



**STAFF REPORT
ACTION REQUIRED**

Community Health Impacts of a Casino in Toronto

Date:	January 28, 2013
To:	Toronto Board of Health
From:	Medical Officer of Health
Wards:	All
Reference Number:	

SUMMARY

In its 2012 report *Modernizing Lottery and Gaming in Ontario: Strategic Business Review*, the Ontario Lottery and Gaming Corporation (OLG) stated its intention to establish a new casino gaming venue in the Greater Toronto Area (GTA). Two of the zones identified for potential casino sites include lands in the City of Toronto.

This is the second of two reports prepared by Toronto Public Health (TPH) in advance of City Council's deliberation on the matter that explores the issue from a public health perspective. In November 2012, TPH reported to the Board of Health on research regarding the impact of a new casino on problem gambling in Toronto. Problem gambling is a significant public health concern because of the related health effects on the individual, family and community. These impacts were discussed in the technical report *The Health Impacts of Gambling Expansion in Toronto* and the *Toronto Public Health Position Statement on Gambling and Health* which was endorsed by the Board of Health (BOH) on November 19, 2012.

The current report responds to the BOH's request for additional information on the community health impacts of a casino. It includes assessment of potential employment, economic development, crime, social safety net and neighbourhood impacts. TPH took a Health Impact Assessment approach to better understand the broader health impacts of community change resulting from a new or expanded casino.

A new casino in Toronto could have important community impacts which affect the health and well-being of individuals, families and communities. Some of these health impacts are primarily positive (improve health), others, primarily negative (worsen health). A review of available evidence, largely from other jurisdictions, indicates that increased employment and income, if generated as expected, could have positive impacts

on health, although shift work and irregular hours may cause negative health consequences to casino workers. On the other hand, increased motor vehicle traffic could increase injuries and air pollution related illness. The evidence is inconclusive concerning the potential impact of a new casino on crime and local economic development. As concluded in the previous report, increases in problem gambling are the most important health impacts of a new casino in Toronto. With respect to all other potential impacts, the available evidence indicates that the introduction of a new casino is likely to have greater adverse health-related impacts than beneficial impacts.

RECOMMENDATIONS

The Medical Officer of Health recommends that:

1. The Board of Health forward this report to City Council at the meeting at which it considers a new casino in Toronto, and that Council consider the community health impacts of a casino during its deliberation on the matter.

Financial Impact

There are no financial implications for the City of Toronto arising from this report.

DECISION HISTORY

On November 5, 2012, the Executive Committee considered the City Manager's report *Considering a New Casino in Toronto*

(<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2012.EX24.1>).

The Committee authorized the City Manager to conduct public consultation to seek input from Torontonians on the matter of establishing a new casino in Toronto, and to report to the Executive Committee in February/March 2013 on the results of the consultation.

On November 19, 2012, the Board of Health considered the report *The Health Impacts of Gambling Expansion in Toronto*

(<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2012.HL18.1>). The Board

of Health requested the Medical Officer of Health undertake further research on community health impacts of a casino, analyzing such issues as crime, local economic development, neighbourhood impacts, social safety net impacts and to report back to the Board of Health prior to Council's deliberation on the matter.

ISSUE BACKGROUND

In November 2012, Toronto Public Health (TPH) and the Centre for Addiction and Mental Health's (CAMH) Problem Gambling Institute of Ontario jointly released *The Health Impacts of Gambling Expansion in Toronto - Technical Report*.¹ The Technical report examined the health issues related to increasing access to gambling in Toronto, including a literature review of health and social impacts of casino gambling and analysis of Canadian Community Health Survey data on gambling behaviour and prevalence. The report focused on problem gambling, a significant public health concern due to its effects on individuals, communities and families.

The *Toronto Public Health Position Statement on Gambling and Health*,² also released in November 2012, was developed to reflect the key findings of the Technical report and provides ten policy recommendations to mitigate the negative consequences of gambling expansion on health. The Position Statement concludes that a new casino in the Greater Toronto Area (GTA) would likely increase the prevalence of problem gambling, the most severe form of which presently affects an estimated 11,000 people aged 18+ (0.2%) in the GTA. The Position Statement was endorsed by the Board of Health at its meeting on November 19th, 2012.

