned earlier, there has been a general policy trend toward gambling expansion in North America that has increased the

availability of gambling opportunities for individuals. A public health position recognizes that there are both costs and benefits associated with gambling. These considerations affect all aspects of the community, including health, social and economic issues. This proposition is essential to any analysis of community issues associated with gambling because the resulting interventions must balance both gambling costs and benefits. Only after weighing these matters can a public health strategy be developed that resolved important concern and supports worthwhile initiatives.

The Costs. Let us first address the health and social costs of gambling by reviewing the negative consequences of gambling in general. The scientific literature and the lay media have attributed a range of difficulties for individuals, families and communities that may be related indirectly or directly to gambling (e.g., Ladouceur et al., 1994; Lesieur, 1998). These unintended negative consequences can include: (1) *gambling disorders*—a term which has been used to encompass a spectrum of problems experienced along the continuum which incorporates the constructs of problem and pathological gambling (e.g., Shaffer et al., 1997); (2) *family dysfunction and domestic violence* including spousal and child abuse (Bland et al., 1993; Heineman, 1989; Jacobs et al., 1989; Lesieur & Rothschild, 1989; Lorenz & Yaffee, 1988; Moody, 1989; Wildman, 1989); (3) *youth and underage gambling* (e.g., Eadington & Cornelius, 1993; Shaffer & Hall, 1996; Shaffer et al., 1997; Shaffer, Hall, Walsh, & Vander Bilt, 1995a); (4) *alcohol and other drug problems* (Crockford & el-Guebaly, 1998; Cunningham-Williams et al., 1998; Lesieur & Heineman, 1988; Shaffer, Vander Bilt, & Hall, 1999; Smart & Ferris, 1996; Spunt, Lesieur, Hunt, & Cahill, 1995; Steinberg, Kosten, & Rounsaville, 1992); (5) *psychiatric conditions* including major depression, bipolar disorder, antisocial personality, anxiety and attention deficit disorder (e.g., Blaszczynski & Steel, 1998; Crockford & el-Guebaly, 1998; Cunningham-Williams et al., 1998; Horvath, 1998; Knapp & Lech, 1987; McCormick, 1984; Rugle & Melamed, 1993; Shaffer et al., 1999); (6) *suicide, suicidal ideation and suicide attempts* (Bland et al., 1993; Crockford & el-Guebaly, 1998; Cunningham-Williams et al., 1998; McCleary et al., 1998; Phillips, Welty, & Smith, 1997); (7) *significant financial problems* including bankruptcy, loss of employment and poverty as a direct result of wagering (Blaszczynski & McConaghy, 1994; Fessenden, 1999; Gerstein et al., 1999a; Gerstein et

al., 1999b; Ladouceur et al., 1994; Lesieur, 1998; Marshall, 1998); and (8) *criminal behavior* ranging from prostitution and theft to drug trafficking and homicide (Brown, 1987b; Gerstein et al., 1999a; Lesieur, 1987; National Research Council, 1999; Smith & Wynne, 1999).

Determining the causal relationship between gambling involvement and each of these activities is a thorny matter. Research suggests that gambling may have a negative impact on health as a result of associated crime, substance abuse, poverty and domestic violence (e.g., National Research Council, 1999). In many instances, however, it is difficult to separate cause from effect. Do criminals gamble, or do gamblers become criminals? Do people with psychological disturbance gamble to treat their emotional circumstance (e.g., Khantzian, 1997), or does gambling stimulate emotional disturbances (e.g., Vaillant, 1983)? Like the use of psychoactive substances, these relationships likely are "dose"-related (i.e., the amount of money gambled and frequency of gambling). As with the positive consequences of gambling, more research is necessary to resolve these important questions.

Estimates of the health, social and economic costs of problem and pathological gambling have been proposed but the methodologies deserve further refinement. An example of an unsubstantiated but commonly cited estimate (e.g., Goodman, 1995) for the annual cost to society of each pathological gambler is $13,200 (US) or $20,000 (CAN). A recent estimate by the United States National Gambling Impact Study Commission of the annual cost for problem and pathological gamblers is $5 billion (US) per year and an additional $40 billion (US) in lifetime costs for productivity reductions, social service, and creditor losses (Gerstein et al., 1999a). Politzer, Yesalis and Hudak suggest that each problem gambler negatively affects 10–17 people around them including family, employer and government (Politzer, Yesalis, & Hudak 1992). The relationship between access to gambling settings and gambling problems is widely debated. Gerstein et al. (1999) reported in their combined patron and telephone survey that the availability of a casino within 50 miles is associated with double the prevalence rates of problem and pathological gamblers. To understand fully the overall impact of gambling on society, a significant research effort is necessary to describe thoroughly the complex interaction among these health, social and economic variables, as well as their short and long term costs.

The Benefits. Health care, addictions or public health professionals have not considered the possibility of positive health benefits from gambling. To date, with one notable exception (Rosecrance, 1988), the study of gambling behavior has ignored the possibility of health gains associated with gambling. However, there are potential health benefits for both the individual and the community that gambling may stimulate. Although there is yet little empirical data to support this viewpoint other than commercial market research, there is a theoretical basis to suggest the likelihood of gambling-related health benefits based on health notions introduced earlier. Further, the possibility of "healthy" gambling may help to explain the attraction of gambling, since people in general are inclined to make healthy adaptations in their lives.

Gambling affects the emotional, intellectual, physical and social dimensions of an individual's health. The concept of mental health promotion provides a promising new frame of reference and vocabulary for examining the potential health benefits of gambling. This approach to gambling and health examines the population groups affected by gambling, their mental health promotion goals and the settings in which these are realized. For example, gambling can provide a sense of connectedness and socialization through discretionary leisure time entertainment. Like going to a movie, being at a pub or participating in physical activity, going to a casino or horse race may provide a healthy change and respite from the demands of everyday life or social isolation. This may be particularly important for older adults.

Gambling can be viewed as a form of adult play (Smith & Abt, 1984). While scientists have long recognized the importance of play for the healthy development of children (Weiss, 1995), play also may be particularly important for adults (Ackerman, 1999; Driver, Brown, & Peterson, 1991; Kelly, 1982). Children play card games, board games and video games while adults play black jack, bingo and video slot machines. In addition to providing fun and excitement, some forms of gambling can enhance coping strategies by building skills and competencies such as memory enhancement, problem solving through game tactics, mathematical proficiency, concentration and hand to eye physical coordination.

Perhaps best illustrated by lottery play, many gamblers have a sense of hopefulness that they can "beat the odds" over time and ac-

quire fabulous new wealth. Although the probabilities of winning are extremely unfavorable, players are engaged and reinforced at the possibility of winning by regularly seeing real people like themselves in the media who win.

The mental health literature demonstrates that physical activity such as cycling, jogging, yoga, fencing or weight lifting can reduce stress, anxiety and depression (Benson, 1984; Hays, 1999; Martinsen, 1990; Raglin, 1997). We hypothesize that some individuals may derive similar effects from certain forms of gambling—though we cannot yet predict which people will benefit and which will not. Like exercise, certain gambling activities through recreational diversion may be associated with the ability to manage stress,[11] which can affect a person's vulnerability to disease.

