

Alcohol and Youth Trends: Implications for Public Health

Celina Degano
Rebecca Fortin
Benjamin Rempel

Prepared for
The Alcohol Education Projects of the
Ontario Public Health Association
October 2007

Alcohol Policy Network



Funding generously provided by the Ontario Ministry of Health Promotion

Alcohol and Youth Trends: Implications for Public Health

Celina Degano
Rebecca Fortin
Benjamin Rempel

Prepared for
The Alcohol Education Projects of the
Ontario Public Health Association
October 2007

Alcohol Policy Network



Funding generously provided by the Ontario Ministry of Health Promotion

Acknowledgments

Authors:

Celina Degano is a Master of Public Health Student at the University of Saskatchewan. Celina contributed to this paper as part of her summer practicum. Celina has earned a Bachelor of Physical Health and Education at the University of Toronto.

Rebecca Fortin is an independent consultant currently studying a Masters of Health Promotion, in Public Health Sciences at the University of Toronto. Rebecca has previously worked as the ARAPO Program Coordinator and completed a Bachelor of Science in Health Studies from the University of Waterloo.

Benjamin Rempel is the Manager of Alcohol Education and Injury Prevention at the Ontario Public Health Association. He is a graduate of Laurentian University with an Honours degree in Health Promotion.

The authors wish to acknowledge the valuable contributions of the youth informants who provided input, thoughts, and opinions to this paper. Additionally, the authors wish to acknowledge the following individuals for their expert advice and contributions:

Key Informants and Contributors:

Dr. Ed Adlaf, Senior Scientist, Centre for Addiction and Mental Health

Diane Buhler, Executive Director, Parent Action on Drugs

Randi Goddard, Project Coordinator of National Programs, Canadian Public Health Association

Patricia Hajdu, Health Promoter, Thunder Bay District Health Unit

Amy Hlaing, Public Health Nurse, York Region Health Services

Jason LeMar, Program Coordinator, Ontario Public Health Association

Pat Sanagan, President, Pat Sanagan Consulting

Fran Wdowczyk, Executive Director, The Student Life Education Company

For more information or to order additional copies of ***Alcohol and Youth Trends: Implications for Public Health*** please contact:

The Alcohol Education Projects
c/o Ontario Public Health Association
700 Lawrence Avenue West, Suite 310
Toronto, Ontario, M6A 3B4
P: 416.367.3313 F: 416.367.2844
E: APN@opha.on.ca W: www.apolnet.ca

Copyright © 2007

Alcohol Policy Network, Ontario Public Health Association

Alcohol and Youth Trends: Implications for Public Health

Table of Contents

Acknowledgments	1
Abstract	2
1.0 Introduction	3
1.1 Definitions	3
1.2 Global Trends of Youth Alcohol Use	4
2.0 Methodology	5
3.0 Results	5
3.1 Trends of Youth Alcohol Use in Canada	6
3.1.1 Early Age of Onset	6
3.1.2 Comparison Between Males and Females	7
3.2 Why Some Youth Drink and Some Don't	8
3.2.1 Advertising and Promotion	8
3.2.2 Availability and Access to Alcohol	10
3.2.3 Community Influence	10
3.2.4 Peer Influence	13
3.2.5 Family Influence	15
3.2.6 Substance Use and Misuse	17
3.2.7 Mental Health	17
3.2.8 Personality Risk Factors	18
3.3 Consequences of Underage Drinking	19
3.3.1 Intentional Harm	19
3.3.2 Unintentional Harm	20
4.0 Recommendations and Conclusions	22
References	30
Appendix A	37
Appendix B	38

Abstract

Considering global alcohol and youth trends, alcohol use during adolescence is a significant public health concern. Some current global trends recently observed include: increased rates in alcohol use among youth, earlier age of onset of drinking, and increased youth-targeted alcohol product promotion. *Purpose:* The goal of this report is to identify the current patterns of alcohol use among youth in Canada, and specifically Ontario; the common motivations to drink alcohol; and the consequences of alcohol use among this age group. *Methodology:* A literature review of academic journals and the Internet was conducted. Additionally, semi-structured interviews were conducted with a variety of youth and professional key informants. *Recommendations and Conclusions:* A summary of the findings is presented along with recommendations for public health practitioners.

1.0 Introduction

Alcohol use and misuse during adolescence is a significant public health concern in Canada, and specifically to this report, in Ontario. The purpose of this report is to identify the most prominent issues involved in alcohol use during adolescence. An environmental scan of recently published literature was conducted to gather current information surrounding alcohol use during adolescence. Where possible, emphasis was made on Canadian and Ontario data. Additionally, key informants were interviewed. Professionals with expertise in alcohol and youth issues, along with youth themselves, were interviewed to inform this paper.

This report describes patterns in alcohol use during adolescence, the motivations of alcohol use, and the consequences of hazardous and harmful drinking. Furthermore, public health professionals can use these findings as a reference point to refine current interventions and support future innovative actions to address the problems associated with underage drinking.

1.1 Definitions

Throughout this paper the terms 'youth', 'adolescent', 'young person', and the like will be used interchangeably. Unless otherwise noted, we define youth as individuals falling between the ages of twelve and eighteen years of age (i.e. grade 7 to 12). This age range was predominantly found in the literature reviewed for this paper, with some few exceptions including children as young as 6 years old and young adults up to age 24.

We use the term 'hazardous' and 'harmful' alcohol use/drinking as defined by Adlaf and Paglia-Boak (2005). Hazardous drinking refers to an established pattern of drinking that increases the likelihood of future medical and physical problems, such as alcohol dependence. Harmful drinking refers to a pattern of drinking that is already causing damage to one's health (e.g. alcohol-related injuries).

'Binge drinking' is another common term used throughout this report. For adults, it has been established that binge drinking is the consumption of more than five or more standard alcoholic drinks in one sitting or event (Adlaf, Begin, & Sawka, 2005). This definition is commonly extended as the definition for youth; however, an established definition for binge drinking among this age group has yet to be determined. Miller, Naimi, Brewer and Jones (2007) suggested for adolescent girls, binge drinking should be defined at four or more standard drinks, considering most females have smaller body weights and less alcohol dehydrogenase (a protein that helps to break down ethanol) in comparison to males. The National Institutes of Alcohol Abuse and Alcoholism, in the U.S., has adopted this definition for teenage girls. Other authors (e.g. Heffernan & Bartholomew, 2006) suggest there is possibly no safe level of alcohol use among youth. This is due to the nature of adolescent brain development and the health effects of alcohol on a developing youth. Additionally, according to the youth

informants interviewed for this review, binge drinking is a term that is not clearly defined for them, and differs depending on the individual.

Binge drinking can be “any time they are drinking at a party”, “not sure, but after a couple”, “10 drinks.” – Youth Informants

For the purposes of this report, we will use the most commonly used definition of binge drinking for the youth population which is five drinks per occasion, with a cautionary note that five or more standard drinks may be excessive or may not even be a relevant range among youth.

1.2 Global Trends of Youth Alcohol Use

Harmful use of alcohol has been known to cause significant health problems. According to the World Health Organization (2002), alcohol use is the fifth leading risk factor for premature death worldwide, following low-weight (malnourished), unsafe sex, high blood pressure, and tobacco. In high-income countries alcohol is the third leading risk factor contributing to the burden of disease, following high blood pressure, and tobacco.

The impact of alcohol is now being compared to that of tobacco (Jernigan, 2001). Research results have shown that the impact of tobacco is less than that of alcohol during adolescence, as alcohol problems have a greater impact at younger stages of life. The impact of alcohol consumption has been shown to have the greatest effect on young people as fatal injuries often occur relatively early in life (Jernigan, 2001; World Health Organization, 2007). Alcohol consumption is not always the direct cause of injury and/or death; however, it is a significant co-factor in other leading causes of death among this age group (e.g. motor vehicle collisions) (Jernigan, 2001).