Increased access to gambling will likely have other impacts on population health aside from problem gambling. The health impact of changes in employment, crime, traffic or economic development may be positive (improve health) or negative (worsen health). For this reason, the Board of Health requested the Medical Officer of Health to conduct further research on the broader community health impacts of a new casino in Toronto.

COMMENTS

Previous investigation by TPH related to the public health implications of a casino in Toronto has been limited to problem gambling and its associated impacts on individuals, families and communities. The current report complements that research by considering impacts on health-related quality of life and wellbeing.

The approach taken for this report was based on TPH's Health Impact Assessment (HIA) Framework. Health Impact Assessments are commonly used to identify potential health risks and benefits associated with diverse policy issues; inform or influence the decision-making process; and to identify measures that would mitigate any negative health impacts of a decision.³ Health Impact Assessments of potential casino developments in Kansas and Philadelphia informed both the organization and content of this report.

The community health impacts of a casino considered in this report include the following areas: employment, local economic development, crime, social safety net impacts and neighbourhood impacts (including traffic). Decisions made in these areas can have important impacts on population health. TPH summarized available evidence in these areas to predict the change a new casino might have on each impact, the subsequent impact on community health and wellbeing and the potential changes to population health in Toronto. Table 1 provides a high-level overview of the community impacts considered and their potential impact on health based on the studies reviewed. Detailed information on the nature of the impacts for each factor is provided in the report itself.

Table 1: Overview of Community Health Impacts of a Casino*

Potential Area of Impact	Predicted Change	Predicted Impact on Community Health/Wellbeing	Explanatory Notes
EMPLOYMENT			
Local jobs	Increase	Positive	Improve health
Shift work	Increase	Negative	Reduced benefits of increased employment
Regional Unemployment rate	No Change	No effect	No effect on health
ECONOMIC DEVELOPMENT			
Tourism	Increase	Mildly Positive	Could indirectly improve health through increased local job creation and local business development
Local business development	Could increase or decrease	Inconclusive	Improve or worsen health since data from other jurisdictions indicate different directions of change
CRIME			
Property crime	No change or possible increase	Neutral or Negative	Possibly worsen or leave health unchanged
Violent crime	No change or possible increase	Neutral or Negative	Possibly worsen or leave health unchanged
NEIGHBOURHOOD IMPACTS			
Traffic volume and congestion	Increase	Negative	Worsen health
Air pollution	Increase	Negative	Worsen health
Motor vehicle accidents	Increase	Negative	Worsen health
SOCIAL SAFETY NET IMPACTS			
Public service funding	Increase	Positive	Improve health
Public service demand	Increase	Negative	Worsen health

* Predicted changes and impacts based on the published studies reviewed in this report

The current report draws on *The Social and Economic Impacts of Gambling: Final Report* by Williams, Rehm and Stevens (2011), a comprehensive review of 492 studies discussing the social and economic impacts of gambling from both academic and non-academic 'grey' literature, and was supplemented with additional studies published since then. The majority of the empirical studies reviewed by Williams and colleagues came from the United States, Canada, Australia and New Zealand. The review provided information on seven social impact areas, all of which are relevant to this report: problem gambling, crime, employment, socioeconomic inequality, leisure activity, public attitudes and quality of life/public health/social capital/values. The Williams *et al.* review also formed the basis of the literature review for the TPH Technical report published in 2012. In preparing the Technical Report, TPH also identified studies available since 2011 when the Williams *et al.* review was published.

The information presented here is drawn from studies of casinos in diverse settings with diverse characteristics. After reviewing these studies, it is evident that the community health impacts of casinos are mediated by several variables. These include whether the casino is located in a rural or urban community; accessibility of gambling opportunities prior to the introduction of a casino in the community, the type and extent of gambling opportunities in neighbouring jurisdictions; whether the casino primarily attracts local clientele or tourists and the strength of local policies to address potential harms from gambling.⁴ Furthermore, the potential health and social impacts of a casino are often difficult to quantify, are indirect or cumulative in nature or may change over time.⁵

Community Health Impacts of a Casino

Employment

A number of studies associate gambling expansion with employment gains.^{4,5,6,7} Generally, employment has a positive impact on health, including tangible benefits related to increased income and intangible benefits such as the sense of meaning associated with employment. In particular, increased income is associated with increased life expectancy and lower body mass index.⁵