Health benefits can accrue to communities through gambling-related economic development. Empirical data from population health studies demonstrates a direct relationship between income, employment and health status, as described earlier in the article. Local communities, particularly those with economic problems, can gain significant economic benefit through gambling (National Research Council, 1999). Casinos, for example, can act as a community catalyst for economic development. The benefits generally include the creation of jobs in the gaming industry, and stimulus to other sectors such as tourism and hospitality. However, observers should interpret projected community health status improvements associated with gambling expansion and local economic development with caution because these economic gains must be sustainable to have positive health impact. As yet, other than for originally impoverished areas, these long-term economic gains for communities have not been demonstrated and currently rest on a complex analysis of projected economic benefit and wealth generation (Nadler, 1985; National Gambling Impact Study Commission, 1999; National Research Council, 1999).

Where charity gaming exists, for example bingo, gambling-generated monies can go directly to support local non-profit and charitable organizations in areas such as education, environment, and youth sport organizations. This additional source of revenue can strengthen community capacity by enhancing the health, social service, recreational and cultural infrastructure. Importantly, gaming generates revenue for state, provincial and municipal governments, which can mitigate the pressure to raise funds through increased taxation.

For communities, groups and individuals, the central public health question is whether gambling adds or detracts from the quality of life. The following discussion provides an outline that can assist people to understand the relevant issues and make balanced decisions in this complex matter.

An Overview of the Major Public Health Issues and Challenges

The dominant health concern associated with gambling, namely the emergence of disordered gambling, appears to be stimulated by the rapid expansion, increased availability, and promotion of casinos and lotteries. Although disordered gambling is a central concern, there are a number of other significant public health issues related to vulnerable populations, families and communities. For example, the high prevalence of youth and underage gambling-related problems (e.g., Shaffer & Hall, 1996; Shaffer et al., 1997; Shaffer et al., 1995a), including sports betting at colleges and universities, is a serious concern. The notion that gambling can act like a regressive tax on the poor and a significant contributor to income redistribution from certain vulnerable groups to the rest of society deserves close study (e.g., Clotfelter & Cook, 1989). The impact of gambling on the quality of life for families is often mentioned including concerns about dysfunctional relationships, neglect, violence and abuse (e.g., Crockford & el-Guebaly, 1998; Knapp & Lech, 1987; Shaffer et al., 1995a).

There is a public and professional perception that disordered gambling can be "a gateway" to substance abuse, depression, and other mental health problems (e.g., Crockford & el-Guebaly, 1998; Epstein, 1989; Kandarian, 1998; Lakshmanan, 1996; Quinn, 1891). Observers have juxtaposed suicide and crime with gambling and have attracted considerable public health attention for these distinct issues of concern. While some studies have suggested a correlation between gambling and suicide (e.g., Phillips et al., 1997), a causal link has not been established (e.g., McCleary et al., 1998). Special issues associated with an increased risk for problems among seniors, aboriginal, other minorities and women are frequently mentioned concerns and need further study. Some groups view the introduction of new gaming technologies such as in the wide availability of VLTs, the existence of unregulated offshore and Internet gambling, as worrisome (National Association of Attorneys General, 1996).

The implications of expanded gambling for the viability, health, and quality of life for local municipalities have been debated hotly (e.g., Goodman, 1995; Hornblower, 1996; Kindt, 1994). This discussion reflects community values and priorities; however, it also echoes planning assumptions surrounding a whole range of social, economic and health dimensions of community life. From a social policy perspective there is a need for a comprehensive study of these various aspects of community to determine which groups gain and lose when gambling is expanded into a new jurisdiction. United States and Canadian political decisions to generate state and provincial revenue through lottery and casino operations rather than new taxes has raised the issue of good governance and the impact on society of governmental dependence on gambling. As mentioned before, one area that has received little attention to date is gambling which occurs in the financial world of day trading, commodity and future markets as well as hedge funds. Although not traditionally considered as gambling, these activities often meet the definition of gambling. High-risk and impulsive financial trading can have profound impact on individuals and social institutions.

AN AGENDA FOR PUBLIC HEALTH ACTION

The late Dr. Jonathan Mann said many times that the way you define a problem will determine what you do about it. He illustrated this best with the issue of AIDS (Mann et al., 1994). By framing the AIDS epidemic as not only an infection control issue, but also a matter of social justice, he changed the way health organizations around the world responded.

Throughout this century, public health has achieved great success in the field of infectious disease control, food safety and immunization. More recently, less traditional issues such as gun control, injury prevention and domestic violence have been dealt with as public health matters. Today health behaviors such as diet, smoking and drinking that are extremely complex and still poorly understood account for a significant burden of morbidity and mortality, and represent the next public health frontier (Foege, 1998). In the case of gambling, Jonathan Mann's statement on framing is most timely. With respect to the emerging issue of gambling, until now, organized public

health has been underrepresented in the policy arena, research field, and community problem solving. This section proposes a public health approach to a framework and action plan for gambling.

Creating a Public Health Framework

Currently, no body of public health theory or strategy has been applied to gambling. However, there is a significant opportunity to contribute public health skills, methodologies and perspective. We believe there is scope to create a relevant public health perspective that we will term a "*gambling and health framework.*"

An initial step in the development of this framework is the determination of appropriate, conceptually sound terminology. The languages of constituencies shape the analysis of gambling. To illustrate, critics tend to describe gambling in ethical and moralistic terms using language such as "intemperate," "frivolous" or "unproductive"; these constructs tend to bias the discussion toward an emphasis on social cost. Treatment professions use terms such as "compulsive," "addictive" and "disordered" gambling that imply psychopathology and maladaptive behavior. Gambling proponents use the term "gaming" and position it as entertainment and recreation while focussing on job creation, revenue generation and the economic benefits to local communities. Governments and most stakeholders in this discussion make reference to "responsible gambling." This notion has moral connotations and can be ambiguous. Responsible gambling can imply either informed choice about gambling, advocacy of gambling, or subtly place the responsibility for gambling problems with the individuals that struggle against their impulses.

