



PUBLIC HEALTH APPROACH TO ALCOHOL POLICY

AN UPDATED REPORT FROM THE PROVINCIAL HEALTH OFFICER

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Provincial Health Officer

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EXECUTIVE SUMMARY

In 2002, the Provincial Health Officer (PHO) issued a special report entitled *A Public Health Approach to Alcohol Policy*. At that time, the provincial government was set to implement several policy changes designed to increase access to alcoholic beverage products in BC. Since international research suggests that increasing access to alcohol can lead to increases in consumption and, by extension, increases in alcohol-related health and social harms, the PHO recommended that the government closely monitor the impact of the policy changes and also offered a set of recommendations designed to mitigate the potential negative public health outcomes of the changes.

This report updates the 2002 report, by assessing the impacts of the 2002 policy change and providing updated recommendations to address the health and social harms from alcohol in BC. This report reviews in detail: levels and patterns of alcohol consumption, rates and trends of alcohol-related health and social harms, the current cost-benefit profile of alcohol in BC, best practice policies for managing alcohol in society, and the status of current alcohol policies in BC relative to these best practices.

The major findings of this study are:

- The physical availability of alcohol has increased substantially in BC, with the total number of liquor stores in the province increasing from 786 in 2002 to 1,294 in 2008. All of this growth has been in licensed private retail, rural agency, and “other” liquor stores.
- The economic availability of alcohol appears to have increased, with wine and spirits becoming relatively cheaper over time because of the prices for these products not keeping pace with the cost of living. In addition, there are currently clear price incentives for consumers to choose higher-strength alcohol products in all major beverage classes.
- Alcohol consumption has increased 8 per cent overall since 2002, with rates of consumption growing in all regions of the province particularly in the Vancouver Island and Interior Health Authorities. The increases in Interior Health Authority are particularly troubling given that this region already has some of the highest rates of consumption in the province.
- Self-reported rates of drinking at hazardous levels at least monthly have increased since 2003, particularly in women age 12–34 and men age 12–34 and 65–74.
- Although undergraduates in BC generally drink in less risky patterns than those in other parts of Canada, about 12 per cent binge drink at least weekly, nearly 27 per cent report regular hazardous drinking, and nearly 30 per cent report at least one symptom indicative of dependent alcohol use.
- Over one-quarter of underage youth report binge drinking at least once a month, with youth alcohol use highest in the Interior and Northern Health Authorities.
- Overall, rates of death caused by or related to alcohol have remained stable while alcohol-related hospital stays have increased moderately but significantly since 2002. Chronic deaths from alcohol (e.g., liver cirrhosis, cancers) show an increasing trend when analyzed separately from acute deaths (e.g., poisonings, injuries).
- Several indicators suggest that the prevalence of alcohol-impaired driving may have increased since 2000.
- Real direct government revenue from the control and sale of alcohol has increased 4 per cent per year from 2003 to 2007. This rate of growth is substantially higher than the average growth in revenue from 1988 to 2002 (0.0 per cent).

- A comparison of a subset of direct alcohol-related costs and benefits indicates that health and enforcement costs exceeded government revenue from alcohol by approximately \$61 million in 2002/2003.

The report ends with a series of recommendations that, if properly implemented, would serve to reduce the present burden of harms from alcohol consumption in BC. Recognizing that government is unlikely to adopt all of these recommendations, the Provincial Health Officer recommends as priorities that the government:

- Continue to actively monitor consumption patterns and regularly assess the benefit/cost ratio of alcohol consumption in BC.
- Focus on initiatives that will reduce harmful use by youth and young adults. In particular:
 - Adjust prices to reflect alcohol content, keep pace with the cost of living, and prevent discounting the price of high alcohol content drinks.
 - Review and strengthen ID enforcement compliance practices, especially in licensed private retail, and rural agency liquor stores.
 - Review the impact of present alcohol advertising practices on youth and develop and evaluate programs for youth that realistically portray the dangers of excessive drinking.
- Commit to reversing the apparent increasing trend of alcohol-impaired driving.
- Increase the resources available for Fetal Alcohol Spectrum Disorder (FASD) prevention, early detection, and supports for those born with FASD.
- Support communities to create partnerships and implement programs that reduce the harms from alcohol misuse and promote safer communities.
- Implement a small levy based on standard drinks and use the proceeds to enhance treatment, prevention, and research capacity for addictions in British Columbia.

INTRODUCTION

The Provincial Health Officer (PHO) of British Columbia is required by the *Health Act* to conduct independent analyses on matters relevant to the health of British Columbians and also to comment on the need for legislation, policies, or other actions when deemed necessary. This responsibility is served most directly by the production of the PHO's Annual Report; however, from time to time, feature reports on specific topics are also prepared.

In 2002, the PHO published a feature report entitled *A Public Health Approach to Alcohol Policy*, which took a broad look at consumption, alcohol-related health and social harms, and the status of alcohol control policy in BC (PHO, 2002). At that time, the provincial government was in the process of implementing numerous policy changes that were likely to increase the availability of alcohol in BC, including the partial privatization of retail alcohol sales. Research from Canada and other countries suggests that increasing access to alcohol can lead to increases in population consumption, and this is frequently associated with increases in some types of alcohol-related harms (Babor et al., 2003).

This report updates the 2002 *Public Health Approach to Alcohol Policy* report, by assessing the effects of the 2002 alcohol policy changes and generating discrete, actionable recommendations to minimize the harms associated with alcohol use in BC.¹ First, it presents information on levels and patterns of alcohol use in BC and Canada over the last several decades, with a focus on the period 2002–2007. Next, it provides trends for several major health and social harms related to alcohol. Third, it reviews the economic benefits and social costs of alcohol in BC and Canada, looking at

trends over time where data are available. Fourth, it presents a summary of best practice policies for managing alcohol-related health and social harms and reviews the current status of BC's alcohol policies in relation to these practices. Finally, the report offers a set of practical recommendations to help minimize the health and social harms of alcohol in BC.

Context and Background

Alcohol misuse is a major issue in Canada, with direct and indirect health and social costs estimated at \$14.5 billion in 2002, accounting for 36.6 per cent of total substance abuse-related costs (Rehm et al., 2006). Alcohol also provides substantial economic and social benefits to Canadians. For example, governments in Canada took in approximately \$7.7 billion in revenue from the sale and control of alcohol in fiscal year 2003 (Statistics Canada, 2004, with further analysis from the author).

The 2002 PHO report on alcohol policy provided a number of recommendations to mitigate the potential adverse effects of the policy changes being proposed by the provincial government at that time. Specifically, the report recommended the following:

1. Monitoring of public health and safety impacts of policy changes (e.g., rates of traffic crashes, crime, and chronic health problems).
2. Increased prevention programming with a focus on children and youth and on modifying risky drinking behaviours.

¹ While there are a number of perspectives that need to be considered when crafting alcohol policy in BC, including economic, social, political, and ethical views, this report is designed to explicitly bring a public health perspective to this topic. Given the historical dominance of economic and political considerations within alcohol policy, the promotion of the public health perspective in this area is an important part of efforts to enhance alcohol policy in BC.

3. Rigorous monitoring and enforcement of laws relating to sales to underage and intoxicated consumers.
4. An enhancement of the addictions treatment and rehabilitation system.
5. Evaluation of prevention policies and programs, with reduction of drinking-related harms as the main criterion of effectiveness.
6. Involvement of public health experts in the planning of future changes to alcohol policy.

Efforts have been made to implement some of these recommendations since 2002. For example, the Centre for Addictions Research of BC (CARBC) operates the BC Alcohol and Other Drug (AOD) Monitoring Project, which collects population-level data on alcohol use, alcohol-related morbidity and mortality, and other data relevant for tracking the effects of changes in BC's alcohol policies.² As well, researchers from CARBC submitted a brief on alcohol pricing and taxation policy in the 2008/2009 provincial budget process and met with representatives from the BC Ministry of Finance and the BC Liquor Distribution Branch in December 2007 to discuss economic approaches for responding to alcohol-related health and social harms in the province. While this meeting did not lead to any substantive changes in alcohol pricing and taxation policy, it did allow health and safety issues relating to alcohol to be discussed among senior policy makers in BC.

Other organizations have also been involved in implementing recommendations from *A Public Health Approach to Alcohol Policy*. For example, the BC Liquor Control and Licensing Branch in the Ministry of Housing and Social Development conducted comprehensive audits of age verification practices at both government and privately operated liquor stores across the province in 2003, 2004, 2005, and 2008.³ Further,

in June 2007, the provincial government implemented a new, higher penalty for minors caught using false ID to purchase alcohol. As well, fines for licensees selling liquor to minors and allowing minors to enter licensed establishments were increased significantly in 2007. The minimum penalty for selling liquor to minors increased from a 4-day licence suspension or a \$5,000 fine, to a 10-day suspension and a \$7,500 fine. The minimum penalty for bars who allow minors on the premises increased from a 1-day licence suspension or \$1,000 fine, to a 4-day licence suspension and a \$5,000 fine.

In terms of prevention, the BC Liquor Distribution Branch conducts monthly in-store responsible use campaigns⁴ and operates the annual Dry Grad Program, which takes donations from customers and distributes them to high schools across the province to fund alcohol-free graduation events. In 2008, the Dry Grad Program distributed over \$625,000 to 55 school districts across BC for this purpose. Finally, the Liquor Distribution Branch has been cooperating closely with researchers from CARBC on several projects, including sharing detailed sales data to help improve estimates of alcohol consumption in the province.

Recent Efforts to Enhance Alcohol Policy in BC and Canada

In March 2006, the BC Ministry of Health published *Following the Evidence: Preventing Harms from Substance Use in BC*. This document offers numerous recommendations for improving public health outcomes for alcohol and other drugs across five major strategic directions: (1) influence developmental pathways; (2) prevent, delay, and reduce use by teens; (3) reduce risky patterns of use; (4) create safer contexts; and (5) influence economic availability. Further, in 2007, a diverse expert working group, co-chaired by Health Canada, the Canadian Centre on Substance Abuse, and the

²Data from the BC Alcohol and Other Drug Monitoring Project can be viewed online at <http://carbc.ca/Projects/AODMonitoringProject/MonitoringProject/tabid/240/Default.aspx>.

³The 2008 compliance check involved audits of 831 liquor retailers in BC (Hoy & Carlson, 2008). The findings from the 2008 Liquor Control and Licensing Branch age verification compliance check project are shown in the report section entitled *Current Status of Alcohol Policies in BC*. The Branch has secure funding for ongoing age verification protocol compliance checks as part of its enforcement mandate.

⁴An evaluation of the Liquor Distribution Branch's responsible alcohol use campaign revealed that 89 per cent of customers had some awareness of the initiative. The Branch's corporate goal was 90 per cent recognition, so this goal under its social responsibility mandate was recorded as "not met" in the 2007/2008 Annual Report (BC Liquor Distribution Branch, 2008).

Alberta Alcohol and Drug Abuse Commission, developed the first-ever National Alcohol Strategy for Canada. The strategy offers 41 detailed recommendations across 4 action areas, which, if properly implemented, could further reduce the health and social harms associated with alcohol use in Canada (National Alcohol Strategy Working Group, 2007). The recommendations from the National Alcohol Strategy are listed in Appendix 1.

With this context in mind, the next section presents information on levels and patterns of alcohol consumption in BC and Canada.

LEVELS AND PATTERNS OF ALCOHOL CONSUMPTION IN BC AND CANADA

Consumption Levels

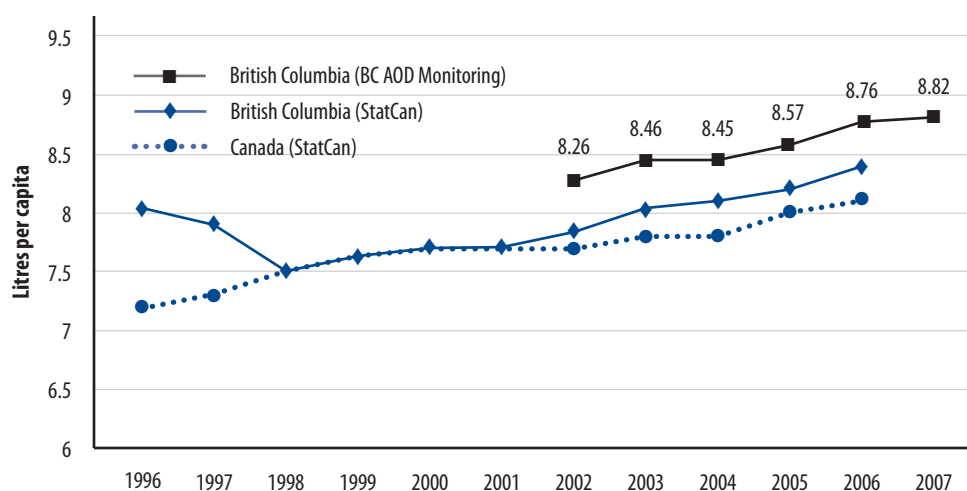
Alcohol use is very common in BC and Canada. In 2004, approximately 80 per cent of the population age 15 and older reported drinking at least once in the last year (Demers & Poulin, 2005). Based on official sales records, consumption in Canada has varied from an overall high of approximately 11.5 litres of absolute alcohol per capita (age 15 and older) in 1978/1979, to an overall low of 7.2 litres in 1996/1997. More recently, between 1996/1997 and 2006/2007, national consumption increased approximately 12.5 per cent, to 8.1 litres of absolute alcohol per person (Statistics Canada, 2008 and various years). Similarly, consumption in BC reached

a global maximum in the early 1980s and decreased to an overall low of 7.5 litres per person (age 15 and older) in 1997/1998. Based on official Statistics Canada data, per capita consumption in BC increased 12 per cent to 8.4 litres of absolute alcohol per capita between 1998 and 2007.

Researchers at CARBC recently generated more accurate estimates of per capita alcohol consumption in British Columbia.⁵ These data suggest that consumption of alcohol increased from 8.26 litres of absolute alcohol in 2002, to 8.82 in 2007. Put another way, this is approximately 513 beers or glasses of wine or cocktails per person per year for everyone age 15 and older in BC. Figure 1 provides a comparison

Figure 1

Comparison of Alcohol Consumption Estimates, BC and Canada, 1996 – 2007



Note: Statistics Canada estimates are based on sales data by fiscal years 1997–2007. The BC AOD Monitoring Project figures are by calendar year 2002–2007, and are based on sales and U-brew/U-vin data obtained from the Liquor Control and Licensing Branch. Home brew, duty-free sales, and illegal sales are not included in the data. Statistics Canada alcohol sales data provide a conservative estimate of total alcohol consumption because they do not include consumption from all sources.

Source: Statistics Canada and BC Alcohol and Other Drug (AOD) Monitoring Project.

⁵ The Alcohol and Other Drug Monitoring Project data include estimates for alcohol distributed through U-vin and U-brew facilities and more accurate estimates of alcohol content for wine and coolers sold in liquor stores. Data analyzed for 2002–2005 showed that the typical alcoholic strength of wine and coolers sold from liquor stores in BC was higher than assumed by Statistics Canada (12.2 per cent versus 11.5 per cent for wine and 6.7 per cent versus 5 per cent for coolers).

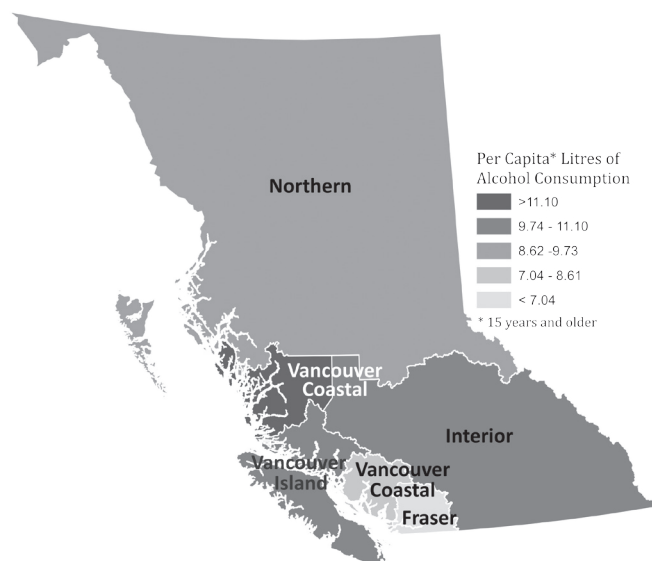
of Statistics Canada and CARBC estimates of per capita consumption in BC and Canada between 1996 and 2007.

These data reveal that per capita alcohol consumption in BC was above the national average until 1998, was equivalent to national consumption from 1998–2001, and has remained above the Canadian average since 2002. Per capita consumption also varies substantially across the province. Figure 2 depicts per capita consumption of alcohol for the five regional health authorities in 2007, based on data from the AOD Monitoring Project.

When aggregating consumption levels according to health regions, Interior Health Authority had the highest rate of alcohol consumption in 2007 at 11.10 litres per capita, followed by Vancouver Island (10.71), Northern (9.73), Vancouver Coastal (8.61), and Fraser (7.03) Health Authorities. However, if Vancouver Coastal Health Authority is divided into two areas, Central Coast will stand out as having the highest consumption level in the province at 13.69 litres per capita in 2007.

Figure 2

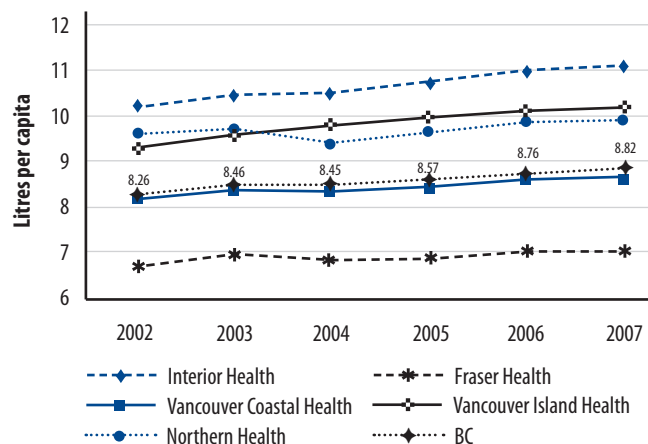
Per Capita Alcohol Consumption, Regional Health Authorities and BC, 2007



Source: Based on data published by the BC Alcohol and Other Drug Monitoring Project: (<http://carbc.ca/Default.aspx?tabid=402>).

Figure 3

Trends in Per Capita Alcohol Consumption, Health Authorities and BC, 2002 to 2007



Source: Based on data published by the BC Alcohol and Other Drug Monitoring Project (<http://carbc.ca/Default.aspx?tabid=402>).

Trends in alcohol use also show variation across BC, as depicted in Figure 3. Linear regression analyses conducted for this report showed that per capita alcohol consumption increased significantly in four out of the five regional health authorities and in the province as a whole between 2002 and 2007. In terms of percentage increases, Vancouver Island Health Authority had the largest increase at 15.2 per cent ($p < 0.002$), followed by Interior Health Authority at 8.6 per cent ($p < 0.002$). The increase in Interior Health Authority is especially noteworthy, given the relatively high rate of consumption in this region.⁶ Northern Health and Fraser Health Authorities recorded the smallest overall increases in consumption at 1.8 per cent and 4.3 per cent ($p < 0.01$) respectively. Vancouver Coastal Health Authority recorded a moderate increase of 5.6 per cent ($p < 0.002$) while the overall provincial average was 8.0 per cent ($p < 0.001$).

Consumption Patterns

The overall level of consumption in a population is a powerful predictor of rates of alcohol-related diseases and injuries. At any given overall level of drinking, however, the more heavy drinking occasions an individual engages in adds substantially to his/her risk of both acute and chronic harms (Rehm et al., 2006). The majority of people who consume alcohol do

⁶ A portion of the elevated per capita consumption in the Interior Health Authority is likely explained by the concentration of wineries that sell alcohol to tourists visiting the area. However, there are indications that some alcohol-related problems are relatively high in this region. In further analyses, it will be important to sort out tourist wine consumption from resident consumption in the development of public policies for this region.

not experience problems, but a sizeable minority regularly consume in ways that increase the risk of health and social harms to themselves and others. For example, excessive alcohol consumption is the leading contributing cause of death among British Columbians 25 years of age and under, due to fatal road crashes, suicides, homicides, and poisoning deaths (Ministry of Health, 2006). Furthermore, in relation to some alcohol-related conditions such as some cancers and liver disease, there is no known safe level of consumption, with risks increasing from as little as one drink per day.

Frequency and Quantity

Table 1 shows the frequency and “usual” quantity of alcohol consumed in the past year, as reported by drinkers in BC and Canada in 2004.