While employment is associated with positive health benefits, unemployment can increase risk for adverse health impacts, including depression, suicide, cardiovascular disease and overall mortality and morbidity.¹² Concern about unemployment rates is one factor that encourages legal gambling expansion by governments.¹⁵ However, even when new jobs are created by a casino, the local unemployment rate often stays the same.^{5,8} A study examining the opening of a casino in Niagara Falls found no significant change in the unemployment rate, with the possible explanation that direct and indirect employment from the casino was diverted from other industries in the area.⁹ Additionally, new jobs generated by casino development may go to people hired from outside the area, resulting in no impact on the local unemployment rate.⁵ A review of new gaming venues in four British Columbia Lower Mainland communities found that overall, only 52% of casino employees lived in the same municipality as the venue.¹⁰

Most studies examining the employment impact of a casino do not account for the potential loss of employment in other sectors of the local economy or in the larger region as a result of a casino opening. Net employment gains are negligible in most of the studies that do have this larger scope.⁴

The extent of the health benefits related to employment depends on the type and quality of jobs created and the job environment. Construction jobs will be created as they would for any new development. Development and construction work offers a wide variety of skilled, well paid jobs, frequently with benefits. In light of the current building boom in Toronto and surrounding areas there is already a high demand for skilled construction workers and trades and a below average level of unemployment in this sector. In contrast, jobs in the gambling industry are currently more limited and somewhat tenuous, therefore new jobs might improve employment options. Employment in this sector however, is often portrayed as low skilled, low paid and more often part-time,⁴ which could limit the health benefits associated with increased jobs. Employment in a casino can also include jobs that cover a range of types and conditions of work (such as cleaning staff, reception staff, bartenders, floor staff, dealers, management and so on) and pay levels. A 2011 Statistics Canada report on gambling found that compared with those in non-gambling industries, workers in the Canadian gambling industry were more likely to be paid by the hour (80% versus 65%) and to be paid less on average, including tips and commissions (average of \$21.95 an hour versus \$24.05).¹¹

A negative impact often associated with casino employment is the requirement for shift work and late night work.⁵ Night shift work can interrupt the circadian rhythm and increase risk for insomnia, physical and mental health problems, social disruption and traffic accidents.¹² Furthermore, the International Agency for Research on Cancer (IARC) has designated shift work that disrupts circadian rhythms as a probable carcinogen.¹³

Shift work and late night work may also have negative family impacts. For example, nonstandard work schedules have been associated with emotional and behavioural difficulties in children of shift workers. Furthermore, fathers who have been married for less than five years, have young children and work night shifts are six times more likely than those who work standard hours to become separated or divorced from their partner. Similarly, mothers who have been married for more than five years, have young children and work night shifts are three times more likely than those who work standard hours to become separated or divorced.

Studies of casino employees have also found higher prevalence rates of problem gambling,¹⁴ problem drinking, depression and smoking than the general adult population.¹²

Local Economic Development (including tourism)

Economic development needs often trigger gambling expansion by national and local governments. Key motivators often include lowering unemployment rates, raising general

income levels and expanding tourism industries.¹⁵ Overall however, there is inconclusive evidence relating to the impact of a casino on local businesses.⁴

A new casino could have positive impacts on businesses in the local area, including increased revenue to existing businesses and the creation of new businesses to accommodate casino visitors.⁴ However, the effect of a casino on local economic development depends on the extent to which it attracts tourists. Compared to casinos that primarily serve local residents, 'destination casinos' are more likely to generate positive impacts to existing businesses in the area, particularly in the hospitality and entertainment industries including hotels, restaurants and entertainment venues.^{4,15} These benefits are enhanced when the number of visitors is large relative to the local population, when the jurisdiction has low levels of economic activity outside of the casino (such as in some Aboriginal communities), when casino supplies are purchased locally, and when employee wages are spent in the local community.⁴ Factors that influence a casino's impact on tourism include the state of existing infrastructure in the surrounding area and other opportunities for tourists, including shopping, restaurants and recreational facilities.⁵

The benefits of gambling-related tourism are greatest when casinos attract tourists that would not have otherwise visited the area.⁵ However, this may not be the case in all instances. For example, a study of gambling in Alberta predicted that most gambling-related tourism is generated by visitors who travel to Alberta to visit family, friends or other attractions, and visit the casino while there. In fact, almost all gambling revenue represented money spent by Alberta residents.¹⁶ Therefore, some studies indicate that potential host jurisdictions overestimate the amount of tourism the casino will attract.⁵