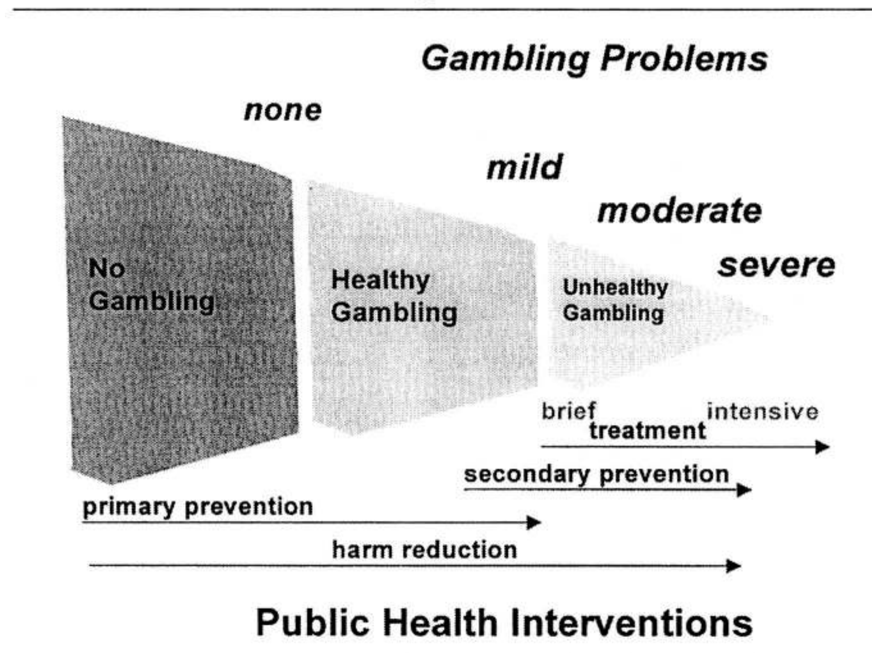
In the mental health and addictions field, the most common terms used today are "problem gambling" and "pathological gambling." To create a public health focus on gambling that emphasizes the spectrum of gambling behaviors, prevention[12] and harm reduction, we will use the term "*gambling problems.*" This phrase is meant to reflect all patterns of gambling behavior that compromise, disrupt or damage personal, family or vocational pursuits and leads to adverse consequences. These gambling problems may be mild, moderate or severe.

To link appropriate "*public health interventions*" to gambling problems, the gambling and health framework builds on the conceptual work of Skinner in the alcohol literature (Institute of Medicine, 1990;

Skinner, 1990). Figure 5 adapts this concept to the gambling field. In addition, we propose a new public health concept of "*healthy and unhealthy gambling*" that builds upon the WHO definition of health. This approach complements the terminology of healthy people, families and communities and reflects the distribution of gambling behaviors in North America.

Empirical support will be necessary to validate the idea of healthy gambling and the associated health benefits outlined above. Healthy gambling represents informed choice on the probability of winning, a pleasurable gambling experience in low risk situations and wagering in sensible amounts. Healthy gambling sustains or enhances a gambler's state of well being. Conversely, unhealthy gambling refers to the various levels of gambling problems experienced by some gamblers resulting in adverse consequences. A gambling and health framework would comprise the spectrum of (1) healthy and unhealthy behaviors, and (2) a range of prevention, harm reduction and treatment interven-

Figure 5
Gambling and Health



tions that span the continuum of gambling-related problems. Figure 5 illustrates these relationships.

Individuals, families, and communities could explore their gambling choices through a consideration of the risks and consequences utilizing a decision balance strategy. This approach to decision making would support a more balanced approach to gambling by recognizing its potential for stimulating health gains as well as negative consequences.

A PUBLIC HEALTH ACTION PLAN

This section proposes an action plan for gambling activities comprised of the following three components: public health goals, principles, and strategies.

Goals

These goals provide a focus for public health action as well as an approach to public accountability through prevention, health promotion and community protection. The goals are:

1. *To prevent* gambling-related problems in individuals and groups at risk of gambling addiction through public awareness, early identification of problems and the provision of treatment services as tertiary prevention.
2. *To promote* informed and balanced attitudes and behaviors towards gambling and gamblers both by individuals and by communities through increased knowledge, responsible choices and community participation.
3. *To protect* vulnerable groups from gambling-related harm through responsible gambling policies, community support programs and public safety.

Principles

Three primary principles guide and inform decision making on policies and programs related to gambling and its impact. The principles are:

1. *The primacy of prevention* reflected in the prevention of gambling-related problems being a community priority, and the allocation of resources to primary, secondary and tertiary prevention initiatives.
2. *A mental health promotion approach* to gambling that builds community capacity, incorporates a holistic view of mental health including the emotional and spiritual dimensions, and addresses the needs and aspiration of gamblers, individuals at risk of gambling problems or affected by them.
3. *The importance of fostering personal and social responsibility* associated with gambling policies and practices.

Strategies for Action

The Ottawa Charter strategies provide a frame for a public health approach to action on gambling. As we described earlier, the five strategies are to develop personal skills, strengthen community action, create supportive environments, build healthy public policy and reorient health services.

The thrusts of this charter contain both discussions of rationale and directions for each strategy, including recommendations for specific actions. The following section has been ordered in a hierarchy beginning with the individual, followed by attention to the local community and its environments, and ends with a consideration of public policy in general and the health service sector in particular.

Through gambling, there are opportunities for a public health framework to stimulate new partnerships, foster new knowledge, support healthy behaviors and build vibrant communities.

Develop Personal Skills

Rationale and Directions. This action strategy enables people to gain the knowledge and skills to meet life's challenges and to contribute to society. As applied to gambling, it relates to a general knowledge of probability theory, the games and their specific odds of winning and losing as well as an understanding of the health and social risk consequences associated with gambling. People must acquire skills in the areas of decision making, self-monitoring, and intervention. The challenges relate to making balanced, informed choices about the

use of leisure time, entertainment preferences and dealing with financial gains or losses. The contribution to society primarily centers on the revenue generated through these economic activities. However there is also an obligation to prevent harm to self and others. The consequences of gambling range from personal pleasure to self-destructive behavior. The literature on motivation and change (Botelho, Skinner, Williams, & Wilson, 1999; Miller et al., 1995; Miller & Rollnick, 1991; Prochaska, 1992; Shaffer & Robbins, 1995) suggests that individuals could explore their gambling choices through a risk-benefit analysis utilizing a decision balance approach.

The alcohol field has developed public health guidelines that can be applied to gambling. The alcohol framework for choice employs *low-risk drinking guidelines.* These are intended to assist the general adult population of legal drinking age in making safe, balanced and healthy drinking choices (Ashley et al., 1994; Bondy et al., 1999; Centre for Addiction and Mental Health, 1999; Walsh, Bondy, & Rehm, 1998). The alcohol guidelines rest upon sound empirical research and incorporate a unit of alcohol measurement designated as the standard drink. The advisory information on "amount, frequency, duration" reflects the risk for alcohol abuse, the potential benefits of low-level alcohol consumption as well as the identification of those people who should not use alcohol.

In the gambling sector, new prevention-oriented guidelines have been produced that are intended to reduce a person's risk of developing gambling problems (Svendsen & Griffin, 1998). However, these early efforts lack detailed wagering parameters similar to the alcohol model that specify the amount of alcohol by the number of standard drinks, frequency, duration and situation. There is an opportunity to develop empirically based *healthy gambling guidelines* based on comparable variables. These parameters could reflect the amount of money wagered on each bet or gambling occasion, daily or weekly; how often one participates in gambling events and the number of bets placed; as well as how much time one spends gambling each day, week and month. For those who choose to gamble, these healthy gambling guidelines should enhance the social quality of gambling and decrease gambling-related stress. In addition, these guidelines will promote self-awareness and foster a sense of personal control by setting sensible limits.