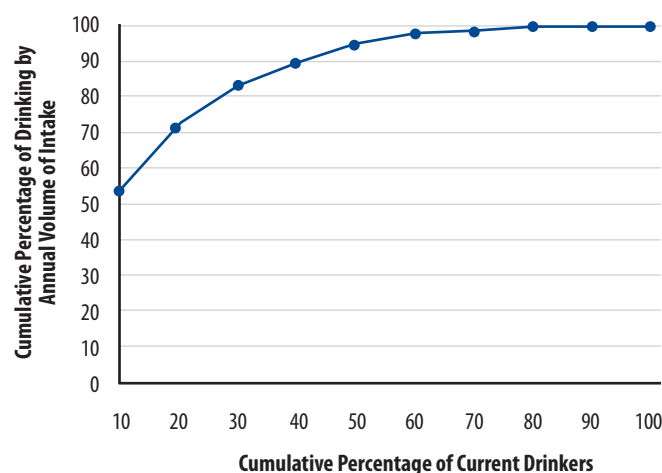
Table 1: Frequency and Usual Quantity of Alcohol Consumed, BC and Canada, 2004

Frequency	BC	Canada
Less than once a month	23.3%	22.7%
1-3 times a month	32.5%	33.3%
1-3 times a week	34.1%	34.1%
4+ times a week	10.3%	9.9%
Usual Quantity	BC	Canada
1-2 drinks	65.3%	63.7%
3-4 drinks	17.8%	20.2%
5+ drinks	16.8%	16.0%

Source: Demers & Poulin, 2005.

Figure 4

Cumulative Percentage of Drinking by Annual Volume of Intake, Canada, 2004



Source: Stockwell, Zhao & Thomas, in press.

In 2004, among those who drank alcohol in the past year, BC had the third highest rate of at least weekly consumption at 44.4 per cent, which was just behind Ontario at 45.5 per cent and substantially lower than Quebec at 48.0 per cent (Demers & Poulin, 2005).

Concentration of Drinking in Canada

From a public health perspective, it is useful to consider the dispersion of drinking across the population. Analysis using usual quantity and frequency of drinking data from the Canadian Addiction Survey (2004) suggests that a small proportion of drinkers in society account for a majority of alcohol consumed, as shown in Figure 4.

This chart reveals that the top 10 per cent heaviest drinkers in Canada accounted for 53.3 per cent of total alcohol consumption in 2004, while the top 20 per cent accounted for over 70 per cent of the total. This means that the remaining 80 per cent of the drinking population accounted for 28 per cent of overall alcohol consumption, as measured by self-reporting.⁷

⁷The self-reported data likely underestimate the true concentration of drinking in Canada. Further analysis of the data from the Canadian Addiction Survey revealed that self-reported drinking only accounted for about 40 per cent of the alcohol sold in Canada as measured by official Statistics Canada sales data (Stockwell, Sturge & Macdonald, 2005). This, coupled with the fact that heavier drinkers tend to under-report their consumption more than lighter drinkers (Greenfield, Kerr, Bond & Stockwell, 2007), suggests that the actual concentration of drinking in society is likely even more skewed than suggested in Figure 4.

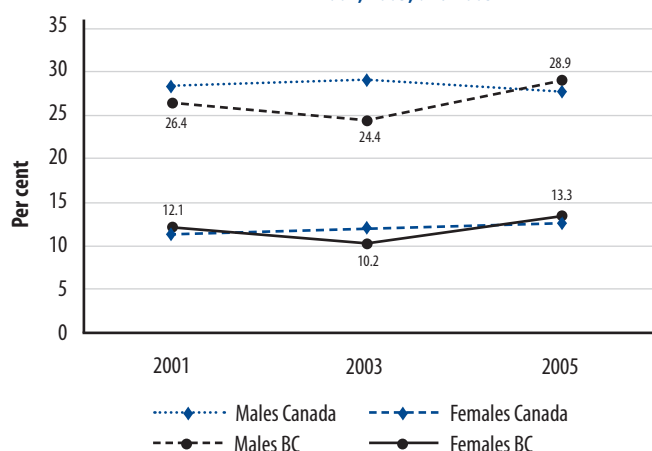
Exceeding Low-Risk Drinking Guidelines

Data from the 2004 Canadian Addiction Survey suggest that a substantial proportion of alcohol in BC is consumed in levels that exceed drinking guidelines set to reduce the risk of health and social harms (Stockwell, Sturge & Macdonald, 2005).⁸ Related findings include:

- Over 90 per cent of alcohol consumption reported by males age 15–24 was in excess of the Centre for Addiction and Mental Health Low-Risk Drinking Guidelines, and 85 per cent of alcohol consumed by females age 15–24 exceeded the guidelines.
- Just under 30 per cent of males and 14 per cent of females reported regularly drinking in ways that increased the risk of short-term (acute) and long-term (chronic) alcohol-related harms.
- Approximately 40 per cent of British Columbians at least occasionally drink in ways that put themselves and others at risk of short-term harms due to intoxication (i.e., males consuming five or more standard drinks on a single occasion, females consuming four or more).

Figure 5

Percentage of Current Risky Drinkers Reporting Monthly Drinking, BC and Canada, 2001, 2003, and 2005



Note: Risky drinking is defined as five or more standard drinks per occasion.

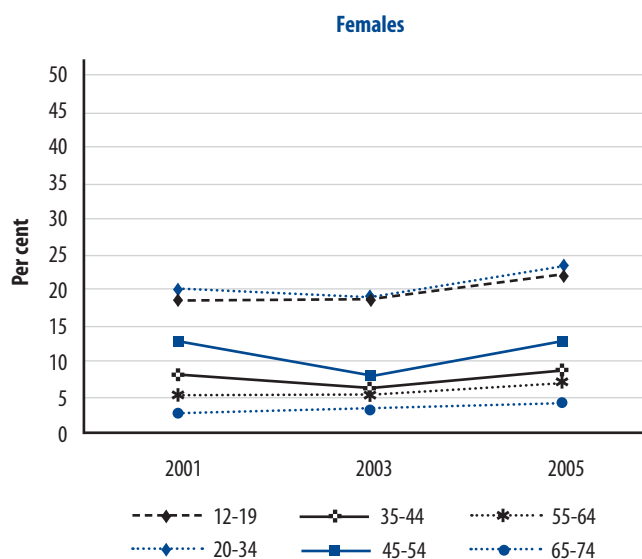
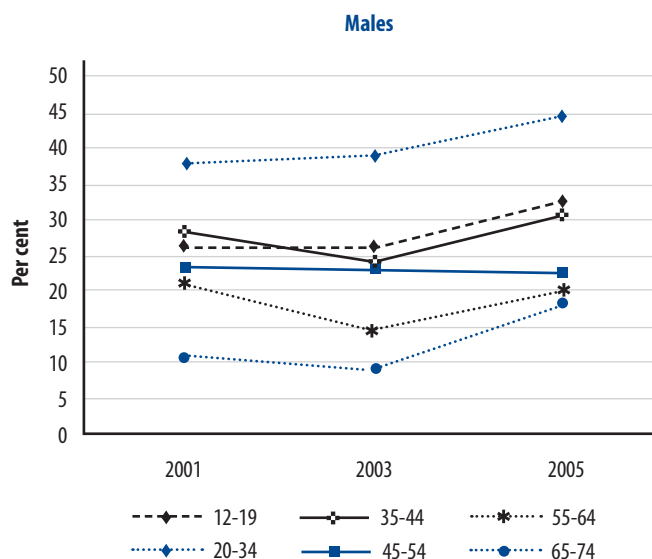
Source: Statistics Canada, Canadian Community Health Survey, Cycles 1.1, 2.1, and 3.1.

Risky Drinking

In Canada and elsewhere, drinking five or more drinks on a single occasion is often used as a measure of risky drinking, since this pattern of use is associated with increased risk of health and social harms. Figure 5 depicts self-reported rates of monthly risky drinking for males and females in BC and Canada for 2001, 2003, and 2005, based on findings from the Canadian Community Health Survey (CCHS).

Figures 6 and 7

Percentage of Current Male and Female Drinkers Reporting Monthly Risky Drinking, BC, 2001, 2003, and 2005



Note: Risky drinking is defined as five or more standard drinks per occasion.

Source: Statistics Canada, Canadian Community Health Survey, Cycles 1.1, 2.1, and 3.1.

⁸ The Centre for Addiction and Mental Health (CAMH) in Ontario recommends no more than 2 standard drinks a day, with a weekly limit of 14 drinks for men and 9 for women. A standard drink is one 12 oz beer at 5 per cent alcohol, one 5 oz glass of wine at 12 per cent alcohol, or one 1.5 oz shot of spirits at 40 per cent alcohol.

For both males and females, self-reported rates of monthly risky drinking declined in BC between 2001 and 2003, but increased between 2003 and 2005. This contrasts to the situation in Canada, where monthly risky drinking increased more gradually for females between 2001 and 2005, and decreased slightly for males in the same time period. Changes in risky drinking practices in BC were not uniform across all age groups, however, as shown in Figures 6 and 7.

These data indicate that males and females of all age groups in BC, except males age 45–54, reported an increase in risky drinking between 2003 and 2005. In terms of overall increases between 2001 and 2005, males age 12–34 and 65–74 and females age 12–34 showed the largest increases over this time period.

Hazardous Drinking and Alcohol Dependence in BC

The Alcohol Use Disorders Identification Test (AUDIT), a valid and reliable screen for hazardous drinking, was applied as part of the 2004 Canadian Addiction Survey. Data from the survey revealed that 17 per cent of current drinkers age 15 and older in BC reported engaging in hazardous drinking during the previous year. This was identical to the average for the rest of Canada (Kellner, 2005). In 2002, the Canadian Community Health Survey used several standard questions to estimate the rate of alcohol dependency across Canada. These data suggest that in 2002, BC had the second highest prevalence of alcohol dependence in Canada at 3.6 per cent (representing an estimated 122,400 people). This percentage was statistically significantly higher than the Canadian average of 2.6 per cent, and was second only to Saskatchewan (4.1 per cent) among Canadian provinces (Tjepkema, 2004).

Patterns of Alcohol Use Among University and College Students in BC and Canada

In 2004, a major national survey was undertaken to assess patterns of alcohol and drug use among undergraduate university and college students in Canada (Adlaf, Demers & Gliksman, 2005). Results from this research for BC and Canada are compared in Table 2.

These data suggest that while heavy and hazardous alcohol use is less common among undergraduate students in BC compared to undergraduates across Canada, about 27 per cent of undergraduate students in BC are considered hazardous drinkers, 39 per cent report being harmed by drinking, and approximately 30 per cent report at least one symptom of dependent drinking. Not surprisingly, the prevalence of heavy and hazardous alcohol use among undergraduates in BC (and even more so for Canada) is much higher than that for the general population age 15 and older, as found in the Canadian Addiction Survey.

These data on undergraduate alcohol use in BC were largely confirmed in a smaller study of undergraduate students at Simon Fraser University and the University College of the Fraser Valley undertaken by the BC Centre for Social Responsibility (McCormick, Cohen, Clement, & Rice, 2007). The report from this study made the following recommendations: (1) students should be better educated as to what binge drinking actually is; (2) there is a need to recognize that binge drinking behaviours begin, on average, in high school; therefore, education regarding problematic alcohol use should begin at a fairly early age; and (3) campuses in BC need to be more proactive in

Table 2: Patterns of Alcohol Use, Undergraduate Students (BC and Canada) and Canada (Age 15+), 2004

	BC Undergraduates	Canada Undergraduates	Canada Age 15+
Heavy Frequent Alcohol Use (5 or more drinks on a single occasion at least weekly)	11.7%	16.1%	6.2%
Hazardous Drinking (AUDIT 8+)	26.7%	32.0%	17.0%
Harmful Drinking (reporting at least one harm from the AUDIT)	39.0%	43.9%	n/a
Dependent Drinking (reporting at least one dependent drinking symptom from the AUDIT)	29.6%	31.6%	n/a

Note: Scores of 8 or more on the AUDIT screening instrument were used to identify hazardous drinkers. Percentages for Canadians age 15 and older were taken from the 2004 Canadian Addiction Survey.

Sources: Adlaf, Demers & Gliksman, 2005; Adlaf, Begin & Sawka, 2005.

dealing with this issue. For example, by introducing safe ride home programs, implementing alcohol-free residences, and providing education on alcohol directly to new students as part of their orientation programs.

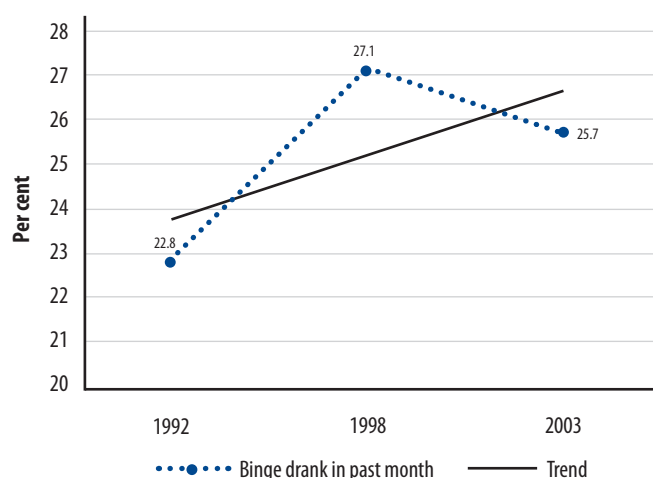
Alcohol Use Among Underage Youth in BC

Underage alcohol use is common in BC, with 79 per cent of in-school youth reporting using alcohol at least once by age 17. More troubling, risky alcohol use is also common among in-school youth; in 2003, 20 per cent of in-school drinkers (approximately 16 per cent of the overall youth population) reported binge drinking⁹ three or more days in the last month (McCreary Centre Society, n.d.). In terms of trends, self-reported monthly risky drinking among underage youth increased between 1992 and 1998, and then decreased marginally from 27.1 per cent to 25.7 per cent between 1998 and 2003, as shown in Figure 8.

Table 3 shows the regional variation in alcohol use among in-school youth in BC. The prevalence of self-reported monthly binge drinking among in-school youth is highest in the Kootenays (38 per cent) and lowest in the Greater Vancouver area (19 per cent). Lifetime alcohol use is also highest in the Kootenays and the North and lowest in the Greater Vancouver area.

Figure 8

Trends in Self-Reported Monthly Binge Drinking, In-School Youth, BC, 1992, 1998, and 2003



Note: The McCreary Centre Society collected new data on alcohol and other drug use among in-school youth via the Adolescent Health Survey (AHS-IV) in 2008; however, data are not yet available from this new wave of research.

Source: McCreary Centre Society, (n.d.), with further analysis.

⁹ Binge drinking is defined as “five or more drinks within a few hours” in the McCreary Centre Society’s Adolescent Health Survey.

Table 3: Alcohol Use by In-School Youth, BC Regions, 2003

	Ever Had a Drink of Alcohol	Binge Drank in the Past Month
Kootenays	71%	38%
Northwest	69%	35%
Northeast	67%	34%
Upper Island	66%	32%
Interior	65%	31%
Greater Victoria	63%	29%
Greater Vancouver	49%	19%

Note: The low rate of alcohol consumption in Greater Vancouver likely reflects the presence of a significant number of people from traditionally non-drinking cultures.

Source: McCreary Centre Society, (n.d.).

Other data collected by the McCreary Centre Society reveal that alcohol use among in-school youth varies somewhat by age and gender. Specifically, in 2003, 37 per cent of students age 14 and younger, 67 per cent of those 15–16 years old, and 79 per cent of students age 17 and older reported using alcohol in their lifetime. In terms of gender differences, the prevalence of self-reported lifetime drinking was not substantially different between boys and girls in 2003; however, boys were slightly more likely to report engaging in risky drinking than girls (21 per cent versus 18 per cent).

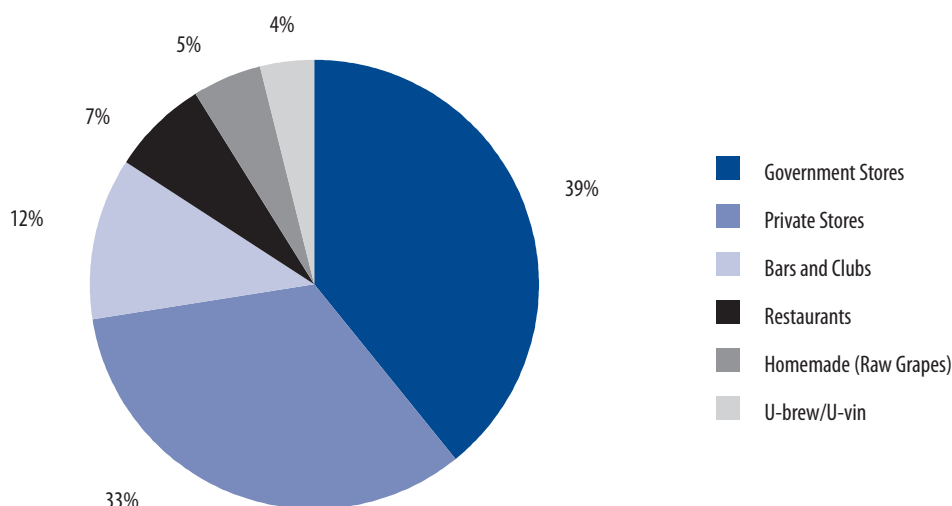
Sources of Alcohol in BC

Data from the BC Liquor Distribution Branch allow for the identification of the major sources of alcohol sold through official sources. Figure 9 depicts the percentage of total alcohol sales by major sources in 2007.

A substantial majority (about 73 per cent) of alcohol consumed in BC originates from liquor stores, with public stores currently slightly ahead of licensed private retail stores in terms of sales. Bars and restaurants are the next highest source, accounting for approximately 19 per cent of sales. Together, liquor stores and bars/restaurants account for over 90 per cent of recorded alcohol consumption in BC.

Figure 9

Percentage of Alcohol Sold by Source, BC, 2007



Note: Data does not include homemade beer and wine from kits (estimated to be about 5 per cent of total consumption); alcohol purchases at “duty-free” border outlets; and illegal alcohol (estimated to be about 2 per cent of total consumption). See Macdonald et al. (1999) for methodologies used to develop these estimates.

Source: Macdonald, Zhao, Pakula, & Stockwell, n.d.

Summary

- Canada as a whole appears to be moving into a “wetter” phase of alcohol use after a “drier” period in the mid- to late-1990s.
- Alcohol consumption in BC has followed an increasing trend since 1998, with per capita consumption levels higher than the national average since 2002.
- Per capita consumption is highest in the Interior and Vancouver Island Health Authorities and lowest in the Vancouver Coastal Health Authority. Consumption levels in the Interior Health Authority stand out due to a relatively higher rate of growth in consumption since 2002.
- BC is slightly above the national average in terms of quantity and frequency of alcohol use. Nearly half (44 per cent) of the population age 15 and older in BC reported drinking at least weekly, which was the third highest percentage among the provinces in 2004.
- A substantial proportion of alcohol consumed in BC is drunk in patterns that exceed guidelines set to reduce health and social harms. This is particularly true for younger drinkers, where upwards of 85–90 per cent of alcohol consumed is done in ways that exceed low-risk guidelines.
- Close to 30 per cent of males and 14 per cent of females report regularly drinking above low-risk guidelines.
- Rates of self-reported risky drinking in BC declined for both men and women between 2001 and 2003, and then increased in 2005.
- Rates of self-reported risky drinking increased between 2003 and 2005 for all age groups in BC except men age 45–54. Increases were especially large for men age 12–34 and 65–74, and women age 12–34.
- A substantial minority of drinkers in BC (17 per cent) reported engaging in hazardous drinking in 2004, as measured by the Alcohol Use Disorders Identification Test.

- BC's estimated rate of alcohol dependence (3.6 per cent) is above the national average (2.6 per cent) and is second only to Saskatchewan among Canadian provinces.
- About 27 per cent of post-secondary students in BC are considered hazardous drinkers, 39 per cent report experiencing at least one harm from drinking, and approximately 30 per cent report experiencing at least one symptom of dependent drinking.
- Risky alcohol use is fairly common among in-school youth, with 20 per cent of youth who drink reporting binge drinking at least 3 days in the last month.
- Youth risky drinking is highest in the Kootenays and the North, and lowest in the Greater Vancouver area, although the presence of families from traditionally non-drinking cultures likely partially explains the lower levels of youth drinking in Vancouver.
- Together, public and licensed private retail stores and bars/restaurants account for over 90 per cent of recorded alcohol consumption in BC.
- A proportion (roughly 11 per cent) of alcohol consumed in BC comes from sources that are not accounted for in official Statistics Canada estimates of consumption.

ALCOHOL-RELATED HEALTH AND SOCIAL HARMS IN BC AND CANADA

Alcohol-related health and social harms derive largely from three properties or effects of consumption: toxicity, intoxication, and dependence. Several studies suggest that slightly more alcohol-related health and social costs are associated with acute effects (e.g., toxicity and intoxication) than are associated with chronic, heavy use (e.g., dependence) (Single, Robson, Rehm, & Xie, 1999).