As with employment, new business generated by a casino could displace spending from other businesses in the area, particularly in the hospitality and entertainment industries.⁹ For example, a survey of Niagara Falls residents following the opening of Casino Niagara found that 80% of the money spent at the casino was diverted from other spending: 62% was diverted from entertainment, 11% from other forms of gambling and 8% from necessities of life such as food and rent.⁹

The main health benefits associated with increased tourism and economic development are the positive impacts associated with employment and increased income. However, potential related negative health impacts could include those associated with increased traffic and crime as discussed in later sections.⁴

Crime

The evidence is inconclusive concerning the neighbourhood impact of casinos on crime, ranging from no net impact to a significant increase in property or violent crime.^{4,5,6,14,17}

Researchers theorize that casino development could impact crime rates in numerous ways. These include: increasing the number of problem gamblers in a jurisdiction, a percentage of which may commit property or other crimes to support their gambling addiction^{4,18}; encouraging certain types of illegal activity or corruption related to

gambling (e.g. loan-sharking, theft or fraud) ; contributing to alcohol-related offenses such as assault or driving under the influence; and increasing tourism, as, although not definitive, there is some evidence that increased visitor populations contribute to increased crime rates.⁴ Crime can have serious health effects, including physical impacts such as injury and psychological impacts such as post-traumatic stress disorder.⁵

In their comprehensive literature review of the social impacts of gambling expansion, Williams, Rehm and Stevens (2011) note that most of the studies reviewed found that crime rates increase with gambling availability. Most studies found increases primarily in particular types of crime, primarily property offenses, including fraud, embezzlement, theft and larceny. Several American studies have also associated casino introduction with violent crime such as assault, and some studies have linked casino introduction to alcohol- related driving offenses.⁴ Furthermore, some studies found no impact on crime rates soon after a casino opened, but crime levels in the area increased over time. This could be because law enforcement increases when a casino first opens, but the resources decrease as time passes.⁵

Conversely, several studies have not found casino or gambling introduction to increase crime rates. For example, a 2004 analysis of the impact of a casino in Windsor, Ontario did not find an association between the casino opening and offenses in the local area, although the author suggested that future research could yield different results.¹⁹ Similarly, a report recently prepared by the International Gaming Institute concluded that while a new casino in Toronto might increase the total amount of crime in the City, the overall effect on crime rates would be insignificant once adjusted for the number of people in the area.²⁰

Williams *et al.* (2011) have suggested several factors which may mediate the relationship between crime and gambling introduction, including prior exposure to gambling, a small increase in the availability of gambling relative to population size, or the existence of policies designed to mitigate the negative impacts of gambling.⁴

Social Safety Net Impacts

The evidence discussing social safety net impacts from introducing a casino is inconclusive and limited in nature. While revenues from a new casino could increase funding for public services, increased utilization of those services by problem gamblers could decrease their overall quality.⁴ Government revenue generated from a new casino could be used for the enhancement of public services, such as health, education and social services. These public benefits are often an important justification used by governments for gambling expansion.^{4,7} Williams *et al.* 2011 review of gambling studies found that gambling revenue often improves public services provided by government.^{4,7} However, a study of casino gaming in the Mississippi Delta Region of the United States did not find an association between casinos and desirable health outcomes or funding for public health services.²¹

Jurisdictions with casinos may also experience increased demand for public services by individuals negatively impacted by problem gambling. Compared to those without

gambling problems, problem gamblers have been found to have higher utilization rates of health services, gambling addiction treatment services, and social assistance.^{4,12,22} For example, several community officials interviewed for a 2011 report on gambling in Alberta identified problem gambling as a significant source of family breakdown and financial bankruptcies leading to increased costs for social services. Officials from Edmonton, where there are five casinos, noted specifically that local social services were under stress from problem gambling concerns.¹⁶