Alcohol researchers also have pioneered empirically based moder-

ate drinking guidelines for individuals experiencing health or social problems associated with their drinking and who wish to cut back (British Medical Association, 1995; Sanchez-Craig, 1993; Sobell & Sobell, 1993). In the gambling field, professional materials and programs such as gambling help lines have been developed to assist individuals to assess their gambling behavior and locate help resources. From a public health perspective, there also would be considerable benefits to mental health, personal relationships and work performance from the development of *self-management guide* to gambling. This guide would be particularly useful for individuals experiencing gambling-related problems (i.e., level 2 gamblers) who desire to moderate their gambling behavior but choose not to quit. These guidelines would target but not be limited to individuals experiencing gambling-related problems (e.g., level 2) and desiring to moderate their gambling behavior but choose not to quit.

Relapse prevention skills developed for the alcohol and drug treatment field (Annis & Davis, 1989; Marlatt & Gordon, 1985) can be adapted to the gambling field (Littman-Sharp, Turner, Stirpe, & Liu, 1998). Gamblers who have experienced problems can raise their awareness about high-risk gambling situations, learn to identify and anticipate these circumstances and develop better coping techniques. This new skill set holds the potential to enhance a person's options to deal with maladaptive coping strategies. In addition, primary and secondary prevention programs can target these skills for further development.

Intervention skills for employees of gambling establishments discussed later in this paper also are relevant to gambling participants and patrons. Support for individuals exhibiting excessive gambling behavior reinforces the broad societal values of shared responsibility and caring for one another in addition to the public health principle of harm reduction.

Key Actions

1. Develop *healthy gambling guidelines* that will assist individuals to increase their self-awareness, clarify and set betting limits, and make informed wagering decisions; these guidelines must help individuals identify and cope with risky gambling situations.

2. Create a "*standard unit*" for gambling similar to the standard drink to improve research and communication concerning the risks associated with gambling behavior.
3. Develop and evaluate a *brief screening instrument* for gambling problems, similar to the CAGE (Ewing, 1984) screening tool for alcohol. This device provides a self-assessment tool for people concerned about their gambling behavior. Such an instrument could be made easily accessible in gaming establishments or administered in a variety of health care, institutional and community settings.
4. Produce a *self-management guide* for people experiencing mild to moderate problems (i.e., level 2 gamblers). These people may be experiencing health, social or economic difficulties because of their gambling and this guide should encourage better regulation of their gambling behavior, an increasing sense of self-control and a reduction in the adverse consequences of gambling.
5. Offer *intervention training for staff* at gaming facilities. This training can be modeled on the alcohol server intervention and designated driver training programs.
6. Ensure gamblers have the skills to *identify and manage their high-risk gambling situations.* This skill development initiative will require that prevention programs and treatment professionals teach "relapse prevention" coping skills to individuals based on their identification of high-risk gambling situations.

Strengthen Community Action

Rationale and Directions. This strategy strengthens community action so that communities gain the capacity to set priorities and make decisions on issues that affect health. This section resonates with considerations of human ecology as we described earlier. With gambling and its expansion, this strategy on building stronger communities relates to the local capacity to carry out a community health assessment, monitor performance, improve community health and evaluate the impact on the local community. Successful outcome measures for local communities associated with gambling expansion include economic vitality, health status and community quality of life. Attention to vul-

nerable groups within the community is a priority to ensure a strong community.

Empowering Communities. Local communities that are considering the introduction of gambling venues (e.g., lottery or keno outlets, VLT's, casinos, and pari-mutuel sites) inevitably face a vast array of questions. What will be the health, social and economic impacts of gaming? Will crime increase? Will new gambling stimulate additional emotional distress (e.g., depression and suicide attempts) among the population? How many people will become "addicted" to gambling? Will more substance abuse or other disorders emerge from increased gambling activities? How much more might the community need to expend on policing gambling? What benefits will accrue to the community? How much new employment will legalized gambling produce? Will new addiction or other health services be needed if gambling is introduced to the community? What will be the magnitude of the new revenues that will come directly to the community? How will the fabric and culture of the community change? On balance, communities invest considerable effort to determine if it is worthwhile, in both the short and longer term, to permit new legalized gambling within their jurisdictions.

Politicians, casino executives, pro- and anti-gambling community groups, police, business leaders and health and addiction practitioners debate these questions regularly. However, currently, local communities lack a comprehensive and systematic methodology for addressing these important concerns. There are few credible scientific studies addressing the various community dimensions and even less work on their complex interactions. Economic development and regulatory considerations have tended to dominate the analysis. Usually, public health has not been at the table. As a result, the benefit of a public health perspective and expertise has been lacking from the deliberations of most communities.

A theoretical community impact model for predicting the health, social and economic costs and benefits could be developed and assist in predicting outcomes under various scenarios. The development of such a model would require expertise and cooperation from a wide range of disciplines including law, addictions, social policy, criminal justice, economics, social science, business, and public health. These experts would need to identify appropriate indicators for measure-

ment and consider impact projections for the short, medium and long term. Such a theoretical model would be a significant contribution to the community, and the field in general. The model could provide a mechanism to empower local communities in their decision-making processes as well as a framework to study systematically the impact of gambling on all aspects of community life. A partnership community program between a university and a local municipality could form the nucleus of a collaboration to create, implement and evaluate such a model.

The creation of a community development framework for local action on gambling issues could provide the vehicle for securing significant local control over gambling and health issues. In jurisdictions where gambling has been endorsed or expanded, people could organize around Healthy Communities' Gambling Guidelines. This initiative creates a vehicle for all stakeholders including state and provincial governments, the gaming industry, health professionals, criminal justice officials, local community officials and special interest groups to come together and develop principles to guide gambling activities (e.g., charitable, state, or privately sponsored) in their communities. Ideally, community needs, community values, strategic plans, and research findings on community impact will shape these shared principles.

A number of community indicators in the areas of health status, quality of life and economic vitality need to identified. Armed with data on an ongoing basis, community constituencies could create public education initiatives, secondary prevention programs, treatment responses, industry regulations, model business practices and research agendas appropriate to their community. The local health departments could contribute to community capacity building by establishing public health criteria to be met as a prerequisite to the introduction of new gambling as well as play a leadership role in epidemiological studies, community mobilization and stakeholder facilitation. The desired outcome would be a community that preserved or enhanced the quality of community life, improved health status and demonstrated economic vitality as a result of the presence or absence of gaming.

Prevention for Vulnerable Populations. When considered at risk, vulnerable, or having distinctive needs, special population segments de-

serve targeted prevention programs. These programs must be relevant, innovative, scientifically valid and cost effective. To illustrate, we have selected the examples of youth, ethnic minorities and senior segments of the population for consideration. Though not addressed in this paper, other populations such as women, native people, young offenders (Derevensky & Gupta, 1998) and adults in criminal justice settings, also deserve special consideration.

To date there has been only a small quantity of original prevention work specific to the gambling field. For example, the North American Training Institute in Minnesota has developed primary prevention resources for older adults (North American Training Institute, 1999). Lotto Quebec (Le Groupe Jeunesse in collaboration with Loto-Quebec and Ministere de l'Education, 1998) has produced a series of age-targeted awareness materials for primary and secondary school students. The major reference point for gambling-related prevention programs has been the development of alcohol education programs. Important experience also can be drawn from drug prevention and anti-smoking programs (Baer, Marlatt, & McMahon, 1993; Botvin, 1997; Bryant, Windle, & West, 1997; Ellickson, 1995).