Youth are not only affected by their own alcohol consumption, but they also are affected and vulnerable to the subsequent effects of the consumption of alcohol by others (e.g. their peers, parents, community) (Jernigan, 2001). With the globalization of media and markets, hazardous and harmful drinking that was once limited to higher-income countries is now being observed within lower-income countries. Even in the lower-income countries, alcohol use remains a commodity of luxury. In these countries, alcohol use (and excessive use) is more likely to be found in areas of higher affluence and/or areas that identify more with Western culture than a traditional culture (Jernigan, 2001; World Health Organization Regional Office for Europe, 2006).

There is growing evidence of new alarming trends in alcohol use among adolescents worldwide. Young people have more disposable income than generations before them. As well, alcohol plays a destructive role for many youth who have experienced a decay of public, social, and health systems and increases in poverty and conflict (World Health Organization Regional Office for Europe, 2006). In addition, the promotion, popularity, range and availability of

inexpensive alcoholic beverages have increased (Jernigan, 2001). These environments have likely contributed to adolescents initiating heavier drinking at younger ages than ever before.

2.0 Methodology

This report outlines the key findings generated from a systematic literature review and key informant interviews about current issues surrounding alcohol use during adolescence.

Literature Review

The search for relevant literature included print, electronic, public and unpublished materials found by searching library databases, the Internet, and leading organizations within the field. The library search strategy identified relevant articles using a variety of library databases, such as Medline and Scholars Portal.

The search of these databases was conducted using a variety of keywords. The search strategy included only articles published in English, from 1999 to current. Primary and secondary research articles were included in this report, with emphasis on primary research.

Key Informant Interviews

A list of key informants from Ontario were contacted based on their expertise and professional experience with alcohol use issues pertaining specifically to youth. In addition, youth informants were recruited by word-of-mouth. Interviews were semi-structured leaving an opportunity for discussion and personal stories. All interviews occurred over the telephone. A set of questions were developed and delivered to each key informant. These questions are listed in Appendix A and B (professional and youth questions, respectively). Subsequent questions or slightly altered questions were asked on occasion throughout the interview process depending on the responses from each individual informant. Informed consent was obtained from all participants, including youths' parents/guardians.

3.0 Results

Based on the literature review and key informant interviews, three major themes were identified on the topic of youth and alcohol:

- patterns of usage,
- reasons and motivation for use, and
- consequences of use.

3.1 Trends of Youth Alcohol Use in Canada

In Canada, a significant portion of youth aged 15 and over are drinking excessively (Adlaf, et al., 2005). Hazardous or harmful alcohol use tends to increase with increasing grade level (as observed in Manitoba, Ontario, and Nova Scotia) (Poulin, 2006) and the heaviest drinkers report to be in grade 11 and 12 (Feldman, Harvey, Holowaty, & Shortt, 1999; Poulin, 2006). In Canada, by late adolescence (18-24 years), 90% of youth (2.7 million people) have consumed alcohol (Adlaf, et al., 2005; using Statistics Canada, 2007).

In Ontario, approximately 62% of students (grade 7 to 12) have been drinking in the past year. In other words, over 500,000 youth in Ontario, all underage, have consumed alcohol at least once (using Statistics Canada, 2007). Students (grade 7, 9, and 11) drunk less alcohol in the 1980s. Between 1993 and 2003; however, Ontario students reported an increase in drinking. For students in grade 9 and 11, this increase has appeared to stabilize. In 2005, the rates of drinking have started to decrease again for grade 7 students (Adlaf & Paglia-Boak, 2005).

Hazardous/harmful drinking is reported in Ontario by approximately 16% of students. The increased rates in drinking at this level reached an all time high in 2003 and are currently stable according to the latest reporting cycle in 2005. There has been no significant change in reported drunkenness since the late 1990s (Adlaf & Paglia-Boak, 2005).

3.1.1 Early Age of Onset

The earlier a youth starts drinking the more likely they will experience alcohol-related harm later in life. In an Ontario-wide study, DeWit, Adalf, Offord, and Ogborne (2000) have found individuals who begin using alcohol in the pre- and early adolescent years (ages 11-14) are most vulnerable to the risk of developing alcohol disorders later in life. This study suggests that the initiation of alcohol during the ages of 11 to 14 tends to escalate toward heavier and more frequent alcohol consumption later in adolescence and adulthood. Early adolescence is a crucial time for social and psychological changes that are instrumental for healthy social functioning at a later age, and early alcohol use may interfere with these important developmental processes.

Youth who report early onset of drinking (before the age 12), from a U.S. report, have very similar personality characteristics. These personality characteristics include: ongoing disruption, hyperactivity, aggression (i.e. conduct problems or being antisocial), depression, withdrawn, and/or anxiousness (Zucker, Wong, Puttler, & Fitzherald, 2003 as cited in U.S. Department of Health & Human Services, 2006). The authors suggest that these characteristics combined with early drinking in children increases the risk for alcohol problems later in adolescence and early adulthood. Additionally, children who experience adversity (e.g. physical abuse, emotional neglect, parental divorce) are more likely to initiate drinking during early adolescence (Dube, et al., 2006).

Canadian youth who begin drinking before age 14 are significantly more likely than those who started at legal drinking age to be in a traffic crash involving alcohol (Hingson, 2004 as cited in Chamberlain & Solomon, 2006). Additionally, Ellickson, Tucker, and Klein (2003) report that early drinkers and experimenters were more likely than non-drinkers to report using other substances, stealing, and having school problems. This study followed U.S. youth over a ten-year period, studying these behaviours at age 12, 18 and 23. The National Alcohol Strategy Working Group, a group aimed to reduce alcohol-related harm in Canada, also found similar trends. This group reported the earlier youth start drinking, the more likely they are to consume more on a typical occasion and drink heavily on a monthly and weekly basis later in life (National Alcohol Strategy Working Group, 2007).

In Ontario, there is good news to report. Rates of drinking alcohol early in adolescence has been declining over the last 20 years. Fewer students in the seventh grade in 2005 reported using alcohol by grade six compared to past years (29% in 2005, 42% in 2003, and 50% in 1981). Additionally, the starting age of drinking has increased slightly since 2001. This means that more students are choosing to start drinking later in adolescence. Considering that early alcohol use is a risk factor for a number of alcohol-related problems, there is a definite possibility that alcohol-related harms among youth have been prevented due to this trend.

3.1.2 Comparison Between Males and Females

The prevalence of drinking alcohol does not differ significantly between males and females in Ontario (62% of males, and 61% of females). The level at which they consume alcohol, however, does differ significantly. Males (18%) are more likely than females (14%) to drink at a hazardous level according to the Alcohol Use Disorders Identification Test (AUDIT)¹ assessment conducted by Adalf and Paglia-Boak (2005). These trends are consistent with other findings in Canada (Kairouz & Adlaf, 2003; National Alcohol Strategy Working Group, 2007) and worldwide (Bellis, et al., 2007; Best, et al., 2006). Additionally, young males are more likely to be in alcohol-related motor vehicle collisions (many causing death) than compared to female drivers (Collision Statistics, 2004 as cited by Chamberlain & Solomon, 2006).

In the U.S., Miller and colleagues (2007) similarly found that binge drinking patterns were comparable among both girls and boys. Inconsistent with the studies mentioned above, these authors found girls aged 12 to 14 years were more likely to report binge drinking than boys of the same age. This finding is concerning because this is a new trend found among girls. This trend has not been found in Canada, but it is a pattern that professionals need to be cognizant of and prepared to address if Canadian females begin to follow consumption trends and patterns of males.

¹ The Alcohol Use Disorders Identification Test (AUDIT) is an internationally used tool developed by the World Health Organization designed to detect hazardous and harmful problem drinkers.

Poulin, Hand, Boudreau, & Santor (2005) found that alcohol consumption, specifically heavy episodic drinking, is suggested to serve different purposes according to different genders and ages. Specifically, younger adolescent females more commonly drink heavily as a means of coping with underlying problems or depression while males generally do not. Older adolescent females and males are more likely to binge drink for social reasons.

Differences between males and females have also been observed in the use of alcohol sources. Males are more likely to use commercial sources (e.g. a liquor store) or to get alcohol from a friend's parent compared to females. Males and females equally accessed alcohol through social sources (e.g. taking alcohol from home, getting alcohol from other adults) (Hearst, et al., 2007).