Neighbourhood Impacts

People who live near casinos frequently cite high traffic volume as one of the negative impacts.^{5,7} Higher traffic volume increases levels of ambient noise pollution, which is associated with hypertension¹², sleep disturbance, impaired task performance, and impaired childhood development.²³ It also increases outdoor air pollution, already a significant public health concern in Toronto.^{23,24} The health effects of air pollution include a broad range of respiratory and cardiovascular effects, cancer, and hormonal and reproductive effects. Vulnerable groups who are especially at risk from traffic-related air pollution include children, fetuses, pregnant women, and the elderly.²⁴

The impact of a new casino on traffic volume and congestion is variable and depends on available mitigation measures employed by the host municipality. Based on the studies reviewed, a new casino could result in increased traffic congestion near the facility.^{7,9,12} Pollution from traffic congestion is associated with significant health impacts.²⁵ Emissions from tour buses that may access a casino could be of particular concern. Heavy-duty vehicles such as buses use diesel engines, and diesel exhaust is particularly harmful to health. In June 2012, the IARC classified diesel exhaust as carcinogenic to humans,^{26,27} and a 2002 review by Toronto Public Health concluded that diesel exhaust likely contributes to the burden of cancer in Toronto.²⁸ Diesel exhaust has also been linked to other health problems including a variety of respiratory health impacts.^{29,30,31,32} The California Environmental Protection Agency identified diesel exhaust particulate matter (DPM) as a toxic air contaminant based on its potential to cause cancer, premature death, and other health problems.³³

If the casino draws high numbers of tour buses, air quality in the area would be adversely affected. In particular, harmful emissions can build up when buses idle. While Toronto's idling control bylaw prohibits idling for more than one minute in any hour, the bylaw does not apply to transit vehicles where passengers are embarking or disembarking meaning that tour buses would be allowed to idle while dropping off or picking up passengers in the vicinity of the casino.

High traffic volume increases risk for pedestrian injury and fatality, particularly in situations of pedestrian intoxication.¹² Increased vehicle traffic may also increase risk for cyclist injury and fatality.²³ Increases in driving while impaired or extremely tired have both been linked to casino presence in communities.³⁴ In particular, several studies associate casinos with alcohol-related motor vehicle accidents and fatalities, with impacts varying significantly depending on the type of community.⁵ For example, a recent study found that rural or moderately sized communities with casinos experienced an increase in

alcohol-related motor vehicle fatalities, although urban communities experienced a decrease. This could be because casinos in urban communities substitute for venues that are further away, reducing driving distances. However, the study found a particular increase in alcohol-related fatalities for 'destination casinos' that attract visitors from outside the jurisdiction to gamble.³⁵ A study from Connecticut for example, found significant increases in arrests for 'driving under the influence of alcohol' (DUI) in three communities after casinos were introduced nearby. In one community, roughly 20% of motorists arrested for DUI admitted to police that their last drink was at a casino.³⁶

Socioeconomic Inequality

A casino may contribute to or exacerbate poverty and socioeconomic inequalities.¹ William *et al.* (2011) review of gambling studies found that lower income people contribute disproportionately more to gambling revenue than those with middle and higher incomes.⁴ Similarly, a 2011 review of gambling activity by Statistics Canada found that low income families spend proportionally more of their household income on gambling than higher income families.¹¹ Furthermore, as reported in the November 2012 TPH Technical Report, evidence suggests that families and individuals with low income may be heavily represented as problem gamblers or disproportionately affected by problem gambling.¹

Economic Consequences of Social Impacts

During the City of Toronto's casino consultation process, members of the public expressed considerable interest in assessment of the social impact costs that could be expected with the introduction of a new or expanded casino in the GTA. Some researchers have calculated the financial cost from the social impacts of problem gambling associated with existing casinos. However, there are two significant limitations to conducting this analysis for Toronto: a) data on the social costs of problem gambling is limited and estimates vary widely in the literature; and b) it is difficult to predict accurately the amount problem gambling prevalence would increase in the GTA with the introduction of a new or expanded casino.

Summaries of available research such as these by U.S. researchers Walker and Barnett (1999) and Grinols and Mustard (2001), and more recent research estimate that the social costs of problem gambling could range from \$6,300 per problem gambler per year (published in 1999)³⁷ to \$53,000 per problem gambler per year (published in 1992).³⁸ This wide range in social costs reflects an area of research that is highly complex, contentious and varies in methodological approach significantly. Most studies are from the U.S. as published Canadian research on this topic is extremely limited. Different studies have used various methods and often rely on social cost estimates that originate from research dating back to the early 1980s or 1990s. Further, these estimates do not take inflation into account. The 'social costs' estimated vary by researcher and may include costs associated with problem gambling treatment and other social service impacts, crime and impacts on the criminal system, bankruptcy, divorce, unemployment, lost productivity and the impacts on beneficial social networks, relationships or norms (sometimes called "social capital") among others.³⁹ The weight assigned to each of these impacts during cost calculations varies widely from study to study.