Youth. The current generation of young people is growing up within a lifetime cultural context of a legal gambling culture, whereas previous generations were socialized when gambling was not sanctioned (Shaffer, Hall, Walsh, & Vander Bilt, 1995; Shaffer & Hall, 1996). Surveys in Massachusetts, Minnesota, and elsewhere point to a high prevalence of problem and pathological gambling as well as important adverse consequences for youthful and underage populations (Shaffer & Hall, 1996; Shaffer et al., 1995a; Shaffer, LaBrie, Scanlan, & Cummings, 1994). Adolescence is an important developmental stage for preventing problem gambling, since adults with gambling problems usually began their gambling behavior during their youth (e.g., Shaffer et al., 1994; Shaffer & Hall, 1996).

Overall, efforts to prevent gambling-related problems address high-risk behaviors, protective factors and enhanced resiliency. Settings for programming include the school, family and community. The competencies to be acquired include resistance and life skills. Primary prevention programming can be directed at fostering overall well-being and self-esteem. School-based science and mathematics curricula provide excellent vehicles to teach probability and odds theory as a

basis for informed decisions about wagering (e.g., Shaffer, Walsh, Howard, Hall, & Wellington, 1995b). Screening tools for clinical and community settings to identify young people experiencing gambling-related problems would strengthen efforts at early intervention (e.g., Shaffer et al., 1994). The Internet also offers innovative ways of engaging young people and compelling possibilities for addressing youth gambling problems.[13] One example, the TeenNet Project based in the Department of Public Health Sciences at the University of Toronto (Skinner, Maley, Smith, & Morrison, in press) provides an interactive Internet site for teens, addressing issues such as drug use, smoking and delinquency (Department of Public Health Science, 1999). A gambling component is planned within this comprehensive Internet youth health environment.

Ethno-Cultural Minorities. The impact of gambling on ethnically diverse populations has been poorly studied to date. Certain minority members tend to be at higher risk for gambling-related problems (e.g., Zitzow, 1996). Cultural norms and values play an important role in shaping attitudes and behaviors toward gambling. Nevertheless, there is a lack of comprehensive needs assessments for a variety of ethno-cultural groups. This research is necessary to determine what primary, secondary and tertiary prevention services are needed and the best ways to provide and deliver those services. Community planners must provide effective processes to obtain timely input from relevant ethno-cultural groups.

Senior Adults. There has been considerable interest in the gambling behavior of older adult members of the population. Seniors represent a sizable proportion of the general adult population. Although they generally have been considered low risk-takers, public concern has been expressed about their vulnerability to gambling problems related to issues of fixed incomes, social isolation and declining health. Seniors appear to be represented disproportionately at bingo halls and charitable gaming activities. As well, they are a target market for casino operators. However, seniors also may represent a population segment that receives considerable health benefit from their gambling activity. Research that examines the effect of gambling on depression, physical mobility and quality of life would enhance our understanding of the risks and benefits of gambling for this sector of the population.

Key Actions
Local Communities

1. Develop a *community impact model* for analyzing and predicting the health, social and economic costs and benefits of gambling.
2. Create a "*Healthy Communities Gambling Guide.*" This blueprint represents a practical community development framework for local action on gambling issues.
3. Identify a *standard set of community indicators for gambling* that addresses quality of life, health status and economic vitality to be used to assess, monitor and evaluate the impact of new gambling operations. These indicators could provide the basis for a community evaluation of a locally derived index. These indicators provide a template for a "*gambling report card*" that local communities could use annually.
4. Establish community partnership programs *between universities and local communities on gambling impact.* These collaborations would study, monitor and evaluate the community experience with gambling expansion.
5. Ensure *local public health departments* participate in community development, epidemiological studies and monitoring of quality of community life.

Youth

1. Implement *primary prevention programming* for young people to foster overall well-being, self-esteem and personal responsibility.
2. Teach *resistance and general life skills* that include understanding advertising pressures, recognizing peer pressure and managing money.
3. Use *school-based science and mathematics curricula* as a primary vehicle to teach probability and odds theory that will serve as a basis for informed decisions about wagering.
4. Strengthen efforts at *early identification and intervention* of gambling-related problems in young people by using a brief screening system in clinical and community settings (e.g.,

Shaffer et al., 1994; brief version of the Massachusetts Gambling Screen).
5. Explore the *Internet as a vehicle* for addressing youth gambling.
6. Set as a *target reduction in the prevalence of disordered gambling* among youth by 25% in three years.

Other Vulnerable Groups

1. Conduct *comprehensive needs assessments* for ethno-cultural groups as a basis for designing culturally sensitive, relevant and responsive services.
2. Conduct *research among older adults* that examines the effect of gambling on depression, physical mobility and quality of life. These studies would enhance our understanding of the risks and benefits of gambling for this sector of the population.
3. Convene a *think tank* on gambling among vulnerable populations. This event would bring together participants from, for example, the gambling, addictions, public health and population health fields. The forum could focus interest in the public health issues and build momentum for an action agenda.

Create Supportive Environments

Rationale and Directions A supportive environments strategy establishes physical, socio-economic and cultural environments that maintain and enhance the health of people. In the case of gambling this relates to gambling venues, the family household, gambling in different socio-economic and cultural environments and the Internet as an environment for gambling. The disordered gambling model illustrated earlier in the section on human ecology forms the rationale for interventions that focus on the environment.

The Family Environment. Robert Glossop, Executive Director of Programs and Research at The Vanier Institute of the Family, recently noted that "Families are perhaps the central determinant of health, the central influence in the lives of individuals, that determine their health status and their chances of survival" (Avard, 1999, p. 2). A healthy family is integral to developing and sustaining self worth, meaningful interpersonal relationships, mutual respect and personal

resiliency. The relationship of family dysfunction and childhood abuse to many of the leading causes of death in adults has been described recently (Felitti et al., 1998).

Researchers in the gambling field have described a range of negative health and social consequences on family members associated with adult disordered gamblers. These effects have been identified in spouses (Lorenz & Yaffee, 1988), siblings, (Lorenz, 1987), children (Jacobs et al., 1989), and parents (Heineman, 1989; Moody, 1989). Now, problem gambling professionals have begun to appreciate that family violence and other dysfunctions are potential consequences of the full range of disordered gambling, and clinical interventions for family members are being elaborated (Vander Bilt & Franklin, in press).

Gambling-related family problems need to be positioned centrally as an important public health issue. In recent years, there has been an acceptance that domestic violence is an important public health matter (Gellert, 1998; Hanvey & Kinnon, 1994; Kornblit, 1994). The potentially hidden problem of domestic violence in gambling families has been neglected and requires priority attention. Developing prevention strategies is a complex matter because of the dual stigma and the sense of powerlessness often associated with each of these issues. The entire gambling field could do more to support families. For example, partnerships between the gambling industry and health professionals can develop effective family initiatives to reduce or prevent domestic violence.