3.2 Why Some Youth Drink and Some Don't

Youth drink “to have fun”, because they “like the feeling of getting drunk”, they “want to try it”, or “want to be part of a group” – Youth Informants

Youths' experiences, role models, and environment have already formed many of their ideas, attitudes and expectations regarding alcohol by age 15 (National Alcohol Strategy Working Group, 2007). Motivations and reasons for drinking do not remain the same at each age throughout adolescence. The choice to drink or not to drink it often weighed on how one views alcohol and the expected effects/outcomes that will result from consuming this drug (see literature reviewed by the U.S. Department of Health & Human Services, 2006).

Personal views and attitudes that youth often give for drinking are: “to get in a party mood,” “because I enjoy it,” “to get drunk” or “wanting to be cool”. While, reasons given for choosing *not* to drink include: “bad for my health”, “religious reasons” or “upbringing” (Feldman, et al., 1999, p. 51-52; Kuntsche, Knibbe, Gmel, & Engels, 2005, p. 851-2; Youth Informants).

These statements begin to illustrate how individual personalities, a young person's family, and the broader community can influence the decision to drink or not to drink alcohol. The following describes in detail these influences, as well as others, to explain why some youth choose to drink alcohol, while others abstain.

3.2.1 Advertising and Promotion

A recent trend in alcohol advertising research is focusing on the connection between exposure to advertising and adolescent consumption of alcohol in the attempt to determine if there is a causal relationship. A causal relationship on this topic is difficult to determine, as the relationship is complex and difficult to study. The current research, however, supports strong associations between alcohol promotion and increased youth alcohol use.

Current American research has observed that youth who are exposed to more alcohol advertising are more likely to view alcohol and alcohol use as positive. This in turn is likely to influence their likelihood of consumption of alcohol in the future (Austin, Chen, & Grube, 2006). Exposure to alcohol advertising during the early stages of adolescence has also been shown to predict beer drinking and drinking intentions one year later (Collins, Ellickson, McCaffrey, & Hambarsoomians, 2007). Similarly, Krank and his colleagues found that alcohol promotion increases positive alcohol cognitions among Canadian youth. This is also predictive of increased alcohol use in later years (Krank & Kreklewetz, 2003; Krank, Wall, Lai, Wekerle & Johnson, 2003).

Alcohol advertising often appears to be designed for young males as they often focus on images of masculinity, sports and sexuality (Austin, Chen, & Grube, 2006). In a U.S. study conducted by Ringel, Collins, and Ellickson (2006) black youth, specifically black males, were exposed to substantially more alcohol advertising on television than white males within the same age group. This study suggested that alcohol companies may be attempting to reach an untapped, underage market by promoting so heavily to a group of teens that statistically consume less alcohol than their counterparts. However, it may be that companies are targeting adult black males, and the messages spill-over and expose youth. The impact of alcohol advertising was not addressed in this study (i.e. the impact of targeted alcohol promotion on likeness towards alcohol and alcohol use), but has important implications for targeted prevention.

Targeted advertising has not been systematically studied in Canada. However, in Ontario, the Association to Reduce Alcohol Promotion (ARAPO) was established out of an advocacy group working in resistance to large amounts of alcohol promotion observed in a low-income neighbourhood in Toronto (www.apolnet.ca/arapo, 2007).

Ellickson, Collins, Hambarsoomians, and McCaffrey (2005) found that no single form of alcohol advertising dominates for all youth. These researchers suggest that different types of alcohol advertising affect each adolescent differently depending on their current drinking status. For example, youth who have already tried alcohol may be more likely to pay attention to alcohol promotion seen on television.

Ellickson and her colleagues (2005) call for more research to study the impact that alcohol advertising has on elementary school children. The authors suggest that children may be most vulnerable to the messages presented and embedded within alcohol advertising. There is also a need to determine the cumulative effect of advertising exposure annually on children and youth.

Parents play a significant role in modifying the effects of media messages on their children. Parental guidance of television viewing increased adolescent

skepticism and decreased their desire for alcohol. This guidance also positively influenced their children's decisions regarding consumption of alcohol. The parents' role is very important in ensuring their children develop good information processing and critical skills towards all media messages they are exposed to, specifically those of alcohol (Ellickson, et al., 2005).

3.2.2 Availability and Access to Alcohol

In Ontario and across all provinces there is a minimum legal purchase and drinking age. The majority of the provinces have a purchase and drinking age of 19 years old, while Alberta, Manitoba and Quebec have a drinking age minimum of 18 years old (Alcohol Policy Network, 2006). As a result, the majority of underage drinkers are not purchasing their alcohol themselves and will often need assistance from a variety of available avenues. Unanimously, all of our youth informants reported that it is really easy to access alcohol. The sources of alcohol reported included: older siblings, fake identification, stealing from or given to by parents.

As seen in the United States and Europe, access to alcohol in the early teen years is predominately from parents and guardians. However, as adolescents age from early teens to late teens/early adulthood there is a shift in where they access their alcohol. Older youth tend to access alcohol from other adults (both family members and strangers), older siblings, their peers and commercial outlets (e.g. beer stores) (Bellis, et al., 2007; Hearst, et al., 2007).

Bellis and colleagues (2007) found that European youth who purchase their own alcoholic beverages are six times more likely to drink in public settings, three times more likely to drink frequently and twice as likely to binge drink. Additionally, adolescents are sensitive to changes in alcohol costs; therefore, the amount and the way in which they consume alcohol is often determined by the amount of spending money they have available to them. In Canada, beer (especially high-alcohol beer) is more accessible to youth because beer is taxed less than wine, and low-alcohol and high-alcohol products are taxed relatively the same (Stockwell, Leng, & Sturge, 2005 as cited by Chamberlain & Solomon, 2006).

3.2.3 Community Influence

There are a number of community factors that influence why youth choose or do not choose to drink alcohol. These community factors include:

- cultural/ethnic beliefs and religious practices,
- geographical location, and
- socio-economic status (SES).

Cultural/Ethnic and Religious Practices

“Interesting point that culture has a lot to do with whether or not an adolescent drinks. I have worked with young women from a Tamil community and alcohol was not a factor to them. They still went to parties, but they did not part take in the consumption of alcohol.” – Pat Sanagan, Key Informant

Canadian culture currently holds the norm that alcohol use (and excessive use) is permissive during adolescence. Perhaps not surprisingly, immigrant youth from other cultures tend to drink less than Canadian-born youth as they often hold different norms around alcohol (i.e. abstain or drink less for cultural reasons). These youth, however, tend to give up their alcohol abstaining practices, as they identify more with Canada and the pro-alcohol norms held by their Canadian peers (Canadian Council on Social Development, 2002 as cited in Kairouz & Adlaf, 2003). Kairouz and Adlaf (2003) wanted to see if this trend held true at the school level. They found that schools in Ontario with greater cultural and religious diversity produced a climate less supportive of underage drinking. As a result, these schools reported less hazardous and harmful drinking among the student population. Where there was less diversity (i.e. more youth who have English as their first language), the overall school climate was more pro-alcohol which had a greater negative influence on individual choices to drink.

However, not all Canadian-born or immigrant youth choose to drink, despite the numerous pro-alcohol influences. The norms surrounding alcohol use presented by a particular cultural and/or religious group is a strong influence not to drink for many young people. Religious institutions promote healthy behaviour (in terms of alcohol use) by providing supervision and communicating clear rules and expectations (Monshouer, et al., 2007). If a culture or religion teaches abstinence from alcohol, many youth will be motivated to abstain from alcohol. This motivation for some youth trumps the common norm that drinking during adolescence is acceptable. Nairn and colleagues (2006) offer several reasons for this, such as: to be accepted within that specific group, to present a positive image to others, and to avoid being seen as a hypocrite by individuals not apart of that religion or cultural group.

“There is the point of view that if other people see me drinking as a Christian, then they’ll be like ‘well, hypocrite’, sort of think like that. So even though I don’t see the problem with drinking socially, I am just choosing not to.” – Youth Informant (Nairn, et al., 2006, p. 294)

Geographical Location

The geographical location in which one is raised can affect how one views their health status. Youth who dwell in smaller towns or rural regions are more likely to identify themselves as current heavy drinkers (Mitura & Bollman, 2004).