The extent to which the prevalence of problem gambling would increase in Toronto with a new casino is also difficult to predict. While some studies do not associate increases in problem gambling with new casinos or gambling expansion,⁴ a scan of studies that do report an increase suggest that the potential percentage increase in rates could be in the order of about 25% to over 100%.^{9,10,40,41}

As reported in the 2012 Technical report, the most severe form of problem gambling is currently estimated to directly affect about 11,000 people aged 18+ in the GTA. Problem gambling prevalence in Ontario is about 50% higher than in the GTA.¹ This may be reflective of the relatively lower accessibility to casino gambling in the region, as virtually all casinos in Ontario are currently outside the GTA. It may also be predictive of a potentially greater increase in problem gambling rates with the introduction of a new casino in the GTA as has been seen in other jurisdictions with previously low exposure to casino gambling.⁴² Hence, it is reasonable to expect problem gambling rates to increase with a new casino, possibly even doubling from 0.2% to 0.4% in the GTA.

Overall, annual social impact costs of a new casino are difficult to calculate due to research limitations in social cost approaches and uncertainty surrounding the extent to which problem gambling would increase in Toronto. For these reasons, TPH's Health Impact Assessment approach that qualitatively identifies social impacts emphasizes non-monetary impacts of gambling.

Conclusion

A new casino could have both positive and negative implications for the health of Toronto's communities. These impacts are outlined in Table 1. A new casino could increase employment in Toronto to some extent, an important determinant of health, although previous studies indicate that the gains may be less than expected. A new casino could also increase traffic volume and congestion, and decrease air quality. Negative family impacts associated with problem gambling, including domestic assault, child abuse and divorce, could be another adverse consequence as discussed in the 2012 Technical report. Lower income individuals and families may be particularly affected by these negative impacts as they contribute proportionally more of their income to gambling than higher income families and tend to be more heavily represented as problem gamblers.¹

There are many factors to consider when assessing the impact of a new casino on Toronto's communities. For some factors, the health impacts are primarily positive, for others, primarily negative. However, as shown in Table 1, this health impact assessment indicates that overall, expansion of gambling through introduction of a new casino is anticipated to have greater adverse health-related impacts on a community than beneficial impacts.

CONTACT

Monica Campbell
Director, Healthy Public Policy
Toronto Public Health
Phone: 416-392-7463
Email: mcampbe2@toronto.ca

Loren Vanderlinden
Supervisor, Healthy Public Policy
Toronto Public Health
Phone: 416-338-8094
Email: lvander@toronto.ca