The negative acute health effects of excessive alcohol use include alcohol poisoning (overdose), acute pancreatitis, acute cardiac arrhythmia, and unintentional and intentional injuries. Long-term excessive (chronic) use of alcohol is directly linked to cirrhosis of the liver and an increased risk of some types of cancers. Chronic alcohol use is also associated with an increased risk of hypertension, wasting of the limb and heart muscles, and brain damage of various kinds (Babor et al., 2003).

The social harms associated with the acute effects of excessive alcohol use¹⁰ include violence, sexual assault, crime, alcohol-involved traffic casualties, and other intentional and unintentional injuries. As well, excessive alcohol use can have serious negative effects on work, study, and relationships, especially within the family. While these types of social costs are likely substantial across the entire population, they are very difficult to measure in any systematic way and so are often left out when developing estimates of alcohol-related costs.

The range of intergenerational effects caused by drinking alcohol during pregnancy include physical, mental,

behavioural, and/or learning disabilities with possible lifelong implications. Alcohol use during pregnancy can lead to Fetal Alcohol Spectrum Disorder (FASD), which is the leading cause of preventable mental disability in Canada (Health Canada, 2002). Estimates are that for every 1,000 babies born, up to 3 will have the full features of FASD, while an additional 5 or 6 will have significant long-term disabilities (PHO, 2002). For British Columbia, this means that between 200 and 320 infants may be born affected by alcohol each year.¹¹ First Nations communities appear to be particularly affected. Other problems associated with alcohol use during pregnancy are low birth weight, death within the first month of life, and alcohol withdrawal in the newborn. A substantial portion of the costs of special needs education, youth justice, adult incarceration, homelessness, and addiction can be attributed to FASD (PHO, 2002).

Alcohol dependence syndrome is a condition recognized under standard international disease classification systems that affected an estimated 2.6 per cent of the population (approximately 820,000 Canadians) in 2003 (Tjepkema, 2004). In the 2002 Canadian Community Health Survey, 3.6 per cent of the BC population (122,400 people) were estimated to be alcohol dependent.

There is a strong correlation between heavy alcohol use and mental health conditions, such as major depression and anxiety disorders. Research about to be published in Canada conservatively estimates that in 2002, 1.3 per cent of the general Canadian population age 15 and older (or approximately 336,761 people) reported experiencing

¹⁰ Although research has shown that moderate alcohol use is associated with protective effects on cardiovascular health for some segments of the population, moderate alcohol use has also been associated with negative health effects. For example, recently published research from a very large cohort study in the United States suggests that moderate alcohol use is associated with lower brain volumes (Paul et al., 2008).

¹¹ At present, there is little data available to generate reliable estimates of the prevalence of FASD in BC. The Health Status Registry and reporting sources are working together to improve provincial information on this condition.

co-occurring major alcohol use and mental health disorders in the previous year (Rush et al., forthcoming). Further, it was determined that the prevalence of major mental health issues like depression are positively and significantly correlated with levels of heavy drinking, as shown in Figure 10.

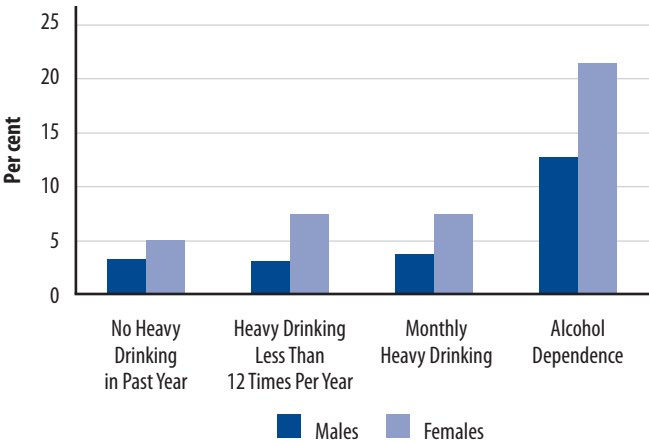
Alcohol-Caused and Alcohol-Related Mortality

Since 2002, the BC Alcohol and Other Drug (AOD) Monitoring Project has been tracking the annual rates of tobacco, alcohol, and other drug-caused deaths for the province using data provided by the BC Ministry of Health Services. The AOD Monitoring Project uses a conservative approach that estimates the number of deaths caused by alcohol, tobacco, or illicit drug use based only on the most responsible cause of death recorded using the attributable fraction method (Buxton, Tu, & Stockwell, in press). The BC Vital Statistics Agency also produces its own estimates of alcohol-, tobacco-, and illicit drug-related deaths. The approach by the Vital Statistics Agency is less conservative than the AOD Monitoring Project approach, because any single mention of alcohol, tobacco, or illicit drug use in relation to any one of the many possible contributing causes to a particular death (as opposed to just the most responsible diagnosis) is counted; therefore, much higher numbers are generated by the Vital Statistics Agency.

Using the most recent 2006 mortality data, the BC AOD Monitoring Project estimates that alcohol caused more than twice as many deaths as all major illicit drugs combined, but only one-fifth of the deaths caused by tobacco. Specifically, in 2006, there were 4,610 deaths attributed to tobacco, 905 deaths attributed to alcohol, and 378 deaths attributed to illicit drugs (Figure 11).

In terms of trends, tobacco mortality rates have declined since 2001, while alcohol and illicit drug mortality rates have remained relatively stable. However, deaths attributable to alcohol more frequently involve younger people than do those from tobacco; hence, epidemiological measures such as potential years of life lost (PYLLs) as well as disability-adjusted life years (DALYs) indicate similar burdens of illness between tobacco and alcohol. Globally, it has been estimated that alcohol and tobacco contribute 4.0 per cent and 4.1 per cent of the total burden of disease measured in terms of DALYs

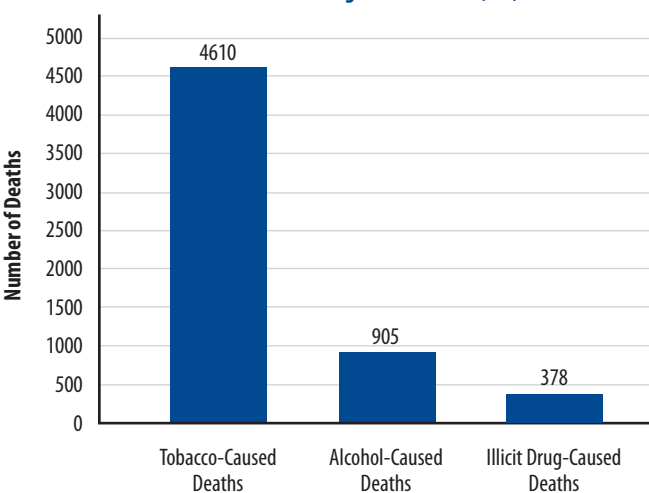
Figure 10 Prevalence of Major Depression by Frequency of Heavy Drinking, General Household Population Age 15+, Canada, 2002



Note: Even when accounting for other confounding factors, the increases in prevalence of major depression depicted are statistically significant for men with alcohol dependence, and for all categories of women drinkers except those who had not engaged in heavy drinking in the past year.

Source: Tjepkema, 2004.

Figure 11 Comparison of Tobacco, Alcohol and Illicit Drug-Caused Deaths, BC, 2006



Note: There were also 454 deaths estimated to have been prevented by moderate alcohol use in BC in 2006. However, such estimates have become controversial in recent years (see the report section entitled Benefits and Costs of Alcohol in BC and Canada).

Source: Based on data published by the BC Alcohol and Other Drug Monitoring Project: (<http://carbc.ca/Default.aspx?tabid=402>).

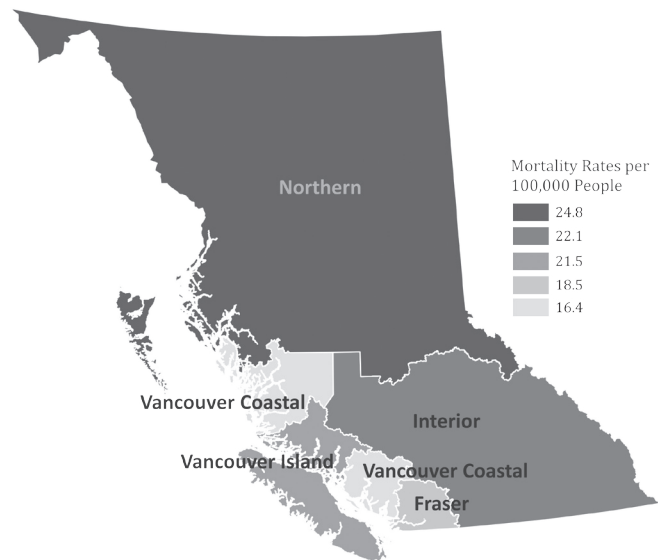
respectively (Room, Babor & Rehm, 2005). Figure 12 presents age- and sex-standardized rates of deaths caused by or attributable to alcohol for BC's five regional health authorities in 2006, using BC AOD Monitoring Project methods.

In 2006, Northern Health Authority had the highest rate of alcohol-caused deaths among the five regional health authorities at 24.8 per 100,000, while Vancouver Coastal Health Authority had the lowest rate at 16.4. Interior Health Authority had the second highest rate at 22.1, followed by Vancouver Island Health Authority at 21.5 and Fraser Health Authority at 18.5. The overall rate of alcohol-caused deaths in 2006 for BC was 19.5 per 100,000.

Trends in the age- and sex-standardized rates of alcohol-caused deaths for BC's five regional health authorities from 2001 to 2006 are depicted in Figure 13. All health authorities showed a variation in alcohol-caused mortality rates between 2001 and 2006, but there was little overall change in the province as a whole. Two health authorities showed a downward trend over the period: Vancouver Coastal Health Authority (slight downward trend) and Northern Health Authority (more pronounced downward trend). Two health authorities showed very little overall change (Fraser and Vancouver Island Health Authorities) and one showed an increase (Interior Health Authority). Poisson regression

Figure 12

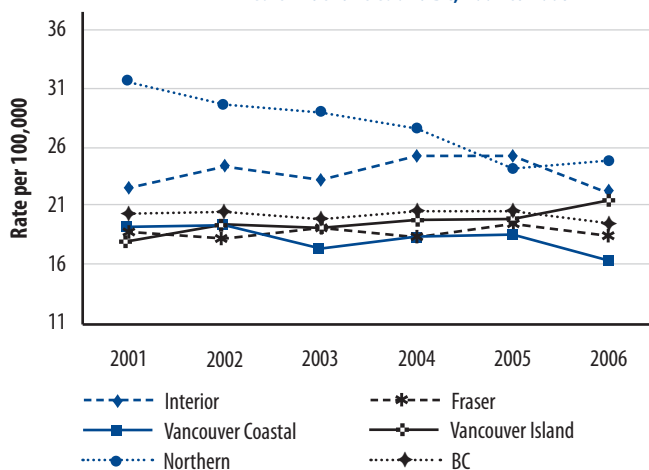
**Estimated Rates of Alcohol-Caused Deaths
per 100,000 Residents, Regional Health Authorities,
2006 (Age- and Sex-Standardized)**



Source: Based on data published by the BC Alcohol and Other Drug Monitoring Project (<http://carbc.ca/Default.aspx?tabid=402>).

Figure 13

**Trends in Rates of Alcohol-Caused Deaths
(Age- and Sex-Standardized),
Health Authorities and BC, 2001 to 2006**



Note: The rates of alcohol-related deaths in Northern Health Authority appear to fluctuate due to a relatively small number of deaths.

Source: Based on data published by the BC Alcohol and Other Drug Monitoring Project (<http://carbc.ca/Default.aspx?tabid=402>).

An analysis undertaken by the Office of the Provincial Health Officer of alcohol-related unintentional injury deaths (ARUI) recorded by the BC Vital Statistics Agency noted significant inconsistencies in the data. A follow-up examination of a sample of 89 records using additional data from the Coroners Service of BC on deceased individuals age 10–19 years found that the Vital Statistics Agency mortality registry did not include coroner-ascertained alcohol involvement on 62 (70 per cent) of those cases. This means that official provincial data on alcohol-related unintentional deaths as recorded by the BC Vital Statistics Agency likely seriously underestimate the number of alcohol-related deaths in the province. The Coroners Service of BC and BC Vital Statistics Agency are collaborating on a joint review of their respective data on ARUI deaths to evaluate the historical records for data completeness and to make necessary database corrections. These organizations have also initiated a joint review of their interagency data-sharing process to determine how the situation arose and how to correct the process for the future.

analysis showed that acute alcohol-related deaths for the whole of BC (e.g., poisonings, injuries) significantly decreased by 2.7 per cent (95% Confidence Intervals: -0.1, -5.2%, $p < 0.05$), while the more numerous chronic alcohol-related deaths (e.g., cancers, liver diseases) significantly increased by 2.1 per cent (95% Confidence Intervals: 1.5, 2.4%, $p < 0.0001$).

Rates and trends in estimated alcohol-caused deaths vary across different age groups in the province, as shown in Figure 14. These data suggest that alcohol-caused deaths have remained relatively stable for all age groups except those 75 and older. For the 75 and older age group, alcohol-caused deaths increased 10.5 per cent over the study period.

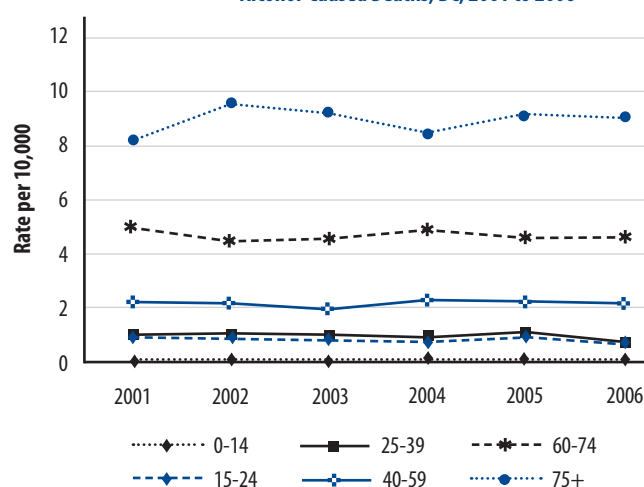
Table 4 reports the less conservative estimates of alcohol-related deaths produced by BC Vital Statistics Agency. These estimates also display relatively stable patterns of alcohol-related mortality between 2002 and 2006. While there was a slight downturn in estimated alcohol-caused deaths using the conservative method, the less conservative method found a slight increase in the alcohol-related mortality rate in 2006. Poisson regression analysis suggested that there was a small increase in the overall rate of alcohol-related deaths of 1.1 per cent, which was of borderline significance (95% Confidence Intervals: 0.0, 2.4%, $p < 0.081$), and was also higher than the 0.4 per cent increase for deaths from all causes between 2002 and 2006 (95% Confidence Intervals: 0.3, 0.5%, $p < 0.0001$).

Alcohol-Caused and Alcohol-Related Morbidity

The BC Alcohol and Other Drug Monitoring Project uses information from the Discharge Abstract Database from the Ministry of Health Services to track rates of alcohol-caused hospitalizations in the province. Five broad categories of alcohol-caused diseases are monitored: some types of cancers, diabetes, neuropsychiatric conditions (e.g., alcoholic psychosis, alcohol dependence syndrome, etc.), cardiovascular diseases, and digestive disorders. For

Figure 14

Trends in Age-Specific Rates of Alcohol-Caused Deaths, BC, 2001 to 2006



Source: Based on data published by the BC Alcohol and Other Drug Monitoring Project: (<http://carb.ca/Default.aspx?tabid=402>).

Table 4: Total Population, Deaths from All Causes and Alcohol-Related Deaths, BC, 2002 to 2006

Year	Total BC Population	Death of All Causes		Alcohol-Related Deaths	
		Number	Rate/10,000	Number	Rate/10,000
2002	4,115,413	28,686	69.70	1,818	4.42
2003	4,155,370	29,108	70.05	1,789	4.31
2004	4,203,315	29,652	70.54	1,860	4.43
2005	4,257,833	30,033	70.54	1,878	4.41
2006	4,310,452	30,513	70.79	1,986	4.61

Source: BC Vital Statistics Agency, 2007 and previous years.

conditions such as alcohol-caused cirrhosis of the liver, 100 per cent of hospitalizations are attributed to alcohol use. For conditions such as throat cancer, etiological (attributable) fractions based on methods developed by English et al. (1995) are used to estimate the proportion of hospitalizations caused by alcohol use.¹² Figure 15 show the rates of alcohol-caused morbidity based on these methods for the five regional health authorities.

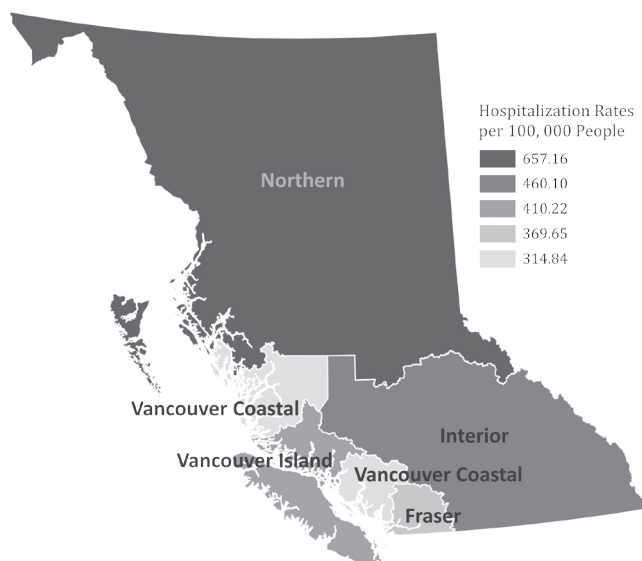
In 2007, Northern Health Authority had the highest rate of alcohol-caused hospitalizations (657.16 per 100,000 people). Both Interior (460.10) and Vancouver Island (410.22) Health Authorities had rates higher than the provincial average (404.2). Fraser Health Authority's rate was below the provincial average (369.65), while Vancouver Coastal Health Authority had the lowest rate of alcohol-caused hospitalizations (314.84). It is important to note that at times, large populations in an area may conceal high-risk behaviours. For example, specific areas in Vancouver Coastal Health Authority (such as the Downtown Eastside) may have shown higher rates of alcohol-caused hospitalizations if they were not combined with other, less problematic areas in that health authority.

There were minor variations in trends of rates of alcohol-caused hospitalizations from 2002 to 2007. Figure 16 shows the trends for the five regional health authorities and BC.

Statistical analysis found that the overall rate of alcohol-caused hospitalizations increased 3.38 per cent from 2002 to 2007 across BC, a significant increase (95% Confidence Intervals: 0.95, 7.17%, $p < 0.001$). Northern Health Authority experienced the largest overall increase at 8.1 per cent (95% Confidence Intervals: 2.19, 16.17%, $p < 0.02$). This is particularly noteworthy given the already high rate of alcohol-related morbidity in that region. Fraser Health Authority showed the second highest increase in morbidity at 5.1 per cent, while Vancouver Coastal and Interior Health Authorities showed smaller increases at 2.9 per cent and 0.9 per cent respectively. The only health authority to record an overall decline in alcohol-caused hospitalizations since 2002 was Vancouver Island Health Authority (decrease of 4.15 per cent from 2002 to 2007). Of all the health authorities, Northern was the only health authority with statistically significant trends.

Figure 15

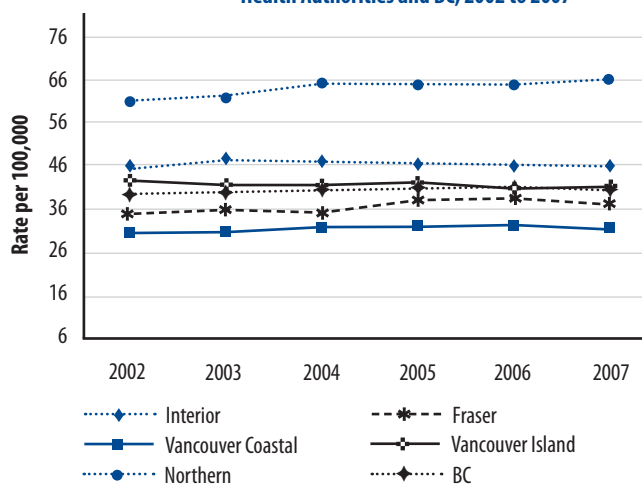
Number of Alcohol-Caused Hospitalizations per 100,000, Regional Health Authorities, 2007 (Age- and Sex-Standardized)



Source: Based on data published by the BC Alcohol and Other Drug Monitoring Project (<http://carbc.ca/Default.aspx?tabid=402>).