Additionally, it has been observed that those who live in Canadian rural regions have higher rates of drinking and driving and riding with a drunk driver (Drixler, Krahn, & Wood, 2001; Health Canada, 1999). A few explanations brought forth for this trend is that the physical environment (e.g. far distances between destinations, poor lighting on roads) does not provide many options for an alternative safe way home (e.g. public transit, available taxis, etc.).

In a recent study by Veldhuizen, Urbanoski, and Cairney (2007), substance misuse, including alcohol, is more prevalent in Eastern and Western Canada compared to Ontario and Quebec. Several explanations were offered, including:

- Immigrants, who are less likely to misuse substances, commonly settle in large urban settings (i.e. Canada's largest cities: Toronto, Ontario and Montreal, Quebec).
- Treatment and resources for substance misuse is more readily available in large urban settings.
- Lower educational attainment and lower financial security is more prevalent outside of Ontario and Quebec, which can be predictors for alcohol use.

A significant limitation of this study is that the homeless population was not accounted for by the survey methods used. As a result, this study may have under-estimated the substance misuse in Ontario and Quebec, considering that Toronto and Montreal have a high population of individuals experiencing homelessness.

Social-economic Status

Social-economic status (SES) involves family income, parental education level, and to the extent one's family is included in society. Families and individuals with low SES tend to lack income, be under-educated, and are often excluded from mainstream society (e.g. because of race/ethnicity).

Social-economic differences and alcohol use among youth is a new and emerging area of study; and as a result, the current evidence is limited and contradictory. Some research suggests that the higher the income, the more disposable income, the more likely youth will drink excessively. Other studies suggest that drinking is less likely as income increases. Still other studies have found no associations between alcohol use and SES among youth (see references as cited in Andersen, Holsteine, & Due, 2006).

Specifically in Canada, Breslin and Adlaf (2005) found that the greater number of hours youth worked per week the more likely they were to binge drink. This was still the result even after controlling for a variety of variables, such as: age, gender, etc. The authors suspect that working longer hours corresponded with increases in disposable income and a decrease in parental supervision that makes it possible to binge drink. However, this depended on the purpose for employment. While many youth worked for the ability to purchase luxury items

and entertainment, some youth, specifically those from low SES families, may be using their income for more essential living expenses (e.g. shelter, nutritious food). As a result, lower income youth who worked longer hours tended not to engage in binge drinking.

Socio-economic status has also been observed to be a significant factor when considering the drinking trends among First Nations youth. Reported alcohol use among Ontario Aboriginal youth in northern Ontario is lower than non-Aboriginal youth in northern Ontario, and binge drinking does not differ between the two groups (Addiction Services Kenora, et al., 2005).

Even though Aboriginal youth drink less than non-Aboriginal youth in Northern Ontario, Aboriginal youth use alcohol for very different reasons than mainstream youth. Hajdu (2007) has confirmed using arts-informed research that issues of poverty, racism, social exclusion, and substandard housing and education are significant influences in the lives of Aboriginal youth and greatly impact drinking habits. When First Nation students reflected on the impact of alcohol and alcohol misuse, “students spoke of siblings’ suicides, foster care, loss of parents and desperation as constant themes of their lives. As well as these tragedies, the ongoing isolation from their parents through attending high school in different communities creates further distress, homesickness, and lack of familial contact and support.” (Hajdu, 2007, p. 63).

“Many First Nations youth use alcohol more as a coping mechanism than for social purposes. The students I worked with tended to see alcohol in black and white terms: ‘all or nothing’, ‘drunk or sober’. They relate distressing experiences that result from alcohol use both in their own lives, and those of their families.” – Patricia Hajdu, Key Informant

3.2.4 Peer Influence

The influence of friends and peers, in the school environment and outside the school environment, plays a significant role in influencing the choices individual youth make around alcohol.

School Environment

The majority of youth spend most of their time within the school system; therefore, the role of the school is very important as a primary socializing environment. The school environment is where adolescents develop their roles in society and assume behaviours (Kairouz & Adlaf, 2003; Henry & Slater, 2007; Monshouwer, et al., 2007).

The support or disapproval of alcohol use among the student population within a school very much influences a students’ choice to drink. For example, if a school culture is generally pro-alcohol, students within that school are more likely to drink heavily (Kairouz & Adlaf, 2003; Monshouwer, et al., 2007). Rehm and

colleagues (2005) found that the greater volume of alcohol consumed at the school level lead to a greater number of alcohol-related problems, including the effects of binge drinking, at the individual student level. These studies show that the overall school environment is an important influence on individual alcohol use among the youth population.

Socio-economic status (SES) is also relevant when discussing the influence of the school environment on youth alcohol use. Adding to the discussion on SES and alcohol use among youth (see Section 3.2.3), Andersen and colleagues (2006) found no direct associations between SES and youth alcohol use. However, when they looked at school-related risk factors for alcohol use they did find an association with SES. Youth from lower SES groups experienced higher proportion of school-related risk factors than those from higher SES. School-related risk factors for females included: low satisfaction with their school and poor connection with school activities. For males school-related risk factors included: having parents who did not help with school matters, lack of feeling safe at school, and feelings that they were treated poorly at school. These risk factors have been found to be significant predictors of increased hazardous and harmful drinking among youth.

Consistent with Andersen's research, Henry and Slater (2007) found the more connected an adolescent feels within their school environment the less likely a youth will engage in alcohol use. Independent of individual alcohol use, a student was less likely to use alcohol if that student attended a school where their peers tended to be better attached to school, used alcohol less, and had goals inconsistent with alcohol use. In a related study, Rhoades and Maggs (2006) found that senior high school students who placed importance on academics were less likely to drink alcohol excessively than students who did not. For students who felt school was important, they drank less alcohol because they believed that increased alcohol use would hinder their academic success. Similarly, students who found school work relatively easy were less likely to binge drink when compared to students who found school work stressful or difficult.

Outside the School Environment

While school is the primary socialization structure during adolescent years, it is the peer groups found in schools that become increasingly important in influencing drinking patterns outside of school hours. Often friends affect and influence a particular adolescent's behaviour around alcohol use (Reifman, et al., 1998 as cited in Barnes et al., 2006; Feldman, et al., 1999).

Peers can influence other youth to drink or not to drink in a variety of ways. According to Maxwell (2002) the peer group is usually the environment in which alcohol consumption occurs. Alcohol is rarely drunk alone during adolescence. Drinking alcohol is a highly social activity among youth, and if a non-drinking youth perceives that his or her friends are drinking they are more likely to start

drinking in the following year (D'Amico & McCarthy, 2006). Additionally, youth are more likely to continue drinking alcohol if their friends also drink, and are more likely to stop if their friends stop drinking as well (Maxwell, 2002).

Gender differences in the role of peer influence on risky drinking have been observed. According to the U.S. Department of Health and Social Services (2006), teenage girls may be influenced to drink if they are dating an older or adult boy. These girls may be exposed to greater influences to drink than if they were to hang out with boys their own age. By dating older boys, girls are exposed to the more pro-alcohol norms that have been created for older social groups. Additionally, they may access alcohol more easily.

There are, however, many adolescents who choose not to drink alcohol and are able to disregard peer pressures to drink. Adolescents with friends who drink, but have decided not to drink themselves, often construct images for themselves or rely on other aspects of their lives to legitimize their decision. Some examples include: not drinking because of cultural or religious reasons (see Section 3.2.3); not drinking because of their commitment to do well in sports; not drinking to be health conscious. The creation of these titles is used to justify their decision not to consume alcohol and counteract the pressure from their friends. Additionally, some youth use mechanisms (e.g. hold a non-alcoholic drink at parties) to appear as drinkers to avoid harassment from their peers (Nairn, et al., 2006).

“If it was hard pressure from them (peers), I’d probably ... get like lemonade or something like that, and go, “I am drinking” – Youth Informant (Nairn, et al., 2006, p. 300)

3.2.5 Family Influence

The family has a lot of influence on adolescent drinking patterns and habits than is often given credit. There are two specific ways in which the family has influence. One is the environment that is created by the parents/caregivers/guardians and the other is through genes inherited from biological parents.