The Socio-Economic and Cultural Environment. The socio-economic and cultural setting play a role in determining gambling practices and patterns. There has been much criticism in North America that gambling expansion may represent a voluntary regressive tax on poor and marginalized groups in society. A recent report by Statistics Canada (Marshall, 1998) indicated that gambling participation rates increased with household income (67% for income group less than $20,000 (CAN) vs. 87% where the income was over $80,000 (CAN). Among households that participate in gambling, lower income households spend proportionately more than those with higher income (2.2% vs. 0.5%), although actual household expenditure on gambling increased with household income ($296 vs. $536 (CAN)), (Marshall, 1998). Since health status correlates with income, employment and social sta-

tus, this issue deserves careful and rigorous study because of its public policy implications.

The Gambling Environment. Casinos, bingo halls and other gambling venues serve both as public and workplace environments. These facilities tend to cluster smoking, drinking and gambling activities. Tobacco and alcohol use accounts for 24 percent of total deaths in the United States (McGinnis & Foege, 1993) and thus represents important health issues within public environments. Air quality has become an important issue in gaming establishments (e.g., Trout, Decker, Mueller, Bernet, & Pirkle, 1998). Many venues now provide smoke-free rooms for patrons, but there still is significant exposure to second hand smoke, especially for staff (Shaffer et al., 1999). In addition, alcohol is widely available and its use is often promoted.

There are policy and program initiatives that owners and operators of gaming venues could implement to reduce the risk of gambling problems amongst their patrons. In addition, they can develop programs that will foster healthier leisure environments for both patrons and employees. Municipal alcohol awareness and server intervention programs offer lessons that can mitigate gaming industry and municipal liability and promote community health (e.g., Depape, Leonard, & Pollett, 1995; Douglas, Rylett, Norbonne-Fortin, & Gliksman, 1999). Municipal health departments could make an important contribution to the evolution of healthier gambling environments and workplaces by becoming more involved in smoke free policies and programs as well as employee health.

The Internet Environment. The Internet provides a new and virtual environment for gambling. This rapidly emerging trend has major implications for individual gambling behavior, legality and government regulation in addition to public and private revenue. In theory, individuals of every age have access to gambling via a computer in the privacy of their own home at any time. Offshore Internet gambling and day trading in financial markets on the Internet are two current examples of the phenomenon and the complexity of the matter. On the health side, there are opportunities for quality online services for individuals at risk, affected by or recovering from disordered gambling. These could include advice to the public and health profes-

sionals, discussion groups and forums as well as continuing professional education.

Key Actions
The Family Environment

1. Bring together the gaming industry, public health and problem gambling professionals to *create broad public awareness campaigns* that focus both on family health as well as domestic violence. These campaigns should focus on risks associated with unhealthy gambling, particularly within communities where gambling is concentrated.
2. Incorporate *screening for both domestic violence and disordered gambling* within family services, primary care and specialized addiction treatment settings. In conjunction with this effort, coping skills need to be taught to family members.
3. Undertake *family-centered research* on children of disordered gamblers, including adult children, to understand better their risk of gambling-related problems as well as the relationship to other childhood and adult disorder resulting from childhood abuse and household dysfunction. This will lead to the formulation of prevention strategies for this high-risk group.

The Socio-Economic and Cultural Environment

1. Establish *population health research* on the social and economic dimensions of gambling expansion to understand better the gambling phenomenon and all its ramifications.
2. Determine the *distribution of gambling behavior among sub-populations* including low income, marginalized populations, ethnocultural groups and regions of high and low gambling penetration. Design the study to reflect the types of gambling available.
3. Study more precisely *the effect of gambling expansion on the prevalence of disordered gambling* in the sub-populations noted above to determine which groups may be differentially negatively affected. This research should be carried out in a variety of community settings.

The Gambling Environment

1. Advocate for *policy and on-site program initiatives* that owners and operators could implement to lessen the risk of gambling problems among their patrons and staff. These include bank machines with cash withdrawal limits, betting limits and facility hours of operation more compatible with community norms.
2. Encourage gaming establishments with computer gaming technology, information kiosks and instant bank machines, to *use this technology to offer a range of self-management and harm reduction programs* to patrons.
3. Support *healthier gambling entertainment environments* for patrons and staff with respect to alcohol, tobacco, stress and hours of operation.
4. Promote *gaming venue intervention programs* for gambling and alcohol to ensure personal and community safety and mitigate liability.
5. Make *self-exclusion services* available for disordered gamblers at casinos and other gaming venues.
6. Ensure operators of facilities *make help information and resources prominent, comprehensive, and easily accessible* for customers who are concerned about their gambling behavior.
7. Permit *video gaming terminals and slot machines solely in gaming specific establishments* and not in other commercial locations such as restaurants, bars, convenience stores and gasoline service stations.

The Internet Environment

1. Investigate and monitor the *scope of Internet casino gambling and its impact* on individuals in various ages, socio-economic and cultural groups.
2. Study the phenomenon of *Internet gambling in financial markets,* establish a profile of the day trader and examine the relationship of such trading to disordered gambling.
3. Explore the potential *use of the Internet to provide online services* to the public and health professionals related to gambling and its potential health consequences.

Build Healthy Public Policy

Rationale and Directions. Healthy public policy ensures that policy initiatives in every sector promote health-sustaining conditions. For gambling the key public and private sectors are health, entertainment, economics, finance, non-profit and charity. The gambling and health framework outlined above provides a vocabulary for healthy gambling policy and the recommendations. A great deal of additional research and new knowledge is required to inform policy makers on the costs and benefits to society of legalized gambling and its expansion (National Gambling Impact Study Commission, 1999; National Research Council, 1999).

In North America, there exists government ownership of state and provincial lotteries. In Canada, the provincial governments also own all casinos under the Criminal Code of Canada. This public ownership model places many governments in the position of carrying out multiple roles and responsibilities as regulator, owner, operator and service provider for gambling-related problems. Governments accrue large revenues through legal gambling that provide an alternate to increased taxation. Concerns have been raised about the dual role of government as it has accepted the duty to both encourage gambling and at the same time protect the common interest.

In Canada, provincial governments have commenced major policy reviews of the gaming sector; for example, charity gaming in Ontario, casinos in British Columbia and video lottery terminals in Alberta are undergoing public policy and political scrutiny. The United States received a new blueprint for gambling in June 1999, when the National Gambling Impact Study Commission released its report to the President Congress, Governors and Tribal Leaders (National Gambling Impact Study Commission, 1999). There are a number of policy recommendations that could add value within the current policy climate.

Harm reduction invites innovative public health approaches and new options. Although remaining controversial in some jurisdictions, this approach has formed the policy basis for Canada's National Drug Strategy 1992–97, and is widely utilized in the alcohol, tobacco and drug field worldwide. It is complementary to classical public health "disease control" strategies that incorporate a broad range of prevention and treatment options appropriate to the particular situation and

circumstance. Harm reduction strategies can stimulate and focus innovative initiatives for a variety of settings, including the community at large, gambling establishments and gambling treatment programs. Concepts such as moderation goals for treatment, interventions training for gaming facility staff, and municipal gambling policies, provide an opportunity to break new ground.