Figure 16

Rates of Alcohol-Caused Hospitalization (Age- and Sex-Standardized), Health Authorities and BC, 2002 to 2007



Source: Based on data published by the BC Alcohol and Other Drug Monitoring Project (<http://carbc.ca/Default.aspx?tabid=402>).

¹² The same sets of conditions are used to calculate the alcohol-attributable fractions (AAF) for both mortality and morbidity. For a full list of all International Classification of Disease (ICD)-10 Codes used in the AOD Monitoring Project, see Appendix 3.

Levels and trends in alcohol-caused hospitalizations vary across different age groups in the province as shown in Figure 17.

These data indicate that rates of alcohol-caused hospitalizations in BC increased 10.1 per cent for the 40–59 age group and 4.1 per cent for the 60–74 age group between 2002 and 2007, but remained stable or decreased for all other age groups.

Alcohol-Impaired Driving

Reductions in the levels of impaired driving is one of the true public policy success stories in Canada, as impressive gains have been made in dealing with this significant social problem over the last few decades. However, progress on impaired driving appears to have reached a plateau in recent years, and, in some jurisdictions, may be reversing.

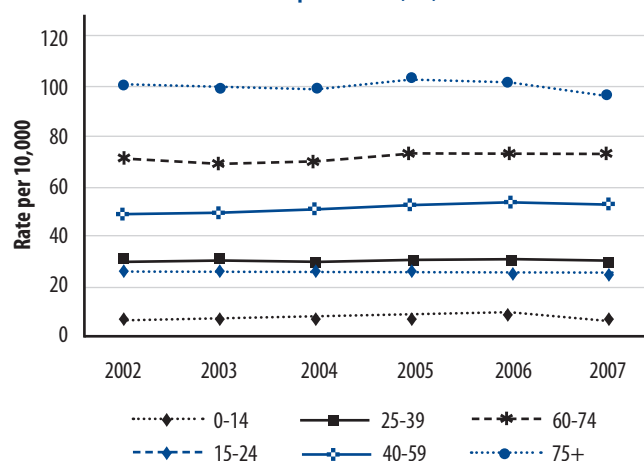
The rate of impaired driving charges is one measure used to monitor drinking and driving, although it may not coincide with actual rates of drinking and driving because it is at least partially dependent on levels of enforcement. Overall, rates of impaired driving charges have been falling steadily for several decades in Canada in the wake of greatly increased enforcement and heightened social awareness of the dangers associated with this behaviour. Figure 18 compares rates of impaired driving charges for BC and Canada since 1986.

These data indicate that charge rates both in BC and Canada followed substantial downward trends between 1986 and 2000, with BC rates falling below those for Canada between 1994 and 2004. Since 2000, however, charge rates in BC have followed an upward trend while rates for Canada continued to fall. Since 2004, rates of impaired driving charges in BC have surpassed the average rate in Canada by approximately 10 per cent.¹³

Because it may be less influenced by enforcement levels, the percentage of fatally injured drivers testing over the legal limit for alcohol (blood-alcohol content [BAC] of 0.08) is a second, more direct indicator of the scale of the impaired driving problem (Figure 19). The percentage of fatally injured drivers testing above the legal limit has declined in both Canada and

Figure 17

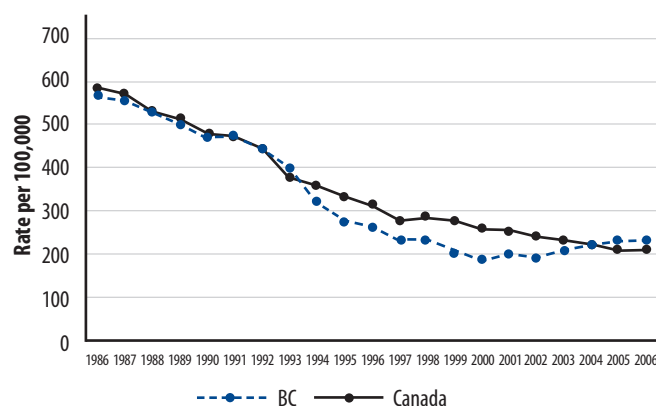
Trends in Rates of Age-Specific Alcohol-Caused Hospitalizations, BC, 2002 to 2007



Source: Based on data published by the BC Alcohol and Other Drug Monitoring Project (<http://carbc.ca/Default.aspx?tabid=402>).

Figure 18

Rates of Impaired Driving Charges and Refusal to Provide Breath Sample, BC and Canada, 1986 to 2006



Source: Statistics Canada, n.d., *Uniform Crime Reporting Survey*.

¹³ As suggested by this chart, BC was below the national average in rates of impaired driving charges between 1994 and 2004. Between 1995 and 2003, the Insurance Corporation of BC (ICBC) specifically funded both local police services and the RMCP to augment roadside checks for impaired drivers under Operation Enhanced CounterAttack. While the earmarked ICBC funding for Enhanced CounterAttack ended in 2003, in the same year, funding was made available from ICBC for the creation of Integrated Road Safety Teams. As a result, on-the-ground enforcement of impaired driving likely increased in BC after 2004. Thus, some part of the increase in the rate of impaired driving charges from 2004 onward is likely explained by increased levels of enforcement rather than growth in the prevalence of impaired driving in BC.

BC over the last two decades.¹⁴ However, the rate of decline was slightly lower in BC than in Canada as a whole. As well, the percentage of fatally injured drivers testing above 0.08 BAC in BC was above the rate for Canada as a whole for nearly the entire study period.

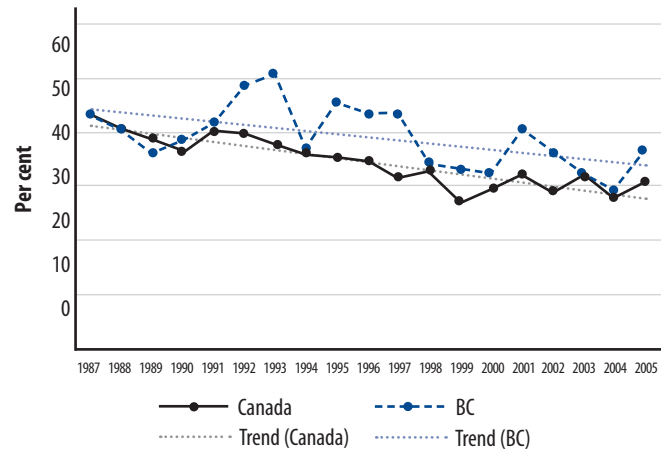
A third indicator relevant to gauging the extent of the drinking and driving problem is the percentage of all drivers in serious car crashes that involved alcohol. Figure 20 compares these data for BC and Canada from 1995 to 2005. Between 1995 and 2005, the percentage of serious injury crashes that involved alcohol has been consistently lower in BC than in Canada. However, BC has seen an overall increasing trend, while there has been an overall decreasing trend in Canada. Therefore, the gap in the percentage of serious injury crashes involving alcohol in BC and Canada has narrowed substantially over the last 10 years.

It should be noted, however, that the Canada and BC data shown in Figure 20 are based on different definitions of serious injury and, because of this fact, the BC data were not included in the Canadian estimates in the 2008 report by the Traffic Injury Research Foundation. The BC data included “any injury”, not just injuries resulting in hospitalization. This could explain the lower percentage observed for BC drivers, as severe injury collisions may be more likely to involve alcohol. The increase over time in BC in the percentage of drivers in serious injury crashes involving alcohol could also be at least partially due to a decrease during this period in police attendance/reporting of less severe crashes. Some police jurisdictions in BC were cutting back on their collision attendance (L. Mazzei, personal communication, October 14, 2008).

Data from the BC Injury Research and Prevention Unit indicate that approximately one-quarter of the 400+ fatal motor vehicle crashes that occur every year in BC are classified as alcohol-related (Rajabali & Pike, 2008). Detailed analysis of alcohol-related motor vehicle deaths from 2003–2005 across regional health authorities is shown in Figure 21.

Figure 19

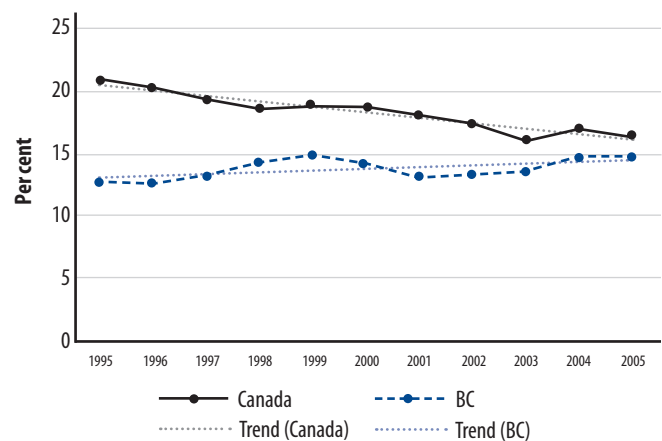
Percent of Fatally Injured Drivers Testing 0.08 Blood Alcohol Concentration or Higher, BC and Canada, 1987 to 2005



Source: Traffic Injury Research Foundation, 2008.

Figure 20

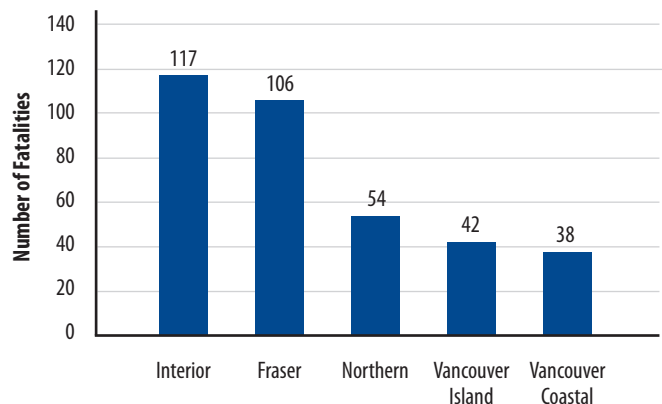
Percentage of All Drivers in Serious Injury Crashes Involving Alcohol, BC and Canada, 1995 to 2005



Source: Traffic Injury Research Foundation, 2008.

Figure 21

Number of Alcohol-Related Motor Vehicle Crash Deaths, Health Authorities, 2003-2005



Source: Rajabali & Pike, 2008.

¹⁴ Research from Ontario suggests that some of the reductions in drinking and driving in Canada over the last several decades can be attributed to changes in driver demographics, particularly the fact that the average age of drivers is increasing and that there are more women drivers today than in the past (MacDonald, 2003).

Another indicator for assessing drinking and driving in BC is the rate of alcohol-involved collisions and victims. These data are somewhat unique to BC, as they are collected and published by ICBC. Annual rates of alcohol-involved collisions (i.e., collisions in which at least one person was killed or injured) and victims (injured or killed) since 1995 are depicted in Figure 22.

As with other drinking and driving-related measures, rates of alcohol-involved collisions and victims in BC fell significantly in the period prior to 1998. Since that time, however, rates have levelled off at approximately 8 collisions and 12 victims per 10,000 drivers. As well, there appears to be a slight upward trend in these measures since 2002.

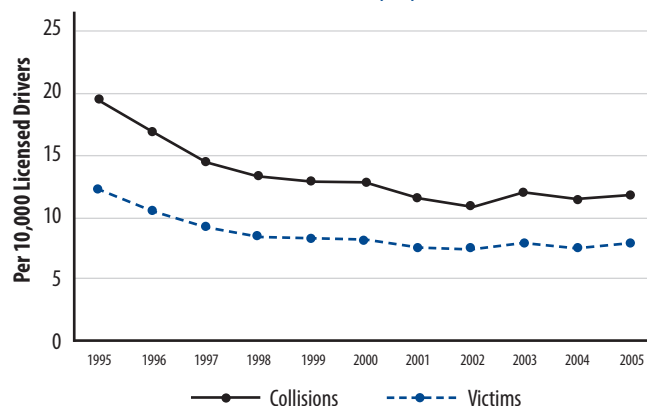
As a final measure of the scale of the drinking and driving problem in BC, ICBC has funded a number of “roadside check” studies that randomly test night-time drivers at select locations in the province and administer blood alcohol content (BAC) tests for the purposes of assessing the prevalence of drinking and driving. These studies were undertaken in 1995, 1998, 2003, and 2006. Trends in the percentage of drivers with BAC greater than or equal to 0.05 (the level at which administrative sanctions can be applied) are shown in Figure 23. These data show that the percentage of night-time drivers testing at or above 0.05 BAC in selected study sites around BC fell substantially between 1995 and 2003, but increased to nearly 1995 levels in 2006.

Alcohol-Related Crime

Although it is difficult to conclusively determine when alcohol plays a role in criminal behaviour, research from Canada suggests that a significant proportion of all crimes, charges, and prison sentences directly or indirectly involve alcohol and other drugs (Pernanen, Cousineau, Brochu, & Sun, 2002). Data from this research were used to develop alcohol-attributable fractions for crimes, charges, and prison sentences in Canada in 2002. The results for BC and Canada are depicted in Table 5.

Figure 22

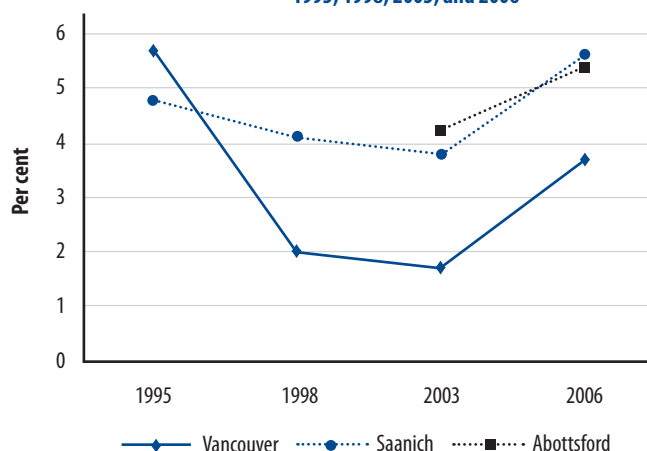
Rate of Alcohol-Involved Traffic Collisions and Victims, BC, 1995 to 2005



Source: Insurance Corporation of British Columbia, n.d.

Figure 23

Percentage of Night-time Drivers Testing 0.05 Blood Alcohol Concentration or Higher, 1995, 1998, 2003, and 2006



Note: Driver testing for the ICBC roadside check studies occurred in the fall and spring of each year and was conducted in 2 cities in 1995 and 1998 (Vancouver and Saanich) and 3 cities in 2003 and 2006 (Vancouver, Saanich, and Abbotsford). In general, response rates were very high for these studies. For example, in 2006, of the 1,624 drivers asked to participate, 92.6 per cent agreed to be interviewed and 94.5 per cent provided a breath sample (Bierness et al., 2007).

Source: Bierness, Foss, & Wilson, 2007.

Self-Reported Alcohol-Related Health and Social Harms

A final measure of health and social harms derived from alcohol use are those based on self-reporting from general population surveys. The prevalence of self-reported harms from one's own or others' drinking was assessed in the 2004 Canadian Addiction Survey, including harms to friendships and social life, physical health, home life or marriage, work, studies or employment opportunities, financial position, legal problems, housing problems, or learning. Table 6 compares BC and Canada on these measures.

Alcohol-Related Substance Abuse Treatment

BC provides a range of publicly funded services and supports for persons experiencing difficulties with substance abuse. These services are available in all health authorities and range from low-threshold harm reduction programs, such as Vancouver's supervised injection facility (Insite), to long-term residential treatment programs. Similar to other jurisdictions in Canada, people experiencing problems with alcohol likely constitute a majority of the clients seen in BC's specialized addiction treatment system; however, it is not possible to

Table 5: Alcohol-Attributed Crimes, Charges, and Prison Sentences, BC and Canada, 2002

BC				Canada		
	Number	Percentage of All	Costs (millions)	Number	Percentage of All	Costs (millions)
Alcohol-Attributed Crimes	146,012*	29.6%	\$197.37	761,683**	30.4%	\$1,898.76
Alcohol-Attributed Charges	27,036	36.7%	\$68.10	206,594	35.8%	\$513.07
Alcohol-Attributed Prison Sentences (provincial and federal)	2,901	n/a	\$93.70	26,710	n/a	\$660.40
Total \$359.17				Total \$3,072.23		

Notes:

* This includes an estimated 20,849 alcohol-attributed violent crimes for BC.

** This includes an estimated 127,383 alcohol-attributed violent crimes for Canada.

Source: Rehm et al., 2006.

Table 6: Percentage Reporting at Least One Harm in the Past Year from Drinking, BC and Canada, 2004

	BC	Canada
Percentage reporting at least one harm during the past year <i>from one's own drinking</i> (age 15+)	9.5	8.8
Percentage reporting at least one harm during the past year <i>from others' drinking</i> (age 18+)	38.0*	32.7**

Notes:

* This is statistically significantly higher than the percentage reported for Canada at the 0.05 level.

** Across Canada, the most common forms of past year harms resulting from others' drinking were: (1) being insulted or humiliated (22.1 per cent); (2) verbal abuse (15.8 per cent); (3) serious arguments or quarrels (15.5 per cent); (4) being pushed or shoved (10.8 per cent); (5) family or marriage problems (10.5 per cent); and (6) being hit or physically assaulted (3.2 per cent).

Source: Kellner, 2005.

verify this fact, as the province does not have a standardized data collection system for substance abuse treatment and cannot report utilization statistics at the provincial level. Data from Ontario and Alberta suggest that alcohol accounts for the majority of new admissions to specialized treatment (Table 7).

Table 7: Percentage (and Number) Reporting Alcohol as a Problem Substance, Active Clients in Publicly Funded Substance Abuse Treatment Programs, 2006/2007

	Alberta	Ontario
Percentage Listing Alcohol Only as Problem Substance	30.3%* (9,435)	26.6%* (20,294)
Percentage Listing Alcohol Plus at Least One Other Problem Substance (Excluding Tobacco)	29.4%** (9,158)	31.0% (23,639)
Total	59.7% (18,593)	57.6% (43,933)

Notes:

* Includes alcohol clients also reporting problems with tobacco use.

** Includes alcohol clients also reporting problems with compulsive gambling.

Sources: Based on data supplied by the Alberta Alcohol and Drug Abuse Commission and Ontario's Drug Abuse Treatment Information System.

As suggested earlier, alcohol clients comprise the majority (around 60 per cent) of active clients in substance abuse treatment programs in Alberta and Ontario. Again, these data are provided in lieu of BC-specific alcohol treatment data; however, there is little reason to believe that the situation in BC would be substantially different from other jurisdictions, beyond the fact that the percentage of alcohol only clients may be slightly less due to the concentration of illicit drug users in the lower mainland of BC.

Summary

- Alcohol use is associated with a large number of health and social problems, including acute harms related to toxicity and intoxication (e.g., overdose, intentional and unintentional injuries, violence) and harms derived from long-term chronic use (e.g., some cancers, cardiovascular diseases, liver disease).
- Alcohol accounted for about twice as many deaths in BC as all other illicit drugs combined in 2006, but only about one-fifth as many deaths as those associated with tobacco. However, because alcohol-caused deaths are more likely to involve young people than tobacco-caused deaths, measures such as disability-adjusted life years (DALYs) are used to show that alcohol and tobacco actually have similar burdens of disease across the population.
- Alcohol-caused death rates are highest in Northern Health Authority and lowest in Vancouver Coastal Health Authority. Interior and Vancouver Island Health Authorities had rates above the provincial average, while Fraser Health Authority was below the provincial average.
- There was no significant provincial trend in either alcohol-caused or alcohol-related death rates in BC between 2001 and 2006, with Vancouver Island Health Authority recording the only consistent increase over the study period. Northern Health Authority recorded a decrease in alcohol-caused mortality of 22 per cent, although the rates in this health authority appear to fluctuate due to a relatively small number of deaths.
- Between 2002 and 2006, deaths related to or caused by alcohol remained relatively stable for all age groups except those 75 and older, who saw an increase of 10.5 per cent over the study period.
- Northern Health Authority had, by far, the highest rate of alcohol-caused illness in 2007, implying a high level of alcohol-caused harm in the region. Interior Health Authority was next followed by Vancouver Island Health Authority and Fraser Health Authority. Vancouver Coastal Health Authority had the lowest rate of alcohol-caused morbidity in BC in 2007.