Family Environment

Parental drinking habits create an environment that has a significant impact on the drinking status of their child during adolescence. For example, when either parent drinks alcohol daily, adolescents are more likely to be current heavy drinkers and to state that they drink alcohol on a weekly basis (Feldman, et al., 1999). The family can create a pro-alcohol environment independently of parental alcohol use. van der Vorst, Engels, Meeus and Dekovic (2006) found that the drinking patterns of youth corresponded with whether the parents had liberal or conservative views on underage alcohol use (i.e. youth were more likely to drink if parents had more liberal views on drinking). However, it is important to note that parental norms were affected by their own consumption of alcohol. The more parents drank alcohol, the more permissive they were regarding their adolescent and drinking. Additionally, parents who drank alcohol were less

credible with their teenagers when they tried to impose alcohol restrictions and rules.

Research shows that the family influences youth drinking habits; however, the strength of this influence varies. van der Vorst and colleagues (2006) found that parental drinking habits significantly influence current and future drinking of their children. However, Barnes and her colleagues (2006) found that fathers who drink only indirectly influence adolescent drinking patterns. Adding to the complexity, the ethnicity of the parent is also significant. Parents who identify as Canadian have adolescents who drink more frequently than youth with parents who identify with a different ethnicity or culture (Feldman, et al., 1999).

While often the influence of peers is seen as greater, a positive family environment, with consistent monitoring and rule-setting, was found to have a significant indirect impact on drinking behaviour. Specifically, a positive environment is associated with a youth having lower number of peers and friends who drink alcohol and a perception that their friends approve less of drinking alcohol. Youth who live in this type of environment have also reported lower stress levels, increased self-efficacy to refuse alcohol, and lower levels of alcohol use and alcohol-related harm. It is important to include that positive parenting consistently offered by all parents/guardians is often necessary to create this positive family environment (Barnes, et al., 2006; Nash, McQueen, & Bray, 2005). Additionally, youth who are encouraged by their parents to be members of organized youth groups or teams tend to binge drink less (Bellis, et al., 2007).

Unfortunately the opposite is also true. Children who grow up in a severely negative/traumatic family environment (e.g. sexual abuse, emotional neglect, parents divorce) will be more likely to start drinking alcohol as an adolescent, and especially during early adolescence (Dube, et al., 2006).

In Europe, Bellis (2007) found that youth may be less likely to drink hazardously if their parents provide them with alcohol. Bellis suggests that youth who initiate drinking in a family setting are less likely to become problem drinkers than those who begin drinking outside of the family. Alcohol consumption within the family environment has other potential positive effects, such as opening up discussions between parents and their children about alcohol and alcohol issues. This environment also allows adolescents to experiment in a setting with positive parental role models instead of the pressures from peers that occur outside of this setting. More research is needed to further assess these potential positive effects of consuming alcohol in family environments.

Genetics

Genetics has a significant role in influencing adolescent alcohol use, albeit less than the influence of peer environmental factors (Fowler, et al., 2007). Genetics also has greater influence on alcohol use at different stages in adolescence. Rose, Dick, Viken, and Kaprio (2001) found in Finnish twins, environment (e.g.

social influence from family or friends) was more influential in early adolescence, and genes had more of an effect on drinking later in adolescence. Therefore, having a parent that is an alcoholic or belonging to a family with a number of members that are alcoholics puts that person at a much higher risk for alcohol problems later in life.

According to the U.S. Department of Health & Human Services (2006), non-modifiable risk factors inherited from the family, can influence whether a child begins to consume alcohol at an early age or increases their risk for developing alcohol problems. A lower level of tolerance to the effects of alcohol is one example of an inherited non-modifiable risk factor for increased alcohol use and misuse. No gender differences in genetic influences have been found with respect to underage alcohol use (Fowler, et al., 2007).

3.2.6 Substance Use and Misuse

Currently there is little evidence of the use of illicit drugs and its influence on consumption of alcohol within the adolescent population. It is well documented, however, that a definitive association exists between tobacco use and alcohol use.

In a study by the Canadian Centre on Substance Abuse, there is a link across all age groups between smoking and consumption of alcohol. However, the strongest link between smoking and alcohol use is observed among individuals that are under the age of twenty. Smoking youth (age 15-19) are 14 times more likely to drink than their friends who do not smoke. This trend was similar for both males and females (Davis, 2006).

Not only are smoking youth more likely to consume alcohol, they are also more likely to drink excessively. Davis (2006) found a large proportion (over 60%) of youth smokers met the criteria for hazardous drinking, in comparison to non-smokers of the same age (24%).

The current data does not indicate whether or not tobacco is a gateway for use to other more hazardous/illegal substances. Even though there is no evidence of this direct causation relationship, tobacco has proven to be an effective marker of other 'harder' substances (Davis, 2006). Similarly, alcohol consumption does not seem to be related to increases in illicit drug use. But, there are changes in attitudes towards drug use. Best (2006) found young people who were involved in heavy episodic drinking were more likely to have positive attitudes towards other drugs and were more resistant towards school-based alcohol education programs.

3.2.7 Mental Health

Current drinkers of all levels score higher on depression ratings than non-drinkers (Best, et al., 2006). Risk of depression is significantly higher in girls than boys in all regions of Canada. The highest rate of depression was for girls

residing in northern regions (Mitura & Bollman, 2004). Poulin and colleagues (2005) also found a similar trend, observing that across four Atlantic provinces depression and depressive symptoms were significantly higher among girls (8.6% and 27% respectively) than boys (2.6%, 14.5%).

For males, alcohol did not play a role in their risk of depression. However, among females, alcohol was a significant factor in their level of risk for depression. This relationship is non-linear with the highest risk of depression being at age 15-16 years old. Females who report using alcohol also report an increase in depressive symptoms. The reporting of depressive symptoms was two times greater among females that drank alcohol than those who reported no alcohol use (Poulin, et al., 2005).

It is unclear whether depression and depressive symptoms result in increased alcohol consumption or if alcohol consumption increases depressive symptoms. There is also a possibility that these two statements are both true. More research needs to be conducted, as the extent of this relationship and the direction has yet to be determined.

3.2.8 Personality Risk Factors

Two types of students have shown to drink more often than other students: aggressive and emotionally insecure students (Engels, et al., 2006). Generally, self-confident young people who drink alcohol for social reasons do not drink excessively. However, there is a sub-set of youth (i.e. the aggressive and emotionally insecure) who report excessive drinking for enhancement and coping purposes. Enhancement motives have been associated with heavy/hazardous drinking, and coping motives associated with alcohol-related problems (Kuntsche, et al., 2005). There are three 'risky' personality types that are commonly associated with enhancement and coping motives for drinking excessively and include (Conrod, Stewart, Comeau, & Maclean, 2006; Comeau, Stewart, & Loba, 2001; van Beurden, Zask, Brooks, & Dight, 2005):

- risk/sensation seeking,
- anxiety sensitivity, and
- hopelessness.

For some youth with a risk/sensation seeking personality, the use of alcohol fulfills a need to satisfy a risk taking desire or a desire for novel experiences (Zuckerman, 1994 as cited in Comeau, et al., 2001). This risk taking behaviour is common, especially among young males. Some risky behaviours associated with drinking include: drinking and driving, riding with a drunk driver, smoking daily, and having sex with multiple partners (Feldman, et al., 1999; Miller, et al., 2007). Further, risk or sensation seeking personality has been shown to be associated with elevated enhancement motives. Enhancement motives are associated with heavy drinking. The type of enhancement motives determines the capacity in which one consumes alcohol. 'Drinking for enjoyment', 'to make a party more enjoyable', and 'because it tastes good' are all enhancement motives associated

with moderate drinking. However, if the reason for drinking is to get drunk, the more likely youth will exhibit heavy drinking patterns (Comeau, et al, 2001; Kuntsche, et al., 2005).

“Many know the risks, but don’t care or don’t think it’s going to happen to them.” - Youth Informant

Anxiety sensitivity personalities have been associated with increases in drinking problems and symptoms among youth. Specifically, trait anxiety in adolescence has been shown to be a predictor of confirmative and coping motives for alcohol use (Comeau, et al., 2001). For example, an anxious youth may conform to the pro-alcohol norms of their peers to avoid embarrassment.