SIGNATURE

Dr. David McKeown
Medical Officer of Health

References

- ¹ Toronto Public Health. *The Health Impacts of Gambling Expansion in Toronto – Technical Report*. November 2012.
- ² Toronto Public Health. *Gambling and Health.- Position Statement*. November 2012. Available at: <http://www.toronto.ca/legdocs/mmis/2012/hl/bgrd/backgroundfile-51872.pdf>
- ³ Toronto Public Health. (2008). *TPH Health Impact Assessment Framework*. Available at: http://www.toronto.ca/health/hphe/pdf/draft_hia_framework.pdf
- ⁴ Williams, R.J., Rehm, J. & Stevens, R.M.G. (2011). The social and economic impacts of gambling. *Final report prepared for the Canadian Consortium for Gambling Research*. March 11, 2011.
- ⁵ Lin, T.Y., Shoults, C.C., Williams, I.S. & McMurtry, C. (2012). Potential Health Effects of Casino Development in Southeast Kansas: Kansas Health Impact Assessment Project. *Kansas Health Institute*.
- ⁶ Humphreys, B.R., Soebbing, B.P., Wynne, H., Turvey, J. & Lee, Y.S. (2011). The Socio-Economic Impact of Gambling in Alberta. *Final Report to the Alberta Gaming Research Institute*. May 25, 2011.
- ⁷ Nichols, B.M., Stitt, G. & Giacomassi, D. (2002). Community Assessment Of The Effects Of Casinos On Quality Of Life. *Social Indicators Research 57*: 229–262.
- ⁸ Turner, N.E. (2008). Games, gambling and gambling problems. In Zangeneh, M. , Blaszczynski, A., Turner, N.E. [Editors], *In the pursuit of winning: Problem gambling theory, research and treatment*. Springer. Pp. 33-64.
- ⁹ Room, R., Turner, N.E. & Ialomiteanu, A.A. (1999). Community effects of the opening of the Niagara casino. *Addiction*. 94(10), 1449-1466.
- ¹⁰ Blue Thorn Research, Population Health Promotion Associates, PFIA Corporation, & Williams, R.J. (2007). Socioeconomic Impacts of New Gaming Venues in Four British Columbia Lower Mainland Communities: Final Report. *Submitted to the Gaming Policy and Enforcement Branch, Ministry of Public Safety & Solicitor General, Government of British Columbia*. July 2007.
- ¹¹ Marshall, K. (2011). *Gambling 2011. Perspectives on Labour and Income*. Statistics Canada.
- ¹² Purtle, J. (2010). *Gambling on the Health of the Public: A Rapid Health Impact Assessment for an Urban Casino. Poster Presented at the American Public Health Association Annual Meeting Denver, CO. November 9, 2010.*
- ¹³ International Agency for Research on Cancer. (2007). IARC Monographs Programme finds cancer hazards associated with shiftwork, painting and firefighting. *Press Release Number 180*. <http://www.iarc.fr/en/media-centre/pr/2007/pr180.html>
- ¹⁴ Williams, R.J., Volberg, R.A. & Stevens, R.M.G. (2012). The Population Prevalence of Problem Gambling: Methodological Influences, Standardized Rates, Jurisdictional Differences, and Worldwide Trends. *Report prepared for the Ontario Problem Gambling Research Centre and the Ontario Ministry of Health and Long Term Care*. May 8, 2012. <http://hdl.handle.net/10133/3068>
- ¹⁵ Richard, B. (2010). Diffusion of an Economic Development Policy Innovation: Explaining the International Spread of Casino Gambling. *Journal of Gambling Studies 26*:287–300
- ¹⁶ Williams, R.J., Belanger, Y.D. & Arthur, J.N. (2011). Gambling in Alberta: History, current status, and socioeconomic impacts. *Final report to the Alberta Gaming Research Institute*.
- ¹⁷ Community Research Partners. (2010). The Social Impact of Casinos: Literature Review and Cost Estimates. *Literature review prepared for The Human Services Advocates, the City of Columbus*.
- ¹⁸ Malach, A. (2010). Economic and Social Impact of Introducing Casino Gambling: A Review and Assessment of the Literature. *Federal Reserve Bank of Philadelphia*.