- Trends in alcohol-caused morbidity rates showed a significant overall increase of 3.3 per cent across BC from 2002 to 2007, with Northern Health Authority experiencing the highest increase at 8.1 per cent. This is especially noteworthy given the already high rate of morbidity in this region. Changes in other individual health authorities were not statistically significant.
- Between 2002 and 2007, alcohol-caused hospitalizations in BC increased 10.1 per cent for the 40–59 age group and 4.1 per cent for the 60–74 age group, but remained stable or decreased for all other age groups.
- Rates of impaired driving charges in BC were below the Canadian average from 1994 to 2004. Since 2004, the BC rate has exceeded the national rate by approximately 10 per cent.
- The percentage of fatally injured drivers testing above the legal BAC limit in BC was consistently above the national average from 1987 to 2005. While both the BC and national figures declined over this time period, there was a slower decline in BC than in Canada.
- The percentage of all drivers in serious injury crashes that involved alcohol in BC was consistently below the national average from 1995 to 2005. However, the BC figures have shown an overall increasing trend while the national figures have shown an overall decreasing trend, resulting in a narrowing of the gap between BC and Canada over the last ten years.
- The rates of alcohol-involved traffic collisions and victims in BC declined sharply prior to 1998. Since that time, however, the rates have remained stable or increased slightly.
- The percentage of night-time drivers testing at or above 0.05 BAC in select study sites around BC fell substantially between 1995 and 2003, but increased to nearly 1995 levels in 2006.

Overall, the small increase in hospitalizations and the upward trend in alcohol-involved road trauma (especially in comparison to Canada as a whole) are consistent with the rise in alcohol consumption in British Columbia since 2001. Trends in deaths attributable to alcohol are less clear, with one method suggesting a slight decrease and the other a slight increase in 2006 when compared with the previous five years. Regardless of these conflicting trends, the overall burden of injury, illness, social problems, economic costs, and premature deaths attributable to alcohol remains substantial across the province.

BENEFITS AND COSTS OF ALCOHOL IN BC AND CANADA

As a legal commodity, alcohol has immense popularity and cultural significance in Canada. While it provides important social and economic benefits, it also contributes substantially to social costs. This section discusses the benefits and costs of alcohol in BC and Canada.

Economic Benefits

The production and sale of alcoholic beverages contributes to the economy in several important ways, including providing employment in direct alcohol production and allied industries (e.g., hospitality, transportation, etc.), generating revenue for federal and provincial governments, etc.¹⁵ For example, in 2001, the Brewers Association of Canada estimated that the production, distribution, and sale of beer added \$12.6 billion to the Canadian economy.

In 2007, Canadians spent over \$18 billion on alcoholic beverages. Net revenue to provincial and territorial governments (excluding most provincial sales taxes) was \$5.01 billion in 2007 (Statistics Canada, 2008 and various years). Between 1992 and 2007, sales of alcoholic beverages in British Columbia increased by 82.2 per cent from \$1.46 billion to \$2.66 billion. Taking population growth into account, sales per capita (age 15 and older) increased 38.3 per cent from \$530 in 1992 to \$733 in 2007, with inflation accounting for approximately 25 per cent of this growth. While there has been a steady increase in sales and revenue in BC in nominal terms over the last 30 years, growth rates in real government revenue have varied over time (Figure 24).

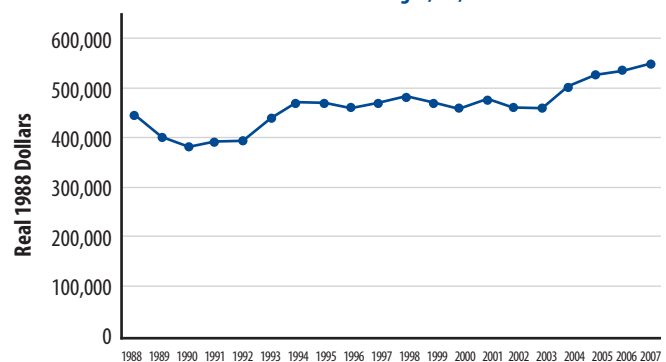
Real provincial revenue from alcohol sales in BC increased the most between 1992–1995 and 2003–2007, with the intervening years showing no growth or declines in net income. Figure 24 shows that real net government income from the control and sale of alcohol in BC has increased since 2002. To provide a comparison, the average annual growth rate in real income was 0% per cent for the years 1988–2002, but increased to 4 per cent per year from 2003–2007.¹⁶

Health Benefits of Moderate Alcohol Consumption

Clinical and laboratory studies suggest that low doses of alcohol can have beneficial effects on cardiac function and blood sugar levels for diabetics, while higher doses can contribute harmful effects, such as hypertension with

Figure 24

Real Provincial Net Income from the Control and Sale of Alcoholic Beverages, BC, 1988 to 2007



Source: Statistics Canada, 2008 and previous years.

¹⁵ While estimates of alcohol's contribution to employment and income taxes are undertaken periodically, usually under industry-sponsored studies, only government revenue from alcohol is measured annually in a consistent way in Canada. Therefore, this discussion of economic benefits focuses on public revenue from the control and sale of alcohol.

¹⁶ These figures exclude revenue derived from provincial sale taxes on alcohol (10 per cent in BC), which totaled approximately \$205 million in 2007. Thus, total provincial government revenue from alcohol sales in 2007 was approximately \$1.054 billion in nominal terms.

increased risk for coronary heart disease and strokes (English et al., 1995; Wei et al., 2000; Rehm et al., 2004). Debate continues, however, regarding the impact of these potential benefits at the population level, given the contemporary drinking patterns of most adult North Americans (e.g., Fillmore et al., 2007; Stockwell & Kerr, in press).

While many longitudinal studies suggest that moderate drinking patterns for middle-aged men and women are associated with greater life expectancy than abstinence (Corrao, Rubbiati, Bagnardi, Zambon, & Poikolainen, 2000), there are many potential confounding factors in these studies, not least of which is the evidence that in later life moderate drinking can be a sign rather than a cause of good health. People with healthy lifestyles tend to drink less and live longer (Naimi et al., 2005; Fillmore et al., 2006). Recent studies that have rigorously defined “abstinence” so that it closely approximates lifelong abstinence have consistently shown that apparent health benefits disappear for male but not female drinkers (Stockwell, Chikritzhs, et al., 2007; Baglietto, English, Hopper, Powles, & Giles, 2006; Friesema et al., 2008). One plausible explanation is that males usually do not drink in medicinal doses and so rarely obtain significant health benefits. Taking account of these recent findings, it has been estimated that alcohol consumption caused 8,356 deaths in 2002 in Canada, compared with 1,037 deaths prevented (Stockwell, Chikritzhs, et al., 2007). Furthermore, the majority of these deaths were associated with drinking above the low-risk drinking guidelines, while most of the lives saved were associated with lower risk levels of drinking.

Social Costs of Substance Abuse in BC and Canada

Substance abuse-related social costs fall into two major categories: direct costs and indirect costs. Direct costs include public expenditures on substance-related health care, enforcement, and other functions (e.g., prevention, research, etc.). Indirect costs are those derived from productivity losses (e.g., absenteeism) associated with premature death and disability related to substance use.

The total direct and indirect costs associated with tobacco, alcohol, and illicit drugs in Canada were estimated to be \$39.8

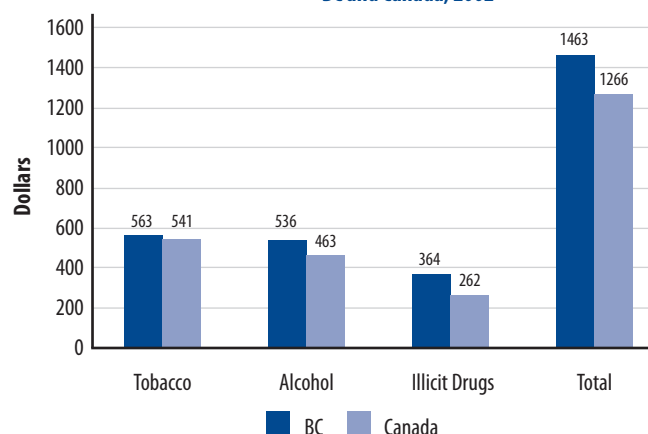
billion in 2002, with indirect costs accounting for an estimated 61 per cent of this total (Rehm et al., 2006). Broken out by substance, tobacco accounted for \$17 billion (42.7 per cent of the total), alcohol \$14.6 billion (36.6 per cent), and all other illicit drugs combined for \$8.2 billion (20.7 per cent).

Using the best available information and methods, estimates of the total direct and indirect social costs of alcohol in BC were \$2.219 billion in 2002 (Rehm et al., 2006). Indirect social costs of substance abuse are based on estimates of lost productivity in the workplace or at home resulting in whole or in part from the misuse of substances. When a person dies or becomes unable to work because of a substance-related illness or injury, the economic contribution that he or she might have made to Canadian society is reduced or eliminated. While total indirect productivity losses for alcohol in BC were not calculated as part of the 2002 study, *The Costs of Substance Abuse in Canada*, it is possible to develop a rough estimate of these costs by subtracting direct health and enforcement costs from the estimate of total costs. Using this approach, in 2002, total indirect alcohol-related costs in BC (associated mainly with lost productivity in the workplace) were approximately \$1.308 billion.

Figure 25 depicts total per capita costs for tobacco, alcohol, and illicit drugs for BC and Canada.

Figure 25

Per Capita Social Costs of Substance Abuse, BC and Canada, 2002



Source: Rehm et al., 2006.

These data reveal that BC's per capita substance-related social costs exceeded those for Canada across all substance categories, with total costs in BC approximately 16 per cent higher than the Canadian average. In terms of comparisons with other Canadian provinces (territories not included), BC was second overall (behind New Brunswick) for costs related to alcohol, first overall in per capita costs for illicit drugs, and second overall (behind New Brunswick) in total costs for 2002, the last year for which data are available (Rehm et al., 2006).

Benefit - Cost Analysis

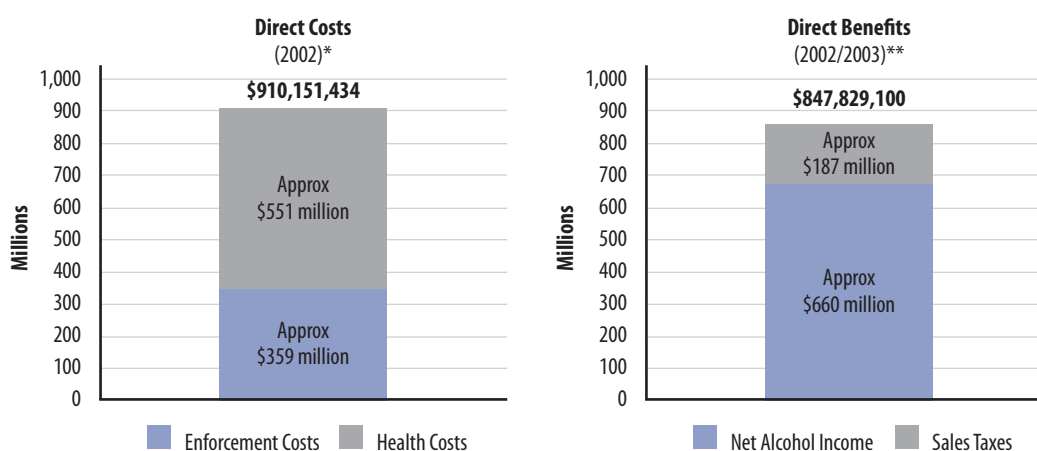
As the information provided earlier suggests, both the benefits and costs of alcohol in BC are substantial. However, comparisons of total benefits and total costs are difficult to make because of serious information gaps, especially on the cost side. Only rarely is information on social and health costs related to alcohol drawn together, and the assumptions that accompany estimates of indirect costs are controversial in some circles.

It is possible to develop a meaningful comparison of benefits and costs, however, if one focuses on direct, measurable costs and benefits at the provincial level. The 2002 study, *The Costs of Substance Abuse in Canada*, provides carefully constructed estimates of alcohol-related health and enforcement costs for all jurisdictions in Canada for 2002 (Rehm et al., 2006). On the benefits side, it is possible to use the overall net government revenue from the control and sale of alcohol in BC (including sales taxes) published annually by Statistics Canada (Statistics Canada, 2008 and various years). This comparison is meaningful because it is drawn from solid estimates (very accurate in the case of revenue) and because it includes the direct benefits and costs most relevant to the provincial government in terms of budgetary considerations.

Figure 26 compares a subset of the direct alcohol-related health care and enforcement costs in BC in 2002 with revenue from alcohol sales in 2002/2003. These data suggest that direct alcohol-related social costs in BC exceeded government revenue from alcohol by approximately \$62 million in 2002. Unfortunately, it is not possible to update this analysis for later years because, unlike revenue, costs are not tracked on an annual basis.

Figure 26

Comparison of Direct Economic Costs and Benefits of Alcohol, BC, 2002-2003



Notes:

* This is an incomplete estimate of total direct social costs because it excludes other direct costs (e.g., those for research and prevention, etc.) and costs to the system derived from alcohol misuse that are not officially registered as alcohol-related (which are likely substantial).

** This is an incomplete estimate of total direct benefits because it does not include corporate and personal income taxes from companies and employees in alcohol-related industries/sectors.

Sources: Costs: Rehm et al., 2006; Benefits: Statistics Canada, 2003.

Summary

It is very difficult to precisely measure all economic benefits and costs of alcohol in BC. For example, costs caused by the disruption of family functioning due to excessive alcohol use are not measurable even though they are likely to be substantial when factored across the entire population. Similarly, it is not feasible to calculate the social benefits derived from the responsible use of alcohol, which are also likely to be substantial.

While there appears to be substantial direct economic benefits associated with production, sales, and consumption of alcohol, for both individuals and communities, the earlier analyses suggest that health costs of alcohol greatly exceed the health benefits of moderate alcohol consumption. The direct economic costs to government slightly exceeded the revenue from alcohol mark-ups and taxes in 2002. As alcohol has become more accessible in BC, consumption has increased, and government revenues have risen, but at the same time the direct benefits may still be outweighed by the direct health and social costs of alcohol.

ALCOHOL POLICY

The overall goal of alcohol policy is to use regulation and other strategies to influence consumption patterns so as to maximize social and economic benefits while minimizing alcohol-related harms and costs. Multiple factors need to be considered when creating and implementing alcohol control policy, including public opinion and political feasibility, cost-effectiveness, social equity, etc. This section presents information on: (1) best practice policies for minimizing alcohol-related harms; (2) public opinion on alcohol control policies in BC and Canada; and (3) a review of current alcohol policies in BC.

Best Practice Policies

In 1994, a group of international experts offered this advice to those involved in setting alcohol policy:

- There is no one policy panacea. A mix of policies and programs will be needed to optimize society's relationship with alcohol.
- Some policy measures are more effective than others, with taxation/pricing, control of physical access, drinking and driving countermeasures, and treatment (particularly primary care) being in the first tier. Educational strategies, restrictions on advertising and promotion, and community action plans are additional measures that show potential for the prevention and reduction of harms from drinking.
- Political feasibility and public acceptance are important to consider when selecting alcohol policies.
- Policy choices should be made based not only on effectiveness, but also by what gives value for the money (Edwards et al., 1994).

An in-depth review of the international literature (Babor et al., 2003) updated the Edwards et al. (1994) analysis using the following evaluation criteria: (1) evidence of effectiveness, (2) breadth of social support; (3) testing across various cultures; and (4) expense of implementation. This research identified these ten best practice policies for reducing alcohol-related health and social harms:

1. Alcohol taxes and prices.
2. Government monopoly of retail alcohol sales.
3. Restrictions on days and hours of sale.
4. Outlet density restrictions.
5. Raising minimum legal purchase age.
6. Sobriety checkpoints.
7. Lowered blood alcohol content (BAC) limits.
8. Administrative licence suspension for those close to the legal BAC limit.
9. Graduated licensing for novice drivers.
10. Screening and brief interventions for hazardous drinkers.

Of this list, all but one (lowered BAC limits) are within the mandate of provincial and/or municipal governments in Canada. BAC limits are delineated in the Criminal Code, which is under federal jurisdiction.

It is noteworthy that these authors did not find much scientific evidence to recommend education and persuasion strategies. "The impact of these programs tends to be small at best and most effects do not persist. Compared to other interventions and strategies such as law enforcement initiatives, outlet zoning, pricing policies, and responsible servicing practices, educational programs are expensive and

appear to have little effect on alcohol consumption levels and drinking-related problems” (Babor et al., 2003).

Another recent review of best practices prepared for the Government of Alberta focused on policies and programs for reducing violence in and around licensed establishments (Stockwell, 2007). Best practice policies and programs identified in this report included:

- Preventing the sale of excessively cheap alcohol (e.g., through banning discounting schemes and ensuring final prices reflect alcohol content of drinks).
- Implementing well-designed server training programs backed up by credible liquor law enforcement.
- Limiting very late-night trading, especially for establishments with demonstrated records of violent incidents (i.e., making very late-night trading a privilege rather than a right for licensed establishments).
- Proactively enforcing laws around service to intoxicated patrons and overcrowding.
- Training both security and bar staff in violence prevention and reduction techniques such as the “Safer Bars” program developed and pilot-tested in Ontario.¹⁷
- Encouraging strong local collaboration between licensees, police, and local government authorities to meaningfully implement these and other policies to reduce alcohol-related violence (e.g., creating local accords or community action plans for alcohol-related violence).¹⁸

These best practice alcohol policies can be usefully categorized into three groups: those that affect economic availability (e.g., alcohol taxes and prices); those that influence physical availability (e.g., government monopolies, restrictions on hours and days of sale, outlet density

restrictions); and other policies (e.g., minimum purchase age, drinking and driving laws, brief interventions, policies for reducing violence in licensed establishments, etc.). The following sections use this framework to present an overview of BC’s current alcohol control policies, beginning with economic availability. First, we review public opinion on a number of select alcohol policies as assessed in the Canadian Addiction Survey (2004).

Public Opinion

Canadians generally favour some measure of control on alcohol. Older Canadians and women tend to favour stricter controls, while younger people, particularly heavy-drinking males, favour more liberal policies. In general, policy measures that provide information or treatment have stronger support than those that raise prices or otherwise reduce access to alcohol products. Public opinion regarding some alcohol policies was assessed in the 2004 Canadian Addiction Survey. Table 8 compares public attitudes and preferences in Canada and BC on several important alcohol policies.

These data suggest almost universal support for random breath testing for drivers (not currently conducted in Canadian jurisdictions), and very strong support for government alcohol monopolies and for enforcing laws disallowing service to intoxicated customers in licensed premises. Opinion is more divided on restricting alcohol advertising and on raising the legal drinking age, and is mostly opposed to raising alcohol taxes. In relation to the latter, Australian jurisdictions found the same antipathy towards raising the price of alcohol as a prevention measure, though there was very strong support in these same jurisdictions for a measure that achieves the same objective: introducing an earmarked tax to raise additional funds for prevention and treatment services (Chikritzhs, Stockwell, & Pascal, 2005).

¹⁷ Research from Canada suggests that the safety profile of bars and clubs can be significantly enhanced when this type of training is provided to both security and bar staff, and when changes are made to the physical layout of establishments to reduce overcrowding and improve the movement of patrons (Graham et al., 2004).

¹⁸ In attempting to deal with violence in and around licensed establishments, the usefulness of “last drink” information has been highlighted in the research (Wiggers et al., 2004). In some jurisdictions internationally, police are empowered to ask suspects involved in alcohol-related violence or disturbances “Where was the last place you were drinking?” This information is then collated and shared on a regular basis with managers of the drinking establishments identified by suspects. This is an excellent example of “proactive” enforcement in that it has the potential to provide meaningful information to police and liquor enforcement officers about so-called “problem establishments” within their jurisdictions. While this approach increases the administrative burden on police slightly, the potential for violence reduction has been shown to be substantial.

Table 8: Public Opinion on Select Alcohol Policies, Canada, 2004

	Percentage Who Agreed			
	BC		Canada	
The legal drinking age should be raised.	43.6%		48%	
Provincial governments should close all government-run liquor stores and allow private stores to sell alcohol.	36.2%		29.5%	
Taxes on alcoholic beverages should be increased.	34.8%		40.1%	
Random spot checks should be organized to catch drinking drivers.	96.5%		96.8%	
Government should prohibit wine, liquor, and beer television advertising	51.3%		51.1%	
Efforts to prevent drunken customers from being served should be . . .	increased	75.2%	increased	73.5%
	stay the same	22.6%	stay the same	20.6%
	decreased	*	decreased	2.9%

Note: * Results are not reported due to sampling error.
Source: Racine, Flight, & Sawka, (2006).

Current Status of Alcohol Policies in BC

Economic Availability

As with other products, the pricing and marketing of alcoholic drinks strongly affects levels of consumer demand. Making alcohol less accessible by increasing its price has consistently been identified as the most cost-effective way to reduce alcohol-related health and social harms (Babor et al., 2003). In particular, research has shown that young people and heavy consumers of alcohol, who are generally at higher risk for harm, are the most likely to reduce consumption when the price of alcohol is increased. Recent systematic reviews of data spanning dozens of countries over many decades have found that on average, a 10 per cent rise in the cost of alcohol results in a 5 per cent reduction in its consumption (Gallet, 2007; Wagenaar, Salois, & Komro, in press), and that even heavy drinkers reduce their consumption in response to increases in price.