Hopelessness is the feeling of being a failure, having a bleak outlook on life, and having low self-esteem. Hopelessness personality is a risk factor for depression and recurrent depression, and linked with increased alcohol use and misuse (Conrod, et al., 2000 as cited in Conrod, et al., 2006; see Section 3.2.7).

3.3 Consequences of Underage Drinking

In Canada in 2002, 4,200 alcohol-related deaths were recorded, and 1.5 million days of alcohol-attributed care was provided in hospitals. This costs an average of \$463 per person to cover the expenses. Additionally, alcohol misuse (of all ages) cost the health care system a total of \$3.3 billion dollars, law enforcement \$3.0 billion, and \$7.1 billion in lost productivity (Rehm, et al., 2006).

In comparison in the U.S., underage drinking contributed to over 3,170 deaths in 2001 and over 26 million cases of alcohol-related harms, including: burns, drowning, crime, suicide, sexually transmitted infections, unplanned pregnancies, birth defects, poisonings, mental illness, and alcohol dependence. It was estimated that this cost the U.S citizens \$5.4 billion in medical costs, \$14.9 billion in lost work time, and \$41.6 billion of lost quality of life (Miller, Levy, Spicer, & Taylor, 2006).

3.3.1 Intentional Harm

Suicide and violence are two types of intentional harm that has been documented as consequences of alcohol use and binge drinking during adolescence.

Suicide

In 2004, there were approximately 210 suicides in Canada among youth (age 15-19) (Statistics Canada, 2007b). The suicide rate among males is four times as much as females, but females are hospitalized for attempted suicide 1.5 times that of males (Statistics Canada, 2007b). Alcohol is a well-known risk factor for suicide behaviour among adolescents. Youth are more likely to attempt suicide if they are already drinkers or binge drinkers (Brent & Mann, 2006; Miller, et al., 2007).

As reviewed by Conner and Goldston (2007), depression is considered the most significant predictor of suicide ideation and attempts. Since alcohol is co-related with depression, alcohol use significantly increases the risk for suicide. Alcohol dependence is also directly linked to suicidal ideation, especially among aggressive male youth. Alcohol may reduce the threshold for a suicide attempt after significant life stressors (e.g. a relationship break-up, an arrest).

Violence

Youth who drink are more likely to be in physical fights, to experience or commit dating violence, be sexually assaulted, or commit sexual assault than those who abstain. For adolescents who binge drink, they are even more likely to engage in these behaviours, and at a much greater degree (Miller, et al., 2007).

The association between aggression (e.g. throwing objects, picking fights) and alcohol use has been documented, but the direction of the relationship is still debated. Some authors suggest that increased alcohol use causes aggression, while others have found aggression leads to increased alcohol use. Still others find aggression and alcohol use reinforce each other (see literature reviewed by Huang, et al., 2001). In Huang's (2001) longitudinal study, the direction of this relationship was observed both ways. Aggression moderately predicted alcohol use during adolescence, especially around age 16. Alcohol use drastically increases the likelihood of aggression, however, only during later adolescence (e.g. age 17-19).

3.3.2 Unintentional Harm

A variety of unintentional harms have been reported among youth who drink alcohol, and drink alcohol excessively. These unintentional harms include: physical illness, mental illness/harm, drinking and driving, and riding with a drunk driver.

Physical Illness

There are a number of physical health risks of initiating drinking at a young age, including: brain effects (currently under research), liver effects, growth, and endocrine effects (see literature reviewed by the U.S. Department of Health & Human Services, 2006). In addition, Aarons and colleagues (1999) studied the health affects of alcohol on a number of illnesses.² This study found that alcohol use during adolescence had a cumulative negative effect on these different illnesses (over 2, 4, and 6 years), and a greater effect if students started drinking earlier. The health effects of alcohol also increase the risk for a variety of chronic illnesses later in life, including (but not limited to): breast cancer, liver cancer,

² allergies, flu/colds, contagious diseases, cuts/scrapes/bruises, puncture wounds, dental, dermatological, eye problems, neurological, reproductive, sexually transmitted diseases, respiratory tract, cardiovascular, other organs (e.g. kidney), drug/alcohol overdose, urological, tumour/cancer, bone damage, joint/cartilage, etc., gastrointestinal, blood disorders, HIV/AIDS

colon/rectal cancer, Type 2 diabetes, cardiovascular disease, and liver cirrhosis (Roerecke, Haydon, & Giesbrecht, 2007).

There are a number of health effects of hazardous and harmful alcohol use specific to sexual health. Current adolescent male drinkers are found to be more sexually active and more likely to get a female partner pregnant than non-drinking males. Young girls who binge drink are even more likely to be sexually active and get pregnant compared to girls who do not drink (Miller, et al., 2007). Binge drinking also increases a young female's vulnerability to drinking-related reproductive health outcomes, such as: sexually transmitted disease-related infertility and alcohol exposed pregnancies that could result in fetal alcohol syndrome or fetal alcohol spectrum disorders (see literature cited in Miller, et al., 2007).

It should be noted that there were no studies that reported health benefits from alcohol use among youth.

Mental Illness and Harm

As described in Section 3.2.7 there is an association between alcohol use and depression among adolescence, especially for young females. The direction of causality has yet to be determined, but there is a definite possibility that increased alcohol use may increase the risk for depression.

Alcohol use has also been found to affect memory function. Heffernan and Bartholomew (2006) found youth who used alcohol excessively reported significantly more errors in their long-term, short-term and internally cued prospective memory in comparison to those who drank less or no alcohol. However, this study only shows a correlation between alcohol use and memory function. As a result, more research is needed before any definite conclusions can be finalized.

Drinking and Driving

Motor vehicle collisions are the leading cause of death for youth in Canada. Traffic crashes remain the leading cause of death in the age group of 16-24 years old. In 2004, traffic crashes killed 695 young people and injured another 53,600. This gives this age group the highest rates of traffic deaths per capita within Canada. 45% of these deaths were deemed alcohol-related (a conservative estimate). Even though these statistics are staggering, traffic deaths and injuries per capita have fallen significantly from the high levels of the early 1980's, specifically among the 15-24 year olds (see literature reviewed by Chamberlain & Solomon, 2006).

Young drivers are at greater risk for motor vehicle collisions (MVC) for a variety of reasons, including: lack of driving experience; perceptual, cognitive and vehicle-handling skills are less developed in beginner drivers; young drivers tend to be risk takers and are less cautious (more likely to speed, follow too close,

etc.). These risks are substantially increased when alcohol is involved (National Alcohol Strategy Working Group, 2007). Motor vehicles (e.g. cars, trucks) are not the only concern within this age group. Those aged 16-24 are over represented in snowmobile and all-terrain vehicle (ATV) crash deaths, and alcohol is often a factor (Beirness, 2002 as cited in Chamberlain & Solomon, 2006).

Riding with a Drunk Driver

Miller and her colleagues (2007) compared non-drinkers to current drinkers who did not binge drink. Even though the current drinkers did not binge drink, they were more likely to take a ride with a driver who had been drinking.

Heavy episodic drinking is associated with riding with a driver who has been drinking. In addition, this drinking pattern increases the risk of engaging in unintended high-risk behaviour and possibly getting into potentially harmful situations. This trend is true even for those who consider themselves as cautious or average sensation seekers/risk takers (van Beurden, et al., 2005).

The prevalence of youth riding home with a drunk driver in Canada's Atlantic provinces is estimated at 23% (as of 2002). Poulin, Boudreau and Asbridge (2006) found that among these youth, they were more likely to be from a family with lower SES, be living in a rural setting, use other substances, and also drink while driving. In Ontario, youth reporting being a passenger in a car with a driver who has been drinking has increased in recent years (Adlaf, et al., 2005). There is a trend with increasing grade that the likelihood of being a passenger in a car with a driver who has been drinking also increases (Adlaf & Paglia-Boak, 2005).