Key Actions

1. Ensure that public policy makers in all levels of government *regularly monitor and assess the public ownership models* being utilized to insure a responsible balance between encouraging gambling as entertainment and protecting the public from gambling-related harm.
2. Direct public *scrutiny of gambling advertising,* and in particular, to messages targeting youth, the poor and other vulnerable populations.
3. Fund a credible scientific body to *develop a standard methodology to estimate the health, social and economic costs and benefits of gambling* and related problems and involve key stakeholders in building a consensus.
4. Analyze the *impact of gambling expansion on the quality of life* of individuals, families and communities and insure public health involvement in this activity.
5. Link government *gambling revenues to the provision of prevention and treatment services* as well as community capacity building.
6. Position *gambling and its expansion as an emerging public health matter.*
7. Embrace *gambling as part of the new public health* and adopt mechanisms for action within the organizational structures of key public health bodies in the United States and Canada.
8. Advocate and insure where possible that all *gaming owners and operators prominently display the odds of winning and losing* for each of their gambling activities.
9. Urge policy makers to *adopt a harm reduction strategy toward gambling* and encourage health service professionals to offer services to disordered gamblers in a nonjudgmental fashion. This strategy is intended to minimize harm to gamblers and others.

Reorient Health Services

Rationale and Directions. Reoriented health services will recognize the needs of the whole person and foster partnerships among providers, consumers and researchers. In the case of gambling, this strategy should be guided by the principles of prevention, mental health promotion and personal and social responsibility as described earlier in this section. In a health service system reoriented to include gambling problems, the needs of the whole person would be supported through special attention to the emotional, intellectual, spiritual, social and physical dimensions of individual health. The core service components would be primary prevention, screening, diagnostic assessment treatment and aftercare. Within a clinical context programs would be designed to incorporate a stage-change model, client-centered goals and solution-focussed interventions. Key public health partnerships in a community-based system would include the broad range of community health care providers and social service agencies, research and prevention specialists as well as addiction and gambling-specific service providers.

Historically, throughout the United States and Canada, addiction prevention and treatment have developed along separate and specialized service lines. In recent years, clinicians have initiated efforts to broaden the base of service to primary care and other community service providers as well as to integrate with mental health services. These decisions regarding service design make explicit or implicit assumptions about human behavior, the determinants of the problem and the most effective approaches for primary prevention, early identification and intervention.

Disordered gambling demonstrates similarities to and differences from chemical and other activity addictions. However, there is no general agreement on where, how and for whom prevention and treatment services should be organized. Important issues surrounding program design, access, efficacy, effectiveness and cost have yet to be investigated thoroughly. In addition, three is excitement that basic neurobiological brain research will provide insights that will have application for clinical interventions, pharmacotherapy, and prevention programs.

Screening for gambling problems in health care settings and community agencies is an important public health strategy to increase pro-

fessional and public awareness of the potential for gambling-related harm and to provide secondary prevention through early identification. Community-based assessment services can serve as a focal point to broaden the base for brief treatment and link non specialized community agencies such as primary care physicians, family and youth services and the criminal justice system with gambling and addiction specialty resources.

Research provides the scientific basis for any public health program. A complete understanding of the epidemiology of gambling including prevalence, incidence, risk factors, and population patterns of the disorder is fundamental to the development of every public health initiative. Descriptive epidemiology which profiles in detail the lottery participant, casino gambler, and bingo player would add considerable knowledge to the debate on the social impact of these forms of gambling. Community monitoring and surveillance systems are necessary to generate and analyze information for program planning and evaluation.

The determinants of problem and pathological gambling are poorly understood. Efforts to elaborate the neurobiological, behavioral, social, economic and political determinants are necessary to advance our understanding of causation. There are proponents of both a brain disease model as well as advocates for a personal responsibility focus. Genetic research and the elaboration of brain activity related to cravings, compulsion and emotional memory through neuro-imaging would greatly enhance our understanding of these components of gambling and other addictive disorders. These findings will have significant implications for the development of neurobiological and psychopharmacological approaches to addictive behaviors including gambling (Garbutt, West, Carey, Lohr, & Crews, 1999; Litten & Allen, 1999; Swift, 1999). Population studies on the social and economic dimensions of gambling expansion also are central to forming a comprehensive understanding of the gambling phenomenon and its ramifications.

The role of health departments needs to be elaborated. State or provincial health departments often have responsibility for the organization of gambling services. In addition, there are a number of ideas from the addiction field that have application. Prevention and treatment programs should be designed across the addiction continuum. Key dimensions of a comprehensive service include community needs

analyses, assessment services, a stage change model and a client matching capacity.

Local public health departments have an important role to play in developing a healthy communities gambling framework. They can ensure that a gambling help line exists and is integrated with other service providers. Clear and consistent public health messages regarding healthy gambling behavior provide the basis for targeted public awareness programs. Local public health departments are a credible resource of educating and training health, employee assistance and social service providers about gambling and its related problems. These activities might best be organized in partnership with problem gambling experts, problem and compulsive gambling councils and other gambling stakeholders.

Key Actions
Research Partnerships

1. *Monitor the incidence and prevalence of disordered gambling* in a range of communities, regions, socio-economic groups and cultural settings. *Refine the survey instruments* for the prevalence studies described above.
2. Carry out *longitudinal research* on gamblers that describes their gambling and non gambling behaviors and circumstances over time. Determine those factors associated with healthy or unhealthy patterns of gambling as well as overall personal well-being.
3. Study the *relationship among gambling, substance abuse and mental illness* to design better prevention and treatment programs.
4. Initiate *detailed study of level 2 gamblers* who experience gambling-related problems. An improved understanding of these individuals who are in a transitional phase of gambling will add to knowledge about the natural history of disordered gambling. In addition, this knowledge will serve as an important guide to the development of effective secondary prevention strategies (e.g., brief intervention).
5. Fund *genetic and neurobiological research* on gamblers to determine the heritability of disordered gambling and the neuronal basis to cravings, compulsion and emotional memory. This knowledge would greatly enhance our understanding of these

dimensions of gambling and the relationship to other mental health and addictive behaviors. These findings could lead to better behavioral and pharmacological prevention and treatment strategies.

Services Partnerships

1. Organize *health programs for gambling across the behavior continuum* to comprise a spectrum of primary, secondary and tertiary prevention services to reflect the full range of gambling behaviors and people.
2. Ensure that *core dimensions of a comprehensive community service for gambling* include community needs analyses, primary prevention, clinical screening and assessment, a stage change model and client matching capacity.
3. Develop a *comprehensive public awareness and education program* that provides clear and consistent public health messages regarding healthy and unhealthy gambling behavior.
4. Encourage public health departments to ensure that a *gambling help line* exists and is integrated with health service provider services.
5. Promote *screening for gambling problems* in a variety of health care, institutional and community settings to increase professional and public awareness of disordered gambling.
6. Encourage gambling treatment providers, in partnership with researchers, *develop and offer effective brief intervention strategies* for individuals identified early with gambling-related problems.
7. Urge gambling treatment providers to *offer the least intrusive treatment options first,* honor client preferences and goals including moderation and increase treatment intensity only as needed.