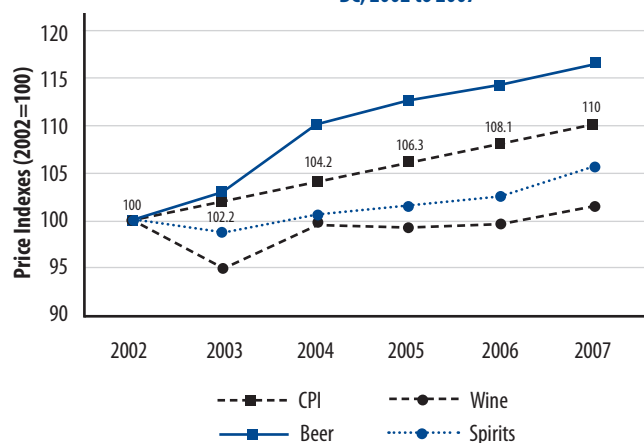
Final retail prices for alcohol in BC result from a complex interplay of production costs, producer profits, shipping costs, federal taxes, provincial mark-ups, and, in the case of licensed private retail stores, retailer profits. It is important to note that Canada already has relatively high rates of taxation and high prices compared to other countries, and that BC's rates are higher than many jurisdictions in Canada due to a 3

per cent sales tax on alcohol that is applied over and above the standard provincial sales tax.¹⁹ Further, a significant majority of the public in BC (63.8 per cent) did not agree when asked in 2004 if alcohol taxes should be raised (Racine et al., 2006).

To simply propose “raising the price of alcohol” is a blunt and simplistic approach. Alcohol is a complex collection of commodities that in Canada is made up of several thousand varieties varying in alcohol content, mode of manufacture,

Figure 27

Retail Prices for Alcohol Products Sold in Liquor Stores and Consumer Price Index, BC, 2002 to 2007



Note: Alcohol price data from Statistics Canada are based on a limited sample of alcohol products in a small number of stores in BC; therefore, the data only approximate overall price levels for beer, wine and spirits in the province.

Source: Statistics Canada, n.d. Consumer Price Index.

¹⁹ Very high prices for alcohol products can lead to increased problems with illegal supply (e.g., smuggling) and to increased in-home production and use of U-brew/U-vin facilities, so there is a functional limit on price increases above which unintended negative consequences will likely result.

taste, and price (Stockwell, Leng, & Sturge, 2006). There are a number of other effective options available for using alcohol taxation and pricing policy levers. These include increasing prices so that they keep pace with inflation, pricing to maintain minimum costs per unit of alcohol, and providing price incentives for the production and consumption of lower alcohol content beverages (Stockwell et al., 2006).

First, in order to improve the health and safety benefits of current alcohol prices in BC, prices should be adjusted to keep pace with inflation. Figure 27 depicts the prices of a selection of beer, wine, and spirits in BC compared to the Consumer Price Index, which measures the overall rate of inflation in the economy.

These data suggest that retail prices for wine and spirits in BC have not kept up with the overall inflation rate since 2002, which means that wine and spirits have become cheaper relative to other products in a typical consumer “basket.” As a result, it is likely that the health and safety benefits associated with higher alcohol prices are eroding over time for wine and spirits in BC. This conclusion is supported by the data presented in Figure 28, which shows that sales of beer have remained stable during this period while those of wine and spirits have increased.²⁰

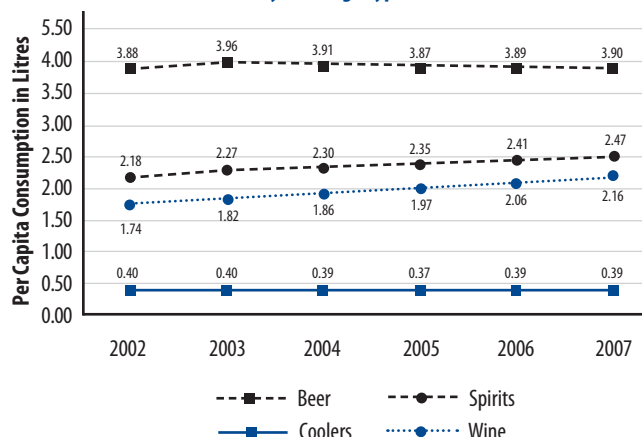
Second, the most appropriate public health approach to taxing alcohol is one that takes alcohol content into consideration. Namely, stronger drinks should have higher prices/taxes so that relatively cheap sources of alcohol do not emerge from pricing protocols. To promote the healthiest outcomes, prices should be structured so that a minimum “social reference price” per unit of absolute alcohol is respected. Researchers at CARBC used data on prices and alcohol content from the BC Liquor Distribution Branch to calculate cost per standard drink for all alcohol products sold in BC. This analysis indicates that relatively cheap sources of alcohol have emerged across all beverage categories. In fact, some products now deliver a standard drink for under a dollar.²¹ Table 9 provides examples of inexpensive sources of alcohol under the current pricing regime.

²⁰ Alcohol consumption is also directly related to disposable income, so some of the observed increases in consumption are likely derived from income effects as well as relative price effects.

²¹ A standard drink in Canada = 13.6 grams of ethyl alcohol, which is approximately equivalent to one 12 oz beer containing 5 per cent alcohol, one 5 oz glass of wine containing 12 per cent alcohol, and 1.5 oz of spirits containing 40 per cent alcohol.

Figure 28

Per Capita Alcohol Consumption by Beverage Type, BC, 2002 to 2007



Source: Based on sales data supplied by the BC Liquor Distribution Branch, the Liquor Control and Licensing Branch, and Statistics Canada (2008 and previous years).

Table 9: Minimum Prices for the Least Expensive Sources of Alcohol, BC, 2008

	Min \$ Per Litre Beverage	Min \$ Per Standard Drink
Beer		
6.0%+	3.46	0.75
Coolers		
7.0%	2.90	0.71
Spirits		
40%	19.99	0.86
60%+	42.92	0.98
Wine		
11.5%	6.09	0.91
14-14.9%	7.83	0.96
15-19.9%	7.73	0.74
20%+	7.99	0.62

Note: Pre-sales tax data taken from the BC Liquor Stores website, August 2007 (<http://www.bcliquorstores.com>).

Source: Analysis by CARBC with data supplied by the BC Liquor Distribution Branch, October 2008.

Table 10: Market Share and Price Incentives for Different Strength Beers, Coolers, Spirits, and Wines, BC, 2007

Beverage (by Percentage of Alcohol Content)	Number of Brands	Price per Standard Drink	Percentage of Overall Sales Volume
Beer			
2.90-3.99	3	2.57	0.16
4.00-4.99	95	2.18	16.20
5.00-5.99	348	1.81	79.47
6.00-6.99	42	1.81	1.89
7.00+	33	1.50	2.28
Cooler			
3.90-4.99	N/A	N/A	1.98
5.00-5.99	35	2.74	17.98
6.00-6.99	14	1.94	6.92
7.00+	91	1.33	73.12
Spirit			
07.00-34.99	179	3.08	12.94
35.00-39.99	68	1.86	7.56
40.00-59.99	669	5.62	79.27
60.00+	7	3.37	0.22
Wine			
05.00-10.99	143	9.11	4.95
11.00-11.99	334	3.68	24.44
12.00-13.49	1,547	6.86	45.08
13.50-14.99	1,321	6.80	22.18
15.00+	261	5.95	3.35

Note: Mean pre-sales tax price data.

Source: Analysis by CARBC with data supplied by the BC Liquor Distribution Branch, August 2007.

Further, for beer, wine, coolers, and spirits, there appear to be general price incentives to purchase higher strength beverages as they provide a “bigger bang for the buck.” Research shows that higher alcohol content products can be consumed as quickly as lower content products and result in higher blood alcohol levels in drinkers, thus potentially posing a more serious threat to public health and safety. Table 10 shows average prices per standard drink across all beverage classes.

As suggested earlier, there are price incentives to purchase higher content alcohol products in all beverage classes in BC. In the case of beer, for example, the lowest strength products have the highest price per standard drink (\$2.57) and the highest strength products have the lowest overall average price (\$1.50). In the case of coolers, there is an obvious incentive to purchase products with alcohol content above 6.99 per cent. This is particularly troubling given that these products account for approximately 80 per cent of the cooler market in BC. Finally, there appears to be a price incentive for the highest strength spirit and wine products, although they account for only a small portion of the overall wine and spirit markets (0.22 per cent for spirits and 3.35 per cent for wines).

Physical Availability

Best practice policies for influencing the physical availability of alcohol include using government-run monopolies to distribute alcohol at the retail level, setting limits on hours and days of sale, and imposing outlet density restrictions.

Government Retail Monopoly

Public monopolies for the distribution and sale of alcohol were created for two main reasons: (1) to maximize government revenue from alcohol; and (2) to protect and promote the health of the public (Centre for Addiction and Mental Health, 2004). While there is some controversy in Canada regarding the continued need for retail alcohol monopolies,²² all provincial jurisdictions employ them at the wholesale level and most have either complete monopolies or mixed public and private systems at the retail level.²³ In terms of public opinion, a sizeable majority of the general

²² See Petkantchbin (2005) and Centre for Addiction and Mental Health (2004) for opposing viewpoints on the need for retail alcohol monopolies in Canada.

²³ Alberta is the only jurisdiction in Canada that has a purely private retail alcohol system, with the move to privatization occurring in 1993 under the Ralph Klein government.

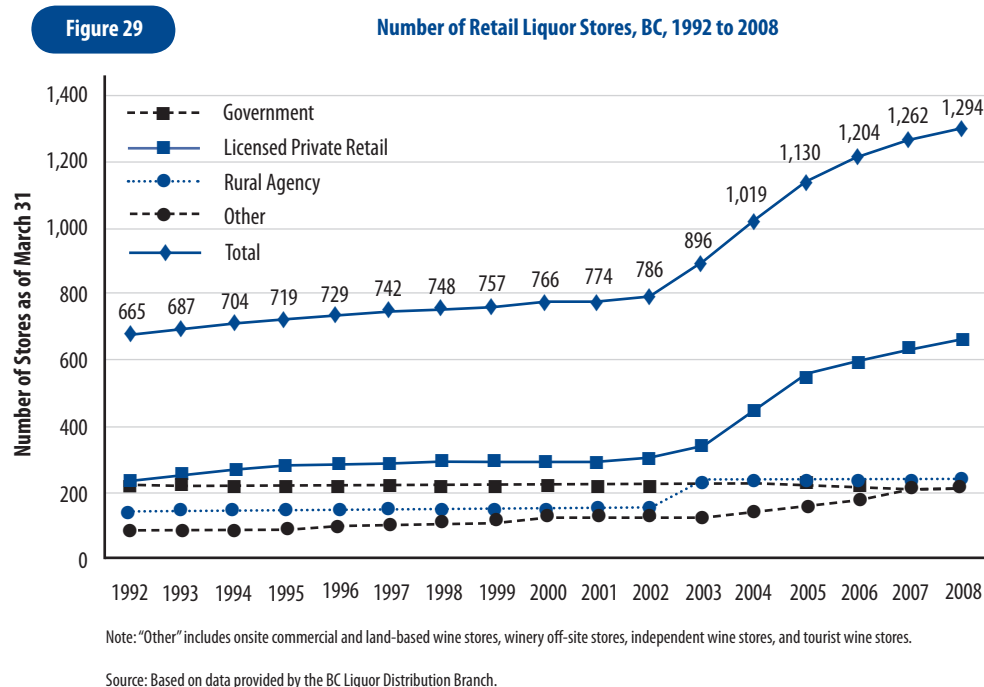
population age 15 and older in BC and Canada were not in favour of privatizing alcohol sales when asked about this policy option in 2004.

Of the two rationales used to justify sales of alcohol through public outlets, commercial and economic interests seem to be paramount, with factors such as customer convenience, efficient distribution, and higher sales appearing to take precedence over public health concerns in many jurisdictions (Room, 2001). This is potentially problematic for public monopolies because

... alcohol is no ordinary commodity (Babor et al., 2003). Hence, the rationale for maintaining a public retail system... will ultimately depend on the public system's ability to fulfill its social responsibilities by promoting public health, i.e., the 'added value' it provides that the private sector would not. While commercial considerations and quality customer service are important, they are not sufficient to ensure the survival of public alcohol monopolies (Paradis & Sacy, 2005, p.1).

In 2002, the BC government announced that it was going to fully privatize off-premise retail alcohol sales; however, full privatization never occurred. BC currently operates a mixed system of Liquor Authority, agency,²⁴ and licensed private retail stores, with the number of outlets increasing substantially in recent years. Figure 29 depicts the growth of retail alcohol stores in BC since 1992.

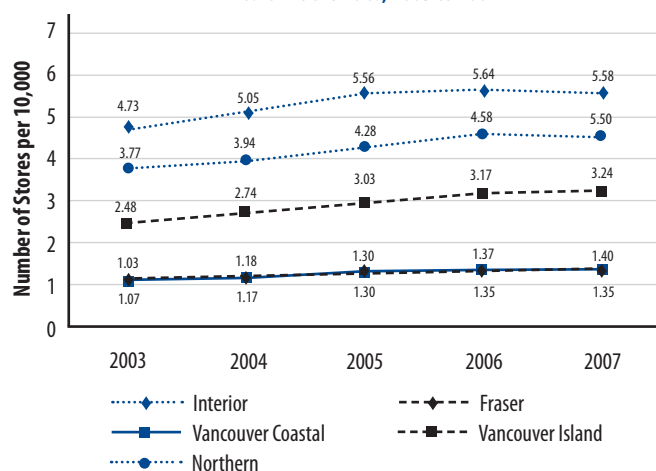
The growth in retail alcohol outlets in BC occurred in two phases. The first period was from the late 1980s (when licensed private retail stores were first introduced) to 2002. During this time, the total number of retail liquor stores increased from 665 to 786, with almost all of this growth accounted for by licensed private retail and "other" stores. The second phase of growth occurred after 2002, when the total number of stores increased rapidly from 786 to 1,294 in six years.²⁵ Again, the majority of growth is due to private and "other" stores, although there was a one-time increase in rural agency stores between 2002 and 2003. By contrast, the number of Government Liquor Authority stores in BC decreased approximately 10 per cent from 217 to 199 over the study period.



²⁴ Agency stores are typically found in rural areas where the costs of building stand-alone government outlets are not justified by projected demand. Under agency store agreements, the Liquor Authority authorizes private retailers to sell alcohol on its behalf, usually out of general stores or other private establishments. The growth in agency stores is not unique to BC, with several other provinces in Canada promoting the expansion of these types of rural outlets since the late 1990s (Statistics Canada, 2008 and various years).

²⁵ The provincial government placed a moratorium on further expansion of licensed private retail stores in 2006. This policy remains in effect as of November 2008.

Figure 30

Trends in Rates, Age 15+,
Health Authorities, 2003 to 2007

Note: Population data were obtained from BC Stats.

Source: The alcohol sale outlet data were obtained from the BC Liquor Distribution Branch.

These changes obviously represent substantial increases in the physical availability of alcohol in BC. Furthermore, as shown in Figure 30, the rate of increase in licensed private retail stores was most marked in regions outside the Lower Mainland: Northern, Interior, and Vancouver Island Health Authorities.

Restrictions on Days and Hours of Sale

BC was one of the first provinces in Canada to allow Sunday alcohol sales when it repealed its so-called “blue law” in the late 1980s. More recently, in December 2002, regulations under the *Liquor Control and Licensing Act* were amended to allow licensed establishments to stay open until 4 a.m., subject to local government input and approval from the Liquor Control and Licensing Branch. A few local governments across the province approved late hours to 3 a.m. or 4 a.m. (e.g., Vancouver, Prince George, Fruitvale, Dawson Creek, and Elkford). Some local governments subsequently asked Liquor Control and Licensing Branch to roll-back hours because of problems in their community. In November 2007, the provincial policy was changed to allow for the roll-back of licensee hours if local governments asked the general

manager to close no earlier than 2 a.m., had passed a valid bylaw requiring licensees to close at an earlier time, and had provided affected licensees with an opportunity to make submissions in the bylaw approval process. This policy change was well received by local governments. To date, Dawson Creek and Elkford have passed bylaws restricting liquor service to 2 a.m., and Liquor Control and Licensing Branch has amended the relevant liquor licences accordingly.

Restrictions on Outlet Density

There is a 0.5 km minimum distance requirement between licensed private retail stores, which is enforced by the Liquor Control and Licensing Branch. More importantly, the Branch issued a blanket moratorium on new private stores in 2006, a policy that was reaffirmed in a recent policy directive. The Liquor Distribution Branch also enforces a 10 km minimum distance requirement between its rural agency stores in the province.²⁶

A Note on the Relationship between Physical Availability and Consumption

A recent analysis conducted by CARBC found significant positive relationships between the number and types of alcohol outlets and per capita sales of alcohol for 89 local health areas in BC between 2003/2004 and 2007/2008 (Stockwell, Zhao, Macdonald, Pakula & Gruenewald, 2008). Regression analysis demonstrated significant positive associations between consumption and numbers of government stores, private stores, bars, and restaurants in those regions.

Other Policies

Minimum Purchase Age

BC’s minimum purchase age is 19, which is equivalent to the minimum recommended based on best practices (Babor et al., 2003).²⁷ When asked in the 2004 Canadian Addiction Survey whether the drinking age should be raised in BC, a small majority of residents (56.4 per cent) were opposed to this policy change.

²⁶ Some local governments in BC (notably Burnaby and Vancouver) have strict zoning requirements that limit the concentration of liquor stores and other types of alcohol outlets. In many cases, local government zoning regulations are probably more important influences on outlet density than provincial restrictions, especially for bars and restaurants that serve alcohol.

²⁷ Alberta, Manitoba, and Quebec set their minimum purchase age at 18. Problems related to young drinkers crossing provincial borders to purchase alcohol (e.g., 18-year-olds in BC purchasing alcohol in Alberta) led the National Alcohol Strategy Working Group in 2007 to recommend that the minimum drinking age in these three provinces be raised to 19, but no action has been taken on this recommendation to date.

One issue related to both minimum drinking age and privatization of retail alcohol sales that deserves special attention is that of compliance with regulations designed to prevent sales of alcohol to minors. A compliance check of Liquor Authority, rural agency, and private liquor stores using young-looking patrons of legal drinking age was undertaken by the Liquor Control and Licensing Branch between January and March 2008. A total of 831 stores were audited, representing 67 per cent of liquor stores in BC. All operators were advised in advance of the upcoming compliance check and reminded of the requirement to request two pieces of ID from customers who appeared to be under the age of 25. Overall results for the compliance check are provided in Table 11.

As these data reveal, there are significant differences in rates of compliance with age verification protocols across the various types of outlets, with government liquor stores performing substantially better than licensed private retail or agency stores in the province. Given the large increase in private and agency stores in recent years, this likely has important implications for youth access to alcohol in BC.

Drinking and Driving Policies

Three of the ten best practice alcohol policies identified by Babor et al. (2003) relate to the problem of alcohol-impaired driving and fall under provincial mandate: sobriety checkpoints, administrative suspension for those close to the

legal BAC limit, and graduated licensing for novice drivers. It is interesting to note that when asked in the 2004 Canadian Addiction Survey whether random spot checks should be organized to catch drinking drivers, an overwhelming majority of BC residents (96.5 per cent) agreed that this policy should be pursued.

BC actively implements all three of these best practice policies and was recognized by Mothers Against Drunk Driving (MADD) Canada in 2006 for employing best practices for both its graduated licensing and sobriety checkpoint programs. However, MADD Canada’s most recent assessment suggests that BC’s policies regarding short-term suspension of drivers close to the legal BAC limit could be strengthened (MADD Canada, 2007).²⁸ In common with the rest of Canada, BC still falls below international standards set by countries such as Sweden and Australia, which permit random breath testing of drivers and have high rates of stopping and testing drivers (Homel, 1990).

The Ministry of Public Safety and Solicitor General has several programs in place to address drinking and driving. One example is the Ignition Interlock Program, which was introduced in BC on November 7, 2005. Drivers who are assessed as being at risk of drinking and driving, are required to have an ignition interlock device installed in their vehicle. This device prevents the vehicle from being started

Table 11: Results of ID Enforcement Compliance Checks, Liquor Stores, BC, 2008

	Percentage Requesting 0 ID	Percentage Requesting 1 ID	Percentage Requesting 2 ID
Government Liquor Stores (checks = 164)	8.5	14.0	77.5
Private Retail Stores (checks = 532)	23.3	40.8	35.9
Rural Agency Stores (checks = 191)	24.6	51.3	24.1
Other Retail Stores (checks = 49)	32.7	46.9	20.4

Note: A store was considered to be in full compliance if two pieces of ID were requested and properly examined. “Other Retail Stores” include onsite commercial and land-based wine stores, winery off-site stores, independent wine stores, and tourist wine stores.

Source: Hoy & Carlson, 2008.