4.0 Recommendations and Conclusions

This report has indicated that alcohol use among youth in Canada, and specifically Ontario, is a significant issue, with many serious intentional and unintentional consequences. Early onset of drinking and excessive drinking was found to be especially harmful to young people. Practitioners should consider the following when addressing many of the major influences on adolescent drinking and binge drinking:

- counteracting the influence of alcohol promotion;
- addressing alcohol accessibility;
- counteracting pro-alcohol norms found in the community, school and family environment;
- addressing the link between alcohol use and other drugs;
- preventing, detecting and treating depression and alcohol misuse; and
- targeting interventions to address personality risk factors.

The following describes in detail the recommendations in each of these categories. It should be noted that the recommendations generated by this report are consistent to those found in the proposed National Alcohol Strategy (National

Alcohol Strategy Working Group, 2007), thus, supporting the implementation of this strategy. In addition, these recommendations are consistent with research from Babor et. al. (2003) which identifies strategies and interventions to reduce alcohol-related harm including: Pricing and taxation; Regulating the physical availability of alcohol; Modifying the drinking context; Drinking-driving countermeasures; Regulating alcohol promotion; Education and persuasion strategies; and Treatment and early intervention services.

Although the recommendations presented below are youth-focused, policy measures introduced in Babor et. al. (2003) can and do have an effect on the population as a whole, which includes the segment of youth (e.g. maintaining a public monopoly on alcohol is an effective deterrent to underage drinking, along with other positive outcomes).

Counteracting the Influence of Alcohol Promotion

- *Pressure policy makers to ban and monitor alcohol promotion*

Policy makers need to be pressured to limit alcohol promotion and enforce existing limits on alcohol promotion, especially ones attractive to youth (Collins, et al., 2007), as was successfully illustrated in the field of tobacco. Additionally, increased youth involvement is required with any policy development or improvement with respect to alcohol marketing (Pat Sanagan, Key Informant).

- *Include media-literacy components in prevention initiatives*

Alcohol prevention programs should include media awareness components taking into account the numerous sources of alcohol advertising they are exposed to (Ellickson, et al., 2005). Media awareness interventions should teach youth how to better understand the media, learn skills to counter the persuasive messages, and develop new norms around drinking. Additionally, media awareness should be targeted to youth most exposed (e.g. males who watch sports) (Ringel, et al., 2006).

The Association to Reduce Alcohol Promotion in Ontario produces helpful resources related to media literacy and alcohol consumption, primarily for teachers and youth leaders who teach grades 7 – 10. Resources can be accessed at www.apolnet.ca/arapo.

- *Equip parents in teaching media-literacy techniques to their children*

Parents should be recruited to offset the influence of alcohol promotion. Parents should guide their children in countering the influence of alcohol promotion by teaching them critical thinking and information processing skills (Austin, et al., 2006).

The Media Awareness Network produces helpful resources to facilitate media literacy education among youth (www.media-awareness.ca). Additionally, Common Sense Media (www.common sense media.org) and Concerned

Children's Advertisers (www.cca-kids.ca) have useful resources on their websites.

Addressing Alcohol Accessibility

- *Maintain the current minimum drinking age, support zero BAC limit for all drivers under 21*

There is sufficient evidence from studies conducted in the U.S. that setting a higher minimum-drinking age leads to reduced crashes among underage drinkers. Even when enforcement is low, such policies are still effective and will have a greater impact if they were actively enforced (Wagenaar & Toomey, 2002 as cited by Chamberlain & Solomon, 2006; National Alcohol Strategy Working Group, 2007).

There is more than substantial research to support increasing the minimum legal drinking age higher than age 19 will have traffic safety benefits. However, there is not sufficient political support for this change within Canada. MADD Canada supports the position that minimum drinking age should be no less than 19 years, if a zero blood alcohol concentration (BAC) limit can be enacted for those under 21. Similar benefits as seen with a drinking age of 21 is anticipated if a zero BAC limit can be established for the same age group (Chamberlain & Solomon, 2006).

- *Pressure policy makers and producers to increase the price of alcohol*

There is significant evidence that increasing the price of alcohol (by policy makers increasing taxes or alcohol producers increasing the price) significantly deters youth from purchasing alcohol. Beer taxes need to be raised to match the taxes levied on wine; high-alcohol products need to be taxed more than low-alcohol products; and taxes should be increased to keep pace with inflation. Adolescents are especially sensitive to price increases as they generally have limited disposable incomes (Chamberlain & Solomon, 2006). In early 2007, the Ontario Public Health Association (OPHA) responded to proposed changes to the Liquor License Act, recommending the costs of alcohol be linked with alcohol *content* - not *type* of alcohol (e.g. high-alcohol beer should be priced higher than low-alcohol beer).

- *Pressure policy makers to enforce drinking laws*

Policy makers need to increase resources to enforce legal drinking age laws to deter youth from purchasing alcohol illegally. Since youth are not able to purchase alcohol legally, increased enforcement of legal drinking age laws and addressing the factors that aid in underage drinking are needed (e.g. parents or older adults buying alcohol for youth) (Chamberlain & Solomon, 2006).

- *Educate parents on reducing alcohol accessibility*

Parents need to be informed on the importance of eliminating or locking up their alcohol in the home, being a positive role model, countering potential negative influences of other parents and older siblings on their child's alcohol use, etc. Public health professionals can teach parents how to make better connections

and stronger relationships with their children. Children who have good communication with their parents from a young age and receive consistent rules and enforcement are less likely to engage in delinquent behaviour, including alcohol use and misuse (Komoro & Toomey, 2002 as cited in Hearst, et al., 2007).

Parent Action on Drugs and the Ontario Drug Awareness Partnership produce helpful resources related to communication with children and youth around alcohol consumption, primarily for parents and public health staff. Resources can be accessed at www.parentactionondrugs.org and www.odap.org.

Parents may consider drinking alcohol in moderate amounts with their youth, while following the Low-Risk Drinking Guidelines. It has been suggested that this practice increases early dialogue about alcohol use and misuse, and is shown to decrease binge drinking later in adolescence, especially among youth already choosing to drink (Bellis, et al., 2007). This is cautionary advice however, as underage consumption of alcohol is illegal and therefore more research is needed in this area.

Counteracting Pro-Alcohol Norms found in the Community Environment

- *Encourage cultural/religious diversity and support cultural/religious identity*
Youth who attended schools with greater cultural and/or religious diversity were less likely to engage in alcohol use/misuse (Kairouz & Adlaf, 2003). As well, youth who were active members of a cultural group or religious group were less likely to engage in delinquent behaviour using alcohol (Monshouwer, et al., 2007). These contextual situations can be used to build resiliency among youth and should be encouraged and supported by public health professionals linked with school and/or community groups.

- *Provide alternative transportation options for youth living in rural settings*
In addition to highlighting the harm associated with alcohol use, public health professionals may be able to work with young people to develop strategies to implement and create safer options while drinking (e.g. creating plans to stay over night, arranging group rides home with parents) (Drixler, et al., 2001). www.keepcontrol.ca is a relevant website which addresses risky drinking among high school students and identifies safe strategies to reduce that risk.

- *Combine alcohol prevention programs with job searching programs*
Even though the research on social-economic status (SES) and youth alcohol use is inconclusive, public health professionals specializing in alcohol-use should be working closer with workers who assist youth in acquiring jobs. This relationship would assist with helping students find meaningful work with suitable hours, and avoid excessive alcohol use. Additionally, public health professionals should be pressuring policy makers and working with employers to limit the number of hours youth are allowed to work during the school year. However, research is needed to determine if there would be any unintended consequences

(e.g. Would youth obtain alcohol anyways even without available disposable income? Would low SES families reliant on youth part-time employment be negatively affected?) (Breslin & Adlaf, 2005).

- *Create relevant health promotion interventions with First Nations youth*

The majority of alcohol-related resources/education initiatives designed for mainstream youth are not relevant among First Nations youth. The problems surrounding alcohol use/misuse among First Nations youth often stem from complex societal issues (e.g. poverty, racism). Responses to drinking/binge drinking must be sensitive (e.g. to urban vs. rural differences) and be created in partnership with First Nations youth. Programs and campaigns to address drinking among this population must acknowledge their realities of pain and grief, while encouraging resiliency and positive coping strategies (Hajdu, 2007).