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- ¹⁹ Phipps, A.G. (2004). Crime and disorder, and house sales and prices around the casino sites in Windsor, Ontario, Canada. *The Canadian Geographer* 48(4): 403-432.
- ²⁰ Kahlil, S., Philander, K.S., Bernard, B.J. (2012). Informing the Public Debate: Academic Research on Crime and Casinos. *UNLV International Gaming Institute*.
- ²¹ Honoré, P.A., Simoes, E.J., Moonesinghe, R., Wang, X. & Brown, L. (2007). Evaluating the ecological association of casino industry economic development on community health status: a natural experiment in the Mississippi delta region. *Journal of Public Health Management and Practice* 13(2):214-22.
- ²² Walker, D.M. & Barnett, A.H. (1999). The Social Costs of Gambling: An Economic Perspective. (1999). *Journal of Gambling Studies* 15(3):181-212.
- ²³ Toronto Public Health. (2012). *Road to Health: Improving Walking and Cycling in Toronto*.
- ²⁴ Toronto Public Health. *Air Pollution Burden of Illness from Traffic in Toronto – Problems and Solutions*. November 2007. Toronto, Canada.
- ²⁵ Levy, J., Buonocore, J.J. and von Stackelberg, K. (2010). Evaluation of the public health impacts of traffic congestion: a health risk assessment. *Environmental Health* 9(65) <http://www.ehjournal.net/content/pdf/1476-069X-9-65.pdf>
- ²⁶ Benbrahim-Tallaa, L., et al. 2012. Carcinogenicity of diesel-engine and gasoline-engine exhausts and some nitroarenes. *The Lancet Oncology* 13(7): 663 – 664.
- ²⁷ IARC (International Agency for Research on Cancer). (2012). *Monographs on the Evaluation of Carcinogenic Risks to Humans Volume 105: Diesel and Gasoline engine exhaust and some nitroarenes*. Lyons, France, June 2012. <http://www.iarc.fr/en/media-centre/iarcnews/2012/mono105-info.php>
- ²⁸ Toronto Public Health. (2002). *Estimated Human Health Risk from Exposure to Diesel Exhaust in Toronto*. http://www.toronto.ca/health/pdf/de_technical.pdf
- ²⁹ National Center for Environmental Assessment Office of Research and Development.(2002). *Health Assessment Document for Diesel Exhaust*. Washington, DC: U.S. Environmental Protection Agency. <http://www.epa.gov/ttn/atw/diesel/diesel.html>
- ³⁰ Johannes, G., Kauppinen, T., Kyrrnen, P., Heikkil, P., Lindbohm, M. & Pukkala, E. (2004). Risk of esophageal, ovarian, testicular, kidney and bladder cancers and leukemia among finnish workers exposed to diesel or gasoline engine exhaust. *International Journal of Cancer* 111(2): 286-292. doi:10.1002/ijc.20263.
- ³¹ Ris, C. (2007). U.S. EPA Health Assessment for Diesel Engine Exhaust: A Review. *Inhalation Toxicology*. 19(s1): 229-239. <http://www.informapharmascience.com/doi/abs/10.1080/08958370701497960>.
- ³² Hesterberg, T.W., Long, C.L., Bunn, W.B., Sax, S.N., Lapin, C.A. & Valberg, P.A. (2009). Non-cancer health effects of diesel exhaust: A critical assessment of recent human and animal toxicological literature. *Critical Reviews in Toxicology*. 39(3):195-227.
- ³³ California Air Resources Board. 2009. *Background Material: Health Effects of Diesel Exhaust*. <http://www.arb.ca.gov/research/diesel/diesel-health.htm>.
- ³⁴ Centre for Addiction and Mental Health (2011). Gambling policy framework. Available at: http://www.camh.net/Public_policy/Public_policy_papers/CAMH_gambling_policy_framework.pdf
- ³⁵ Cotti, C.D. and Walker D.M. (2010). The impact of casinos on fatal alcohol-related traffic accidents in the United States. *Journal of Health Economics* 29: 788–796.
- ³⁶ Spectrum Gaming Group (2009). *Gambling in Connecticut: Analyzing the economic and social impacts*.193-197. Available at: [http://www.ct.gov/dcp/lib/dcp/pdf/gaming/june_24_2009_spectrum_final_final_report_to_the_state_of_connecticut\[1\].pdf](http://www.ct.gov/dcp/lib/dcp/pdf/gaming/june_24_2009_spectrum_final_final_report_to_the_state_of_connecticut[1].pdf)

³⁷ Thompson & Quinn (1999). An Economic Analysis of Machine Gambling in South Carolina. Presented to the Education Foundation of the SC Policy Council.

³⁸ Better Government Association Staff White Paper: Casino Gambling in Chicago (1992).

³⁹ Organization for Economic Cooperation & Development (OECD). Human Insights: What is Social Capital? <http://www.oecd.org/insights/37966934.pdf>

⁴⁰ Hann, R. G., & Nuffield, J. (2005). Local community impacts of the charity casinos. Prepared for Addiction Programs, Ontario Ministry of Health and Long-Term Care.

⁴¹ PolicyAnalytics LLC (2006). *A benefit-cost analysis of Indiana's riverboat casinos for FY 2005: A report to the Indiana Legislative Council and the Indiana Gaming Commission*. Indianapolis, IN: PolicyAnalytics LLC.

⁴² Toronto Public Health. 2012. The Health Impacts of Gambling Expansion in Toronto. Staff Report. November 7, 2012. Report to the Board of Health. <http://www.toronto.ca/legdocs/mmis/2012/hl/bgrd/backgroundfile-51871.pdf>