²⁸ In particular, MADD suggests that BC authorize police to impose 7–14 day administrative licence suspensions on drivers if the police reasonably believe that the driver’s ability to drive is impaired by alcohol or drugs, or if the driver registers a BAC of 0.05 per cent or higher (currently the suspension is for 24 hours). Further, MADD recommends that BC’s 90-day administrative licence suspension legislation include mandatory progressive sanctions and mandatory remedial programs for drivers with multiple violations (MADD, 2007).

or operated when the driver has been drinking, i.e., if the driver's BAC is over a pre-set limit. Drivers can be assigned to the Ignition Interlock Program based on a review of their participation in the drinking driver rehabilitation program, their medical records and/or their driving record. Those with multiple convictions, or whose medical records or rehabilitation program results indicate an increased risk of re-offending, will be required to have an interlock device installed in their vehicle. Those at high risk of re-offending due to an active alcohol abuse problem will not be licensed, even with an interlock device. Drivers who are referred to the program do not have to participate; however, they cannot keep or obtain a driver's licence without having an interlock device installed. For more information on these and other programs that address drinking and driving, please visit <http://www.pssg.gov.bc.ca/osmv/publications/index.htm>.

Brief Interventions

Evidence is accumulating on the effectiveness of providing screening, brief interventions,²⁹ and referrals (SBIR) in primary care to address risky and hazardous alcohol use in individuals (Brown, 2006; Babor et al., 2003). While there are several projects underway to promote routine screening and brief interventions for risky drinking,³⁰ no large-scale efforts to build sustainable capacity for SBIR in the primary health care system exist in BC. This could be addressed in updates to the BC primary health care charter and as a secondary preventative component of the anticipated Mental Health and Addictions Plan.

While the following policies are not included in the ten best practice alcohol policies identified by Babor et al. (2003), they are policies that have shown some evidence for effectiveness in addressing alcohol-related harm and are relevant to the BC situation.

Policies and Programs for Reducing Violence in and around Licensed Establishments

Research identifies the following best practice programs and policies for reducing violence in and around licensed establishments: server training programs; proactively enforcing laws on service to intoxicated patrons, overcrowding, and sales to minors; violence prevention training for security and bar staff; and encouraging strong, local collaboration to prevent and manage alcohol-related problems.

Server Training Programs

The Liquor Control and Licensing Branch, in conjunction with go2 (an independent, non-profit hospitality industry association), has operated the Serving it Right self-study server training program in BC since 1989. The program was updated in 2007, with the new version placing greater emphasis on identifying signs of intoxication, educating bar owners and staff about legal liability and duty of care requirements both on- and off-premises, and the need to create and enforce responsible beverage service policies within establishments (Ministry of Public Safety and Solicitor General, n.d., *Serving it Right*). As well, some of the administrative requirements for the program were strengthened. For example, under the previous rules, there was a 120-day grace period for servers to complete the training once hired. Under the new requirements, all servers must complete the training before starting work. While these changes represent efforts to enhance the effectiveness of the Serving It Right program, research suggests that regular recertification of servers and ongoing and proactive enforcement compliance checks are needed to sustain and improve the impacts of server training programs over time.

²⁹ Brief interventions are short (typically less than 1 hour) counselling sessions designed to assist individuals in addressing their risky and/or hazardous drinking patterns.

³⁰ For example, screening for hazardous or risky alcohol use is now included in BC's annual "mental health screening day", which is normally held in the Fall of each year. In addition, CARBC created and maintains the "Alcohol Reality Check" website (<http://alcoholreality.ca/>) to promote self-screening in the population. See Brown (2006) for an excellent treatment of factors related to raising capacity for screening, brief interventions, and referrals in primary care for alcohol misuse.

Proactively Enforcing Laws on Service to Intoxicated Patrons, Overcrowding, and Sales to Minors

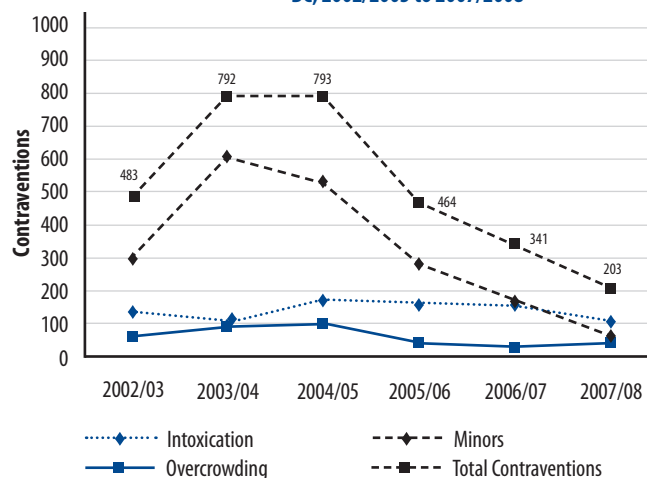
Figure 31 shows data on contraventions recorded by Liquor Control and Licensing Branch against licensed establishments (e.g., bars and restaurants) and licensed private retail stores from 2002/2003 to 2007/2008.

From these data it appears that contraventions for sales to intoxicated patrons and minors, and overcrowding in licensed establishments and licensed private retail stores, peaked in 2003/2004 and 2004/2005, but have dropped substantially since then. The peak in contraventions for minors is explained by government's implementation of new regulations in December 2002 requiring that alcohol retailers request and examine two pieces of identification from all patrons appearing to be under the age of 25. Most of the contraventions related to minors in 2003/2004 and 2004/2005 were for failing to ask for two pieces of identification. However, the regulation was difficult to enforce, and did not result in sustained long-term compliance. As well, in many cases the new regulations meant that the Liquor Control and Licensing Branch was issuing contravention notices to licensees even though the people they didn't ID were of legal drinking age. Because of problems related to implementation, the new age verification regulations were rescinded in February 2007. At the same time, government increased penalties for licensees selling liquor to minors, and allowing minors on the premises. Figure 32 presents the ratio of contraventions per number of outlets for comparison purposes.

These data suggest that the decline in contraventions since the peak in 2004/2005 is most pronounced in licensed private retail stores, but is also evident in both bars and clubs and food primary licensees (e.g., restaurants). From a public health perspective, the substantial decline in contraventions for licensed private retail stores is especially problematic given the relatively lower rates of compliance with age verification protocols reported for private retailers in Table 11.

Figure 31

Number of Contraventions in Licensed Establishment and Licensed Private Retail Stores, BC, 2002/2003 to 2007/2008

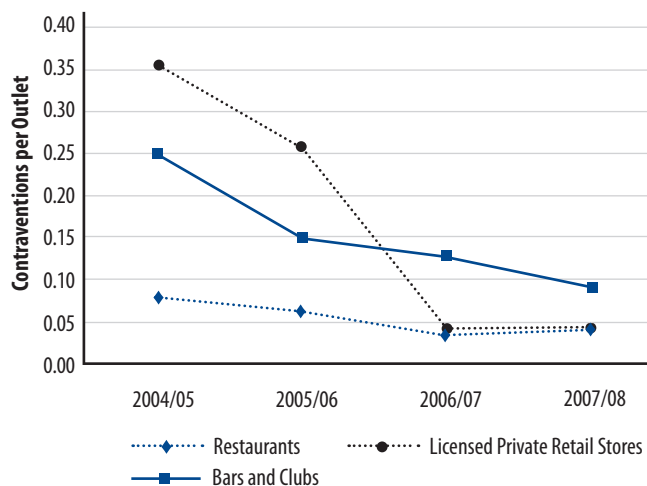


Note: The contraventions listed here are limited to those within three classes: sales to intoxicated patrons, sales to minors, and overcrowding. There are several other classes of contraventions tracked in LCLB's data system, so the totals depicted are not the overall contraventions for any given year, just the totals for these three types.

Source: Based on data provided by the Liquor Control and Licensing Branch (LCLB).

Figure 32

Ratio of Contraventions to the Number of Outlets, 2004/2005 to 2007/2008



Source: Data supplied by the BC Liquor Control and Licensing Branch.

Violence Prevention Training for Security and Bar Staff

No dedicated violence prevention training programs currently exist in BC. The provincial government has passed and is phasing in the new *Security Services Act*, which will apply to door staff in all licensed establishments as of November 1, 2009. The new act regulates all workers in the security field and requires them to be personally licensed before employment. Licensing requirements include a criminal background check (including fingerprinting), and attendance at a 40-hour training course offered by the Ministry of Public Safety and Solicitor General. While de-escalation strategies are included in the incident management portion of the training course, violence prevention is not the program's focus, so it should not be viewed as a violence prevention program (Ministry of Public Safety and Solicitor General, personal communication, October 27, 2007).

Encouraging Strong Local Collaboration

No formal “last drink” police intelligence programs currently exist in BC. In Victoria, however, a multi-agency enforcement task force was recently created involving police, liquor inspectors, the Vancouver Island Health Authority (VIHA), fire officials, and city bylaw enforcement officers. Liquor officials are developing a comprehensive strategy with their Victoria partners to address and minimize community disturbances involving alcohol. Further, in carrying out their inspection- and/or enforcement-related duties, liquor officials throughout the province work with the police and other relevant community partners, such as local bylaw officials, on alcohol enforcement issues. For example, in the Surrey regional office, all liquor inspectors work with the police in terms of providing roll-call training as well as participating in joint inspections that sometimes include other community stakeholders, such as city, fire and health officials. Two inspectors in the Surrey office also work closely with the RCMP traffic services division on impaired driving reports as they relate to licensed establishments. In certain situations involving alcohol-related motor vehicle fatalities, inspectors may also work with the coroner's office to obtain

further information when there is a link with a licensed establishment. Similar informal arrangements are in place throughout the province.

A related development is the implementation of “Bar Watch” programs in a small number of cities in BC including Vancouver, Nanaimo and, more recently, Victoria. The Bar Watch program in Vancouver was originally developed as a collaboration between licensed premises in the downtown core and the police to help control gang activity in the night-time economy; however, its focus has shifted recently to deal with all manner of “uncivil” behaviour in licensed establishments.³¹

With regard to implementing programs and policies to encourage strong local collaboration on alcohol, the Centre for Addiction and Mental Health (CAMH) in Toronto developed a program to assist municipal governments to deal more effectively with alcohol-related problems within their jurisdictions, especially those related to recreational events (CAMH, 2006). The Municipal Alcohol Policy (MAP) program was developed in the 1990s and initially saw wide application throughout Ontario. A detailed guide for implementing MAPs is available from the Ontario Recreation Facilities Association (<http://www.orfa.com>).

Alcohol Advertising and Promotion

Alcohol advertising in Canada is largely regulated under a “voluntary code of practice” set out by the Canadian Radio-television and Telecommunications Commission (CRTC) in 1996 (CRTC, n.d.). The code replaced a system of government pre-screening of television advertisements that required advertisers to submit broadcast advertisements for review prior to being aired. Most alcohol advertisers now pre-screen their advertisements through Advertising Standards Canada (ASC), a trade organization based in Toronto. ASC also tracks and responds to consumer complaints about advertising in Canada, including advertisements involving alcohol.

BC follows the CRTC code and explicitly extends its provisions to all forms of advertising, including Internet promotions (Ministry of Public Safety and Solicitor General, n.d., *Liquor*

³¹ More information on the Bar Watch program can be found at: http://www.nanaimo.ca/uploadedfiles/Site_Structure/Corporate_Services/Corporate_Administration/Regulation_and_Risk_Management/liq_barwatch.pdf.

Advertising). In particular, the BC code states that alcohol advertising shall not:

- Encourage people to drink liquor or to drink irresponsibly.
- Show people drinking liquor, or anyone who is either intoxicated or behaving irresponsibly or illegally.
- Associate liquor with driving.
- Be directed at minors or be placed in locations used or visited mostly by minors, such as video arcades and playgrounds.
- Depict liquor as:
 - One of life's necessities.
 - Key to social acceptance or personal success.
 - Central to the enjoyment of an activity.
 - A status symbol (Ministry of Public Safety and Solicitor General, n.d., *Liquor Advertising*).

In addition to these provisions, there are social responsibility guidelines developed by Liquor Control and Licensing Branch that the Liquor Distribution Branch uses in setting out product listings. The guidelines apply to brand names, text, images, labels, packaging, and any other component of the product deemed relevant to determine whether the product will be registered for sale in BC. A review of the BC Liquor Stores website (<http://www.bcliquorstores.com>) by the Office of the Provincial Health Officer suggests that socially responsible programming is prominently featured by the provincial liquor authority.

The Liquor Control and Licensing Branch invites public complaints about alcohol advertising (including Internet promotions) on their website, but no public data are available to investigate the number or nature of complaints received or the actions taken by the Branch. However, there are real limits on what BC can do regarding advertising, given that most media originates outside of the province, and broadcasting is mainly under federal jurisdiction. Regulating Internet advertising is even more problematic since it is international in nature and has very few mechanisms of control currently in place.

One important issue related to the promotion of alcohol is the growth in popularity of so-called “alcopops” (sweet-tasting pre-mixed spirit or wine-based drinks of relatively high alcohol content) among young adult and underage drinkers. There is recent evidence from Australia that these products may be associated with an increase in alcohol-related deaths among underage girls in the state of New South Wales between 1996 and 2005 (New South Wales Child Death Review Team, 2008). Sales of spirit-based coolers have grown dramatically in BC and other jurisdictions in Canada over the last decade and, with youth access to alcohol likely to have increased with the expansion of licensed private retail and agency stores, the rate of youth alcohol-related deaths should be monitored closely to ensure that problems similar to those seen in Australia do not emerge in BC. In the meantime, promotion of these products should be carefully monitored to make sure that youth in BC are not being exposed inappropriately to ads promoting their use. An additional concern is that high-strength coolers are substantially cheaper in the BC liquor market than are lower alcohol content varieties.

A final issue related to alcohol advertising and promotion is the fact that all existing limitations on alcohol advertising in BC and Canada speak to the quality of advertising, with the major goal being to ensure that advertisements do not directly target youth. However, given the amount of mass media advertising that youth are exposed to, and the ubiquitous nature of alcohol advertising of all types, it may be prudent to begin discussions on the *level* of alcohol promotion in society as well as its quality. Indeed, research from the United States suggests that, despite “codes of conduct” and other efforts to limit children’s exposure, underage youth are exposed to a high volume of alcohol advertising (CAMY, 2008). Further, research suggests that exposure to alcohol promotions has a significant impact on attitudes about drinking and could, by extension, affect current and future alcohol consumption (Collins, Ellickson, McCaffrey & Hambarsoomians, 2007; Krank, 2006).

It can be complicated to discuss potential limits on the level of alcohol advertising, as alcohol is treated as an “ordinary product” akin to any other consumer good. However, the substantial health and social costs of alcohol in BC should be important enough to critically question our current relationship with this substance, including the degree to

which the tens of millions spent on advertising each year is promoting use among future generations of Canadians. It should also be noted that when asked in the 2004 Canadian Addiction Survey whether advertising for beer, wine, and spirits should be banned from television, a small majority of the public age 15 and older (51.1 per cent) said yes (Racine et al., 2006).

Summary

- Public opinion on alcohol policies in BC tends to favour stricter controls on drinking and driving countermeasures, advertising, and service to intoxicated patrons, and looser control on economic availability (e.g., taxing and prices). A small majority of citizens did not support the raising of the legal drinking age when asked in 2004. A sizeable majority (63.8 per cent) were in favour of maintaining the government retail alcohol monopoly in BC.
- There are ten best practices policies for managing the health and social harms of alcohol: maintaining alcohol taxes and prices; government monopoly of retail alcohol sales; restrictions on days and hours of sale; outlet density restrictions; raising minimum legal purchase age; sobriety checkpoints; lowered BAC limits; administrative licence suspension for those close to the legal BAC limit; graduated licensing for novice drivers; and screening and brief interventions for hazardous drinkers.
- Best practices for dealing with violence in and around licensed premises include: server training programs; proactive enforcement of laws on service to intoxicated and underage patrons and overcrowding; violence prevention training for security and bar staff; and encouraging strong, local collaboration to prevent and manage alcohol-related problems.
- BC does not appear to be applying three basic policies that would improve the health and safety profile of its alcohol pricing and taxation policy: maintaining prices with inflation, pricing based on alcohol content, and creating price incentives for the production and consumption of lower strength alcohol products.
- BC has a mixed system of retail alcohol sales, with the number of liquor stores increasing substantially since 2002.
- A substantial majority (73 per cent) of alcohol sold in BC is through public and licensed private retail stores.
- BC has the most liberal policies on hours of sale of any jurisdiction in Canada, allowing bars and clubs to stay open until 4 a.m. subject to local government approval and application.
- A 2008 age verification protocol compliance check in BC liquor stores revealed that licensed private retail, agency, and other stores (e.g., wine stores, brewery outlets) performed substantially worse than government Liquor Authority stores. This means that access to alcohol among underage youth has most likely increased in BC since 2002 with the substantial expansion of private outlets.
- BC employs best practice policies in terms of graduated licensing but could, according to MADD Canada, improve its policies on short-term suspensions for drivers testing near the legal BAC limit. Along with other Canadian jurisdictions, sobriety checkpoints in BC are not conducted randomly and fall below international standards for full effectiveness.
- While limited efforts are underway to promote routine screening and brief interventions for risky alcohol use in BC, there are no large-scale efforts to build sustainable capacity for these services at this time.
- Enforcement of regulations against selling to minors, and for overcrowding, appear to have declined substantially since 2004/2005. Proactive enforcement in licensed private retail stores overall appears to be very low, especially in recent years.
- No “last drink” police intelligence programs for proactively addressing violence in and around licensed establishments exist in BC; however, the Liquor Control and Licensing Branch works on an ongoing basis using police “callout” information to target high-risk establishments and address enforcement issues related to licensed establishments in the province. As well, Victoria currently operates an innovative, inter-agency collaboration to address alcohol-related problems in the city’s night-time economy, and “Bar Watch” programs have emerged in a small number of cities in the province.

- The Liquor Control and Licensing Branch invites public complaints about alcohol advertising, but no public data are available to investigate the number or nature of complaints received or the actions taken by the Branch.
- Existing controls on alcohol advertising are directed at the quality of that advertising rather than its quantity. From a public health perspective, and given the large cost to society from alcohol misuse, discussions of *levels* of alcohol advertising and promotion are warranted.

DISCUSSION

This report has reviewed the best available evidence on levels and patterns of alcohol consumption, levels and trends of alcohol-related health and social harms, costs and benefits of alcohol, and the current state of alcohol policies and programs in BC. Overall, alcohol is confirmed as a major source of health and social harms and costs, and it appears as though the concerns expressed in the 2002 PHO report about the effects of increased access leading to greater consumption have been confirmed. The evidence also suggests that the growth in consumption has translated into concomitant increases in some health and social harms, notably indicators of alcohol-related road trauma and, to a lesser extent, hospitalizations attributable to alcohol use. The fact that observed mortality data have not consistently tracked changes in alcohol consumption in recent years may be due to the relatively low volume of cases compared with hospitalization data, the possibility of lag effects for some alcohol-caused conditions, and other unknown factors. The international experience, however, is very clear that across many years of data and many countries, per capita alcohol consumption strongly predicts rates of alcohol-caused mortality (Norström & Skög, 2001).

Table 12 summarizes the major findings of this paper:

Table 12: Alcohol-Related Indicators and Trends, BC

Alcohol Availability	Level	Trend	Notes
Physical Access to Alcohol	19.41 licensed premises per 10,000 population, (2007/2008)	Increasing	Number of liquor stores nearly doubled from 2002 to 2008 with all the growth occurring in licensed private retail, rural agency and "other" stores.
Economic Access to Alcohol	Min price per single drink: 71¢(coolers); 75¢ (beer); 86¢ (spirits); 91¢ (wine)	Increasing	Wine and spirits have become relatively cheaper since 2002.
Youth Access to Alcohol	n/a	Likely Increasing	Rapid expansion of licensed private retail and agency stores coupled with lower age verification compliance rates is driving this outcome.
Consumption Level and Patterns			
Average Level of Consumption:	8.8 litres ethanol/adult	Increasing	Rates of consumption substantially higher in the Interior, Vancouver Island, and Northern Heath Authorities. Increase in consumption relatively higher in Interior Health Authority. Based on data from the BC AOD Monitoring Project.
General Population:			
Monthly Risky Drinking Males	28.9%	Potentially Increasing	Particularly ages 12–34 and 65–74.
Females	13.3%	Potentially Increasing	Particularly ages 12–34.
Hazardous Drinking	17.0%	Trend not available	
Alcohol Dependence	3.6%	Trend not available	BC second out of ten provinces behind Saskatchewan.
Undergraduate Students:			
Weekly Risky Drinking	11.7%	Not much change	Substantially lower in BC than for undergraduates in the rest of Canada.
Hazardous Drinking	26.7%	Not much change	
Harmful Drinking	39.0%	Not much change	
Dependent Drinking	29.6%	Not much change	
In-School (underage) Youth:			
Monthly Risky Drinking	25.7%	Increased between 2003 and 2005	Rate substantially higher in the Kootenays region and the North.
Harms and Costs			
Alcohol-Caused Mortality (Death)	19.5/100,000	Not much change	Increasing trend for those age 75+ since 2002. Increasing trend for alcohol-related deaths for 75+.
Alcohol-Caused Morbidity (Illness)	404.2/100,000	Increasing Moderately	Increases since 2002 are highest for those age 40–59 and 60–74.
Alcohol-Impaired Driving:			
Rate of Impaired Driving Charges	229.4/100,000	Increasing	Increased enforcement likely playing a role in trend since 2004.
Percentage of Fatally Injured Drivers Testing over 0.08 BAC	36.6%	Decreasing at slower rate than for Canada	BC consistently above national average for past 20 years.