CONCLUSIONS

The Ottawa Charter for Health Promotion delineates action steps within the strategies of a complete public health agenda for gambling. Having reviewed the limited public health involvement to date, consid-

ered the value of a public health perspective, and examined the potential risks, costs and benefits of gambling, there is a set of conclusions that can be drawn from this analysis.

Gambling Is an Emerging Public Health Issue

Prevalence data demonstrates an increasing trend of problem and pathological gambling in the general adult population, a high but stable rate among young people, and higher rates in communities proximate to casinos and in jurisdictions where lotteries exist. When family members are problem or pathological gamblers, they can affect their relatives and significant others significantly and adversely. This is evident through family violence directly or indirectly, other family dysfunction, and the negative impact on the health of spouses and on childhood development. Communities and their elected officials must continue to debate the health, social and economic costs and benefits and the influence on the quality of community life of expanded gambling.

North America Will Benefit from a Public Health Perspective on Gambling

Public health groups have had little organized involvement or impact with gambling-related issues. For example, to date, there has been minimal public health participation in policy, research or practice. Communities that have applied public health models effectively to control other conditions and disorders can also use these models to benefit gambling-related matters. Public health domains such as population health, health promotion and human ecology offer methodologies, expertise and traditions that are relevant to the gambling issue. A public health approach examines the balance among health, social and economic costs and benefits when developing healthy gambling policy and strategy. It considers the scope of determinants influencing gambling and health in order to integrate a comprehensive range of prevention, harm reduction and treatment strategies.

Gambling Represents a Central and Challenging Opportunity in a New and Revitalized Public Health Movement

The recent United States Gambling Impact Study Commission did not include public health experts among its stakeholders and its

report did not reflect a strategic public health framework on which to take action. The Ottawa Charter for Health Promotion provides a template for a public health agenda for a wide range of gambling issues. This template suggests goals, principles and action steps for applying a public health agenda to gambling-related matters. This approach offers a systematic mechanism for focusing the resources necessary to strengthen efforts in policy, research and practice. To embrace this multidimensional issue, public health can demonstrate leadership and be at the cutting edge in this bold social experiment.

Advances in the Biological, Behavioral and Computer Sciences Will Shape the Gambling Field

Issues such as Internet gambling, offshore gambling and gambling in financial markets are emerging. Public health specialists need to study these changes, anticipate the impacts and begin designing appropriate approaches to prevention, harm reduction, mental health promotion and treatment. There are examples of exciting early efforts in the health field. Future research in neurobiology, behavioral genetics, pharmacology as well as computer technology and web-based learning will invite opportunities for innovative and improved education, prevention and treatment outcomes. These advances likely will emerge in a manner similar to the influence of these sciences in the core public health field of immunization.

Communities Need to Strengthen Primary and Secondary Prevention Activities

There is a lag in public and professional awareness about the health, social and economic costs and benefits associated with legal gambling and its expansion. Educational efforts should target public health and other health professionals, public officials and the public. This educational program should highlight trends in problem and pathological gambling, the potential for negative health consequences and the existence of vulnerable populations such as youth. Public and professional attitudes and beliefs about gamblers including the issue of stigma also deserve attention. To insure a balanced and credible message about the potential impacts of gambling, these awareness programs also must incorporate information about how gambling can promote health and strengthen community capacity. A public health

focus on all levels of prevention is central to a sustainable approach to this complex social phenomenon.

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NOTES

1. While working on this project, Dr. Korn was a visiting professor at the Division on Addictions at Harvard Medical School.
2. This table was derived from the *WAGER* (WAGER, 1999).
3. Interested readers can contact the Missouri Gaming Commission and its Voluntary Exclusion Program for Problem Gamblers at 3417 Knipp Drive, Jefferson City, MO 65109; telephone 573-526-4080.
4. Risk is the probability that an event will occur, although in everyday usage risk implies the likelihood of harm rather than fortune (Young, 1998).
5. A healthy community is one in which all organizations, from informal groups to governments, are working together effectively to improve the quality of all people's lives (Boothroyd & Eberle, 1990).
6. *Epidemic:* the occurrence in a community, region or population of more than the expected number of cases of a disease, illness or infectious agent during a given period of time. The number of cases indicating the presence of an epidemic will vary and is relative to *the usual frequency* of the disease in the *same area*, among the *specified population*, at the *same time* of year. Two new cases associated in time and place can be sufficient evidence of spread or transmission to be considered an epidemic. The word comes from the Greek "epidemios" meaning "among the people," an outbreak. *Pandemic:* a very widespread epidemic, which affects a whole region, country, continent or the world. *Endemic:* the constant presence or the usual prevalence of a disease in a given geographic area. *Hyperendemic:* the expression of a persistent intense spread or transmission.
7. Quality of life is defined as the product of the interplay among social, health, economic and environmental conditions, which affect human and social development (Shookner, 1998).
8. Addiction represents a repetitive health disorder that alters the way in which one experiences the world. This subjective shift can be affective (feelings), cognitive (thoughts), behavioral (actions) or a combination of these experiences (Shaffer, 1996; Shaffer, 1997a). The natural history of addiction reveals that individuals initially see their experience as positive, but over time, as their behavior continues, problems often begin to emerge, though they may not be aware of them (Shaffer, 1997b; Shaffer & Robbins, 1995). The behavior can become excessive and habitual. When repetitive compulsive behaviors emerge and seem well established, a feeling of loss of control often develops. Despite adverse consequences to self, family or community, addictive behavior continues. The person struggling with addiction can experience powerful craving triggered by specific stimuli. Addiction most commonly is associated with mood-altering chemicals such as alcohol or other drugs, but can include other problem activities including gambling, exercise and shopping. Finally, people with addiction often demonstrate a stereotypical syndrome known as neuroadaptation (i.e., tolerance and withdrawal).
9. This definition is a modification derived from the policy considerations of the Canadian Centre on Substance Abuse (Topp et al., 1998).
10. In this article, harm reduction refers to a policy or program directed towards minimizing or decreasing the adverse health, social, and economic consequences of gambling behavior or substance use. The strategy targets individuals, families, communities, and society. A harm

reduction strategy does not require abstention. This definition is adapted from a policy discussion paper of the Canadian Centre on Substance Abuse (Single et al., 1996).

11. We speculate that gambling may act as a buffer against the development of mental health problems. Extrapolating from Rado's consideration of heroin addiction, gambling involvement may "catch" people and keep them from progressing to a more disordered state of mental illness by occupying their attention and shifting their subjective focus (Rado, 1933).
12. Primary prevention encompasses activities directed at avoiding the onset or occurrence of gambling problems and reducing the incidence of disordered gamblers. Secondary prevention strategies focus on the early identification of people with gambling problems and offering assistance to minimize these problems when they do occur.
13. While we encourage the exploration of Internet resources for young people, we also are cognizant of the potential risks associated with Internet use (e.g., Kraut et al., 1998).

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