Note: Levels reported in this table reflect the latest available data, which varies across the different measures. For example, per capita consumption is reported for 2007 while risky drinking for youth is reported for 2003. See the text of the report for more details.

Level	Trend	Notes
Percentage of All Drivers in Serious Injury Crashes Involving Alcohol	14.8% Increasing	
Rate of Alcohol-Involved Collisions	7.9/10,000 drivers Increasing	Long-term downward trend reversed around 2000.
Rate of Alcohol-Involved Victims	11.9/10,000 drivers Increasing	Long-term downward trend reversed around 2000.
Percentage of Night-time Drivers Testing 0.05 BAC and Above	4.9% Increasing	Based on studies undertaken in Vancouver, Saanich, and Abbotsford.
Alcohol-Involved Crime:		
Percentage of all crimes attributed to alcohol	29.6% Trend not available	
Percentage of all charges attributed to alcohol	36.7% Trend not available	
Self-Reported Alcohol-Related Harms:		
Past year harm from one's own drinking	9.5% Trend not available	
Past year harm from others' drinking	38.0% Trend not available	Significantly higher than the rest of Canada.
Alcohol Dependency (2002)	3.6% Trend not available	Statistics Canada, CCHS, 2002
Total Estimated Alcohol-Related Costs (Direct and Indirect) (2002)	\$2,219,000,000 Trend not available	National study estimates for BC (Rehm et al., 2006).
Government Revenue		
Alcohol-Related Direct Government Revenue (2007)	\$1,054,000,000 Increasing	Relatively high rates of growth since 2002.

Several high-level observations emerge from the information in Table 12. First, as expected, per capita consumption has increased in all regions in BC since 2002. Second, economic and particularly physical access to alcohol has also increased dramatically, which will likely lead to even further increases in consumption. Third, some indicators of health and social harms are showing potentially worsening trends, including rates of binge drinking among youth and young adults; increasing access of underage-youth to alcohol; alcohol-related morbidity; and alcohol-impaired driving.

On the positive side, rising consumption is contributing to significant increases in provincial revenue from alcohol mark-ups and taxes, with real growth rates averaging 4 per cent per year since 2003. However, the direct measurable costs of alcohol appear to already outweigh the direct revenue. Under these circumstances, any increase in alcohol-related health and social problems will affect the existing cost-benefit ratio (which is essentially one-to-one currently).

With this situation in mind, the following recommendations are suggested for the BC provincial government to consider:

Recommendations

Economic Availability

1. Implement strategies to maintain prices of alcoholic beverages consistent with inflation, such as indexing minimum prices and mark-ups to the cost of living. Liquor mark-ups in BC strongly influence the eventual retail prices in both private and government stores; therefore, they are the only policy lever available for maintaining prices throughout BC's mixed distribution system. Further, it is recommended that a minimum social reference price (minimum price per unit of absolute alcohol) per standard drink be introduced and reviewed annually and be linked to the cost of living.
2. Implement strategies/policies to encourage production/consumption of lower alcohol content varieties within each major beverage type; for example, by replacing provincial taxes on alcohol with an alcohol content-based tax indexed to the Consumer Price Index.

3. Implement other strategies to maintain minimum price per standard drink, such as introducing a surtax on high alcohol content drinks. The proceeds of this surcharge could be used to fund treatment and prevention programs. Every one cent extra per standard drink would generate approximately \$20 million additional revenue annually in BC.

Physical Availability

1. Maintain the moratorium on licensed private retail stores and restrict further growth in agency stores until the youth access issue is resolved.
2. Investigate current distribution of outlets and compare to social/health circumstances to find if there are clusters around vulnerable populations (e.g., Downtown Eastside, northern and rural populations, Aboriginals) and make adjustments as necessary in collaboration with local governments.
3. Increase minimum distance allowed between licensed private retail stores (currently 0.5 km).
4. Monitor violence and road trauma associated with drinking at particular licensed venues in order to inform liquor and impaired-driving law enforcement efforts.
5. Roll-back hours of sale for bars and clubs to match the rest of Canada (2 a.m. recommended as maximum, but only for premises with a good track record on violence and alcohol-related harm).

Other Policies

1. Put resources into enforcement and training to raise compliance rates with age verification protocols, particularly for licensed private, rural agency, and "other" stores.
2. Drinking and driving:
 - a. Increase random spot checks.
 - b. Implement best practices for ignition interlocks for those with impaired-driving convictions.
 - c. Improve administrative licence suspensions as recommended by Mothers Against Drunk Driving Canada.

- d. Re-invigorate impaired driving enforcement as recommended in the National Alcohol Strategy.
3. Increase capacity for routine screening, brief interventions, and referrals for risky alcohol use, especially in primary health and social care settings.
4. Conduct research into effectiveness of current restrictions on advertising and exposure of BC youth to alcohol promotions, including Internet promotions.
5. Begin discussions on controlling the *quantity* as well as the quality of alcohol advertising.
6. Continue supporting and augment the BC Alcohol and Other Drug Monitoring Project to track the levels of alcohol-related harm and to assess the impact of policy changes and programs.
7. Allocate resources to improve the collection of data on alcohol-involved morbidity and mortality by BC Vital Statistics Agency, including:
 - a. The Coroners Service of BC and the Vital Statistics Agency establish an ongoing, cross-agency data audit and reconciliation mechanism to correct historical data gaps and minimize the opportunity for unrecognized data issues to arise in the future.
 - b. The Coroners Service of BC and the Vital Statistics Agency be sufficiently resourced to support their data integrity improvement efforts.
8. Create a small “harm reduction” levy on specific alcohol products with higher than average alcohol content for their beverage class (e.g., beers with the strength above 5 per cent alcohol by volume). Use the proceeds from this levy to fund improvements in alcohol harm prevention, monitoring, treatment, and research, with a focus on reducing youth alcohol use and risky and hazardous drinking among young adults.
9. Meaningfully involve public health and addictions experts in decision making about all alcohol policies, programs, and strategies.
10. Provide support to local governments to prevent and respond to alcohol-related problems, especially in regions with higher rates of consumption and problems.
11. Investigate the feasibility of implementing the Centre for Addiction and Mental Health’s Municipal Alcohol Policy program for local governments in BC.

Programs and Policies to Reduce Violence in and around Licensed Establishments

1. Create and implement a dedicated violence prevention program in BC and require establishments with demonstrated problems to provide training to their staff. Explore the feasibility of the successful Safer Bars program developed by the Ontario Centre for Addiction and Mental Health in the BC context. Safer Bars is an evidence-based training program for bar/club managers and staff that focuses on teamwork, communication, and early intervention to prevent violence, injuries, and property damage.
2. Encourage strong, local collaboration between licensees, police, and civic authorities to implement policies that minimize and reduce alcohol-related violence (“local accords” or “community action plans”). The collaborative approach currently being implemented in Victoria could be used as a model for these efforts.
3. Implement ongoing compliance checks for service to intoxicated patrons and overcrowding, especially in licensed establishments identified as problematic in police data.
4. Develop and implement a protocol for collecting “last drink” information from suspects in alcohol-involved crime incidents.
5. Change the requirements of the Serving It Right program to require server recertification (five-year intervals), and resource the Liquor Control and Licensing Branch to conduct ongoing enforcement compliance checks for responsible service practices in real-life conditions.

Conclusion

This report reviews in detail: levels and patterns of alcohol consumption, rates and trends of alcohol-related health and social harms, the current cost-benefit profile of alcohol in BC, best practice policies for managing alcohol in society, and the status of current alcohol policies in BC relative to these best practices. By providing a comprehensive summary of up-to-date information, it establishes a useful baseline for assessing the impact of BC's alcohol policy changes, as well as allowing for an overall assessment of BC's relationship with alcohol. This work is significant due to the fact that the health and social costs of alcohol are rarely drawn together in a way that allows for the rational comparison of alcohol's costs and benefits to society. It is hoped that this work will act as a catalyst and facilitate reasoned, balanced, and meaningful discussions about the role of alcohol in BC society.

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APPENDIX 1:

RECOMMENDATIONS FROM THE NATIONAL ALCOHOL STRATEGY

Health promotion, prevention and education

1. Develop and promote national alcohol drinking guidelines to encourage a culture of moderation, and aim for consistency and clarity of messages across all alcohol-related health and safety arenas (Health Canada, all governments).
2. Develop a comprehensive, sustained and coordinated social marketing campaign with multi-sectoral partners to promote the national alcohol drinking guidelines. This would include building on existing social marketing campaigns such as those targeting drinking and driving and high-risk drinking patterns (all governments, NGOs, alcohol and hospitality industries).
3. Support and fund local communities to develop and implement community-wide health promotion initiatives that emphasize the national alcohol drinking guidelines, and prevent and reduce alcohol-related harm (all governments, alcohol and hospitality industries).
4. For alcohol beverage containers, regulate standardized, easily visible labels that convey the number of standard drinks in each container (Health Canada).
5. With regard to underage youth, develop and evaluate policies and programs that are appropriate to youth stages of development and that promote abstinence as a valid goal for everyone, adherence to the national alcohol drinking guidelines and avoidance of high-risk drinking for those who choose not to abstain from alcohol (all governments, NGOs, alcohol and hospitality industries).

6. With regard to young adults, through a national collaborative initiative, develop and evaluate policies and programs in schools, colleges and universities (all governments, NGOs, alcohol and hospitality industries).

Health impacts and treatment

7. Develop integrated and culturally sensitive screening, brief intervention and referral tools and strategies (P/T governments).
8. Ensure adequate ongoing funding, quality training and accreditation for specialized addiction services (P/T governments).
9. Improve access to addiction services in isolated, rural and remote regions of Canada and for vulnerable populations (all governments).
10. Evaluate treatment programs to determine promising practices and disseminate the findings (all governments, NGOs).
11. Coordinate the transfer of knowledge relating to the evaluation and research of prevention, treatment and population health policies and programs addressing alcohol (Canadian Centre on Substance Abuse).
12. Strengthen drug and alcohol curriculum in undergraduate, post-graduate and continuing professional development programs (P/T governments, NGOs, colleges, universities).
13. Disseminate FASD screening and diagnostic tools to, and promote their use by, family physicians, pediatricians and other health professionals (all governments, NGOs).

14. Regarding the contribution of alcohol to chronic diseases:

- a) Prepare periodic reports on the impact of alcohol on chronic disease within Canada and coordinate these with the ongoing Costs of Substance Abuse reports (Public Health Agency of Canada);
- b) Ensure that alcohol is consistently included in policies and programs focused on chronic disease (all governments, NGOs);
- c) Collaborate with the Chronic Disease Prevention Alliance of Canada (CDPAC) and others to improve the prevention of alcohol-related chronic disease, including implementation of a public awareness campaign (Public Health Agency of Canada).

15. Regarding research:

- a) Develop a national, coordinated, ongoing data-collection and reporting system of common indicators relevant to acute and chronic alcohol-related harm across Canadian jurisdictions (Health Canada).
- b) Develop a strategic national alcohol research program that is informed by determinants of health approach and is directed at gaining a better understanding of the risk and protective factors surrounding alcohol use (Health Canada, CIHR).
- c) Collect data on alcohol-related health impacts and treatment outcomes specific to First Nations, Inuit and Métis, using appropriate research ethics (including ownership, control, access and possession principles). These data should be comparable to those collected for the general Canadian population (Health Canada, NGOs).

Availability of alcohol

16. Maintain current systems of control over alcohol sales (P/T governments). Under these systems, it will be important to:

- a) Require liquor control boards to maintain a social-responsibility frame of reference for all matters pertaining to their operations and governance, and to maintain or increase their spending and programming in this area;

- b) Enhance staff training at outlets and implement ongoing enforcement compliance programs to ensure that alcohol is consistently sold in a socially responsible way and in accordance with the law; and,
- c) Encourage the systematic re-examination and analysis of hours and days of alcohol sales and outlet density, recognizing that increased physical availability of alcohol can lead to increased harm.

17. Collaborate with liquor control boards to ensure alcohol cost and availability in high-risk communities are managed in a socially responsible manner (P/T and municipal governments).

18. Request all liquor licensing authorities and liquor control boards to collect and make public, detailed information on both off-premise and on-premise alcohol-outlet density (P/T governments).

19. Conduct research to specify the magnitude and nature of third-party supply of alcohol in Canada (e.g., supply of alcohol outside the legal distribution system and in those jurisdictions where alcohol is banned) (all governments).

20. Evaluate the outcomes of trial alcohol control measures in remote communities (particularly in the three territories), including total bans, limitations on importing alcohol into the community, and severely restrictive selling practices (P/T and municipal governments, First Nation communities).

21. Implement server-training programs in Canada as a pre-condition for receiving and/or renewing licences for serving alcohol. These training programs should include regular recertification of servers, ongoing enforcement compliance checks and periodic program evaluations to sustain and improve impacts over time. In addition, server training and compliance checks should be conducted more frequently for establishments with a history of service-related problems (P/T and municipal governments, First Nation communities).

22. Investigate the implications of making liability insurance mandatory for all licensed establishments in Canada, using options that do not place undue economic burdens on the hospitality industry (for example, self-insurance programs) (P/T governments).
 23. Conduct research on the nature and extent of underage access to alcohol, including in licensed venues, and implement appropriate programs and policies to respond to the issue (P/T governments).
 24. Given the relationship between legal purchase age and alcohol-related harm, consider increasing the legal purchase age of alcohol to 19 years (governments of Alberta, Quebec and Manitoba).
 25. Strengthen enforcement and sanctions for people producing or using fake identification (P/T governments).
 26. Adopt minimum retail social-reference prices for alcohol and index these prices, at least annually, to the Consumer Price Index (CPI). A competent body should review alcohol pricing throughout Canada, at least annually, and publish a report recommending increases where prices are not keeping pace with inflation (P/T governments).
 27. Discourage the introduction or expansion of U-Brew and U-Vin industries. Where these industries currently exist, make licensing contingent upon matching the socially referenced price for beverage alcohol in that jurisdiction (P/T and municipal governments).
 28. Create incentives, whether through tax or price adjustments, to promote the production and marketing of lower-alcohol content beers and coolers, with the overall goal of reducing the volume of absolute alcohol consumed per capita in Canada (all governments, alcohol industry).
 29. Move towards alcohol volumetric pricing (based on the volume of ethyl alcohol in alcohol products) within each beverage class (all governments, alcohol industry).
 30. Coordinate funding for research and publication of an annual report documenting the exposure of underage youth in Canada to alcohol advertising (Health Canada).
 31. Review existing advertising regulatory systems with a view to updating the standards, especially as they pertain to youth, as well as the mechanisms of receiving and responding to consumer complaints about alcohol advertising (all governments).
- ## Safer communities
32. Develop and adopt comprehensive policies for alcohol within every sector of the Canadian workforce, with special emphasis on safety-sensitive professions (all governments, NGOs, industries).
 33. Partner with community groups to develop municipal alcohol policies and programs that address local issues (P/T governments, municipal governments, NGOs).
 34. Implement the use of proven violence prevention programs in licensed establishments (P/T governments, alcohol and hospitality industries).
 35. Develop a public awareness campaign to raise awareness about alcohol liability (all governments, NGOs, alcohol industry).
 36. Amend or develop policies and programs that incorporate evidence-based solutions that reduce alcohol-related harm in colleges and universities (colleges and universities, NGOs).
 37. Endorse and support the Strategy to Reduce Impaired Driving 2010 (all governments).
 38. Adopt the Canadian Council of Motor Transport Administrators' (CCMTA) short-term suspension model and other proposed actions to address drinking drivers with lower BACs (P/T governments).
 39. Re-invigorate law enforcement around drinking and driving (all governments).
 40. Pursue approaches that focus on high-risk or alcohol-dependent drivers (i.e., with BACs of 0.15 percent or higher) to better deter and rehabilitate repeat offenders (P/T governments, NGOs). These would include:
 - a) Technology-based solutions (e.g., ignition interlock systems);

- b) Education and public awareness initiatives;
 - c) Improved assessment protocols; and
 - d) Improved treatment and rehabilitation, drawing on harm reduction and medical models to better address the concurrent issues of chronic alcohol misuse and possible cognitive impairments.
41. Adopt, within their graduated driver licensing programs, zero-tolerance alcohol (0.00 percent BAC) provisions for all drivers until age 21 (P/T governments).

Source: National Alcohol Strategy Working Group, 2007.

APPENDIX 2:

METHODS FOR CALCULATING ALCOHOL-ATTRIBUTABLE FRACTIONS FOR MORTALITY AND MORBIDITY ESTIMATES PUBLISHED BY THE BC ALCOHOL AND OTHER DRUG MONITORING PROJECT

Mortality and hospital data were received from BC Vital Statistics and BC Ministry of Health (respectively) by age group, sex, health authority, health services delivery area (mortality only), and year. All data are securely held at BC Centre for Disease Control. The underlying cause of death code (UCOD) and the most responsible diagnosis code (MRD) were used in the computation of alcohol, tobacco, and illicit drug attributable mortality and morbidity respectively. All rates were standardized by age and sex using the 2001 BC population as the standard population.

Computing Alcohol-Attributable Fractions

AFs for chronic diseases are calculated by using the formula:

$$AF = \frac{[\sum_{i=1}^k P_i(RR_i - 1)]}{\sum_{i=0}^k P_i(RR_i - 1) + 1}$$

Where:

k: total levels of exposure

i: exposure category with baseline exposure or no exposure i=0

RR(i): relative risk at exposure level i compared to no consumption

P(i): prevalence of the ith category of exposure

Relative risk estimates were obtained from a meta-analysis of previous literature. Four levels of alcohol consumption were used: abstainer, low, hazard, and harmful. This corresponds to 2.5 grams of ethanol or less, 2.6-40, 41-60, and 61 or more grams of ethanol per day for men and 2.5 or less, 2.6-20, 21-40, and 41 or more grams per day for women. (One glass of beer or wine is equivalent to 15 grams of ethanol). Prevalence data were obtained from recent provincial and national surveys. For injuries attributable to alcohol, AFs were based on direct estimates of alcohol involvement from the published literature. For detailed prevalence and relative risk estimates, please see The Cost of Substance Abuse in Canada 2002 (Rehm J. et al. 2006).

The following International Classification of Disease (ICD)-10 codes are used to estimate alcohol-related morbidity and mortality for the BC AOD Monitoring Project:

APPENDIX 3:

INTERNATIONAL CLASSIFICATION OF DISEASE (ICD) CODES USED TO ESTIMATE ALCOHOL-RELATED MORBIDITY AND MORTALITY IN THE BC AOD MONITORING PROJECT

<i>Condition</i>	<i>ICD-10</i>
Malignant neoplasms	C00-C97
Mouth and oropharynx cancers	C00-C14
Oesophageal cancer	C15
Liver cancer	C22
Laryngeal cancer	C32
Breast cancer	C50
Other neoplasms	D00-D48
Diabetes mellitus	E10-E14
Neuro -psychiatric conditions	F01 -F99, G06 -G98
Alcoholic psychoses	F10.0, F10.3 -F10.9
Alcohol abuse	F10.1
Alcohol dependence syndrome	F10.2
Unipolar major depression	F32-F33
Degeneration of nervous system due to alcohol	G31.2
Epilepsy	G40-G41
Alcoholic polyneuropathy	G62.1
Cardiovascular diseases	I00-I99
Hypertensive disease	I10-I15
Ischemic heart disease	I20-I25
Alcoholic cardiomyopathy	I42.6
Cardiac arrhythmias	I47-I49
Heart failure and ill -defined complications of heart disease	I50-I52, I23, I25.0, I97.0, I97.1, I98.1
Cerebrovascular disease	I60-I69
Ischemic stroke	I60-I62
Haemorrhagic stroke	I63-I66
Oesophageal varices	I85
Digestive diseases	K20-K92
Alcoholic gastritis	K29.2
Cirrhosis of the liver	K70, K74
Cholelithiasis	K80
Acute and chronic pancreatitis	K85, K86.1
Chronic pancreatitis (alcohol induced)	K86.0