Counteracting Pro-Alcohol Norms found in the School Environment

- *Improve school climate by supporting youth connectedness to school activities and career enhancing goals*

Public health professionals need to support schools in helping students to be positively connected with school activities and to mentor students in preparing for higher education and obtaining career goals. Additionally, teachers and administrators need to be supported to ensure that students are receiving positive encouragement in the classroom, that students are provided leadership opportunities, and barriers (e.g. language, income) are removed from achieving higher academic achievement. Students who have greater involvement with school activities, build resiliency, feel more connected with their school, and are working towards meaningful career and personal goals are less likely to engage in hazardous and harmful drinking (Andersen, et al., 2006; Drixler, et al., 2001; Henry & Slater, 2007; Rehm, et al., 2005).

An example intervention to enhance academic and career attainment is 'Pathways to Education'. Pathways to Education is a program designed to overcome common barriers experienced by low-income youth who seek to stay in school, graduate high school, and pursue post-secondary education (<http://pathwaystoeducation.ca>).

- *Use peer-to-peer components in prevention initiatives*

“Drinking itself it not such a big deal. It’s when my friends, like their aim is to go out and get drunk, that it bothers me.” – Youth Informant (Nairn, et al., 2007, p. 298).

Peer influence on drinking is a significant, if not the greatest, influence on youth alcohol use and binge drinking. When teens believe that their peers do not drink, they are less likely to drink as well. As a result, public health professionals must consider the benefit of incorporating peer-to-peer risk reduction components into their programs and interventions. Peers would be able to de-bunk the perception

that 'everyone's drinking alcohol' or 'everyone's getting drunk' (D'Amico & McCarthy, 2006; Maxwell, 2002).

- *Use harm reduction strategies*

Mass-media campaigns, community-based programs, and school-based curricula are potential vehicles for conveying health and safety information regarding alcohol to youth. The programs need to range from abstinence to moderate consumption (Poulin, 2006). Additionally, curricula should be included in classes other than physical health and education, and in all grade levels (Pat Sanagan, Key Informant).

There is concern among many educators and parents that creating and presenting a culture of moderate alcohol consumption will be encouraging youth to drink. The National Alcohol Strategy recommends presenting safe alcohol use guidelines geared towards those of legal drinking age. This they hope will create a change in the adult population, thereby changing the model presented to youth in the community and at home. Ultimately, abstinence would be the ideal goal; however, it is unrealistic to believe that all underage youth will not consume alcohol. As a result, it is important to provide opportunities for all youth to understand the risks of their consumption, how to limit their consumption, and reduce harm for when and if they do choose to drink (National Alcohol Strategy Working Group, 2007). Feldman (1999) calls for public health practitioners to aggressively target safe alcohol use initiatives to adolescents, with a special focus on peers and parents.

Harm reduction around alcohol use for youth is controversial. This is partly due to the lack of evidence regarding the effectiveness and safety of harm reduction as an approach to substance use and for ethical reasons (e.g. alcohol is an illegal substance for youth). Despite these cautions, harm reduction strategies used to address binge drinking among youth maybe the essential mechanism to reach youth who drink alcohol (Poulin, 2006; Poulin & Nicholson, 2005).

- *Adopt a multi-level approach in program planning and implementation*

The community, the school environment, peers and family all significantly influence adolescent alcohol use. School-based interventions (e.g. school presentations / school fairs) have been found to increase knowledge and awareness of alcohol-related harm, but show less promise in changing behaviour. As a result, components to address the influences found in the community, family, and peers should be considered, such as substance use policies, in any school-based education intervention. To address these broader influences, school-based and community-based policies must be considered in any multi-level intervention (Kairouz & Adlaf, 2003; Rehm, et al., 2005; Andersen, et al., 2006).

See Alcohol Policy Network's *Let's Take Action Series* to guide the development and implementation of community and school-based policies to address alcohol use and misuse (www.apolnet.ca/resources/pubs/LTAseries.html).

Counteracting Pro-Alcohol Norms found in the Family Environment

- *Offer skill training opportunities for parents with teenagers*

Parents have shown to positively influence youths' decisions around alcohol use and hazardous/harmful use, even amongst the strong pro-alcohol attitudes of peers. Public health professionals can teach parents how to create positive relationships with their youth, such as: how to create open communication, how to monitor and be consistent with rules around alcohol use, and how to buffer the influence of pressure from friends. (Barnes, et al., 2006; Nash, et al., 2005; van der Vorst, et al., 2006).

Skill training offered to parents can have a positive effect even for older teens as late as senior grade levels in high school (Turrisi, et al. as cited in Barnes, et al., 2006). Parents who drink excessively have shown the greatest negative influence on their youth's drinking habits (Barnes, et al., 2006). Public health professionals should make special effort to address current binge drinking among parents.

The following are some useful positive parenting resources: 'Analyze Your Teen: 4 Part CD Series and 40 Page Workbook' by Dr. Karyn Gordan (<http://drkaryn.com>); Dads and Daughters (www.dadsanddaughters.org); The Institute for Youth Development (www.youthdevelopment.org). Provincial organizations such as Parent Action on Drugs (www.parentactionondrugs.org), the Ontario Drug Awareness Partnership (www.odap.org), the Council on Drug Abuse (www.drugabuse.ca), the Focus Resource Centre (www.frcentre.net), and the Centre for Addiction and Mental Health (www.camh.net) all contain useful materials on this topic.

Addressing the Link Between Alcohol Use and other Drugs

- *Use tobacco and/or alcohol use among youth as a marker for potential alcohol-related problems in the future*

Public health professionals should provide targeted interventions for youth who already smoke tobacco and drink alcohol by linking and working with the treatment sector. Efforts should be made to prevent future excessive use of alcohol through policy and programming and be prepared for the potential use of 'harder' drugs (even though research is not yet conclusive regarding tobacco and alcohol being 'gateway' drugs). Program evaluation would be essential to assure positive outcomes are achieved and that interventions are psychologically, socially, and developmentally appropriate.

Preventing, Detecting and Treating Depression and Alcohol Misuse

- *Improve outreach and effectiveness of mental health programs*

Public health professionals, especially those specializing in mental health issues, should be aware of the current research suggesting that there is an association with alcohol use and depressive symptoms/depression among females. Interventions need to focus on improved out-reach and effectiveness of prevention, early detection and treatment of depressive symptoms and alcohol use/misuse, especially among young females (Poulin, et al., 2005). Addiction counsellors need to be re-oriented from health centers/hospitals to be situated directly in the school environment. This would significantly increase the ability for youth to be connected with the addiction services they need (Pat Sanagan, Key Informant).

Targeting Interventions to Address Personality Risk Factors

- *Implement targeted prevention programs to address binge drinking during adolescence*

Conrod and her colleagues (2006) evaluated a targeted cognitive-behavioural intervention to address risky alcohol use among youth. In this study, they explored the use of personality-matched interventions in prevention of early onset of alcohol misuse by targeting known prospective risk factors. Their results showed to improve outcomes by facilitating abstinence and reducing drinking quantity, binge drinking rates, and alcohol problems in selected groups of high-risk youth when compared to those who received no intervention. This intervention is unique in that it focuses very little on alcohol and drugs. Rather, the initiative directs the focus towards helping high-risk youth better manage their personality vulnerability towards alcohol misuse. Using a targeted approach also increases the relevancy of the messages for students. Dr. Marvin Krank reviewed a number of targeted interventions to address youth binge drinking. He concludes that tailored interventions, including Conrod's, should be utilized more in Canada, as these approaches will ultimately be more effective than those intended for the entire youth population (Stewart, et al., 2005).

As illustrated throughout this paper, alcohol use during adolescence is a significant public health issue, with main concerns revolving around increased rates in alcohol use among youth; earlier age of onset of drinking; and increased youth-targeted alcohol product promotion. This report described patterns in alcohol use during adolescence, the motivations of alcohol use, and the consequences of hazardous and harmful drinking. Public health professionals can use these findings as a reference point to refine current interventions and support future innovative actions to address the problems associated with underage drinking.

References

- Aarons, G. A., Brown, S. A., Coe, M. T., Myers, M. G., Garland, A. F., Ezzet-Lofstram, R., Hazen, A.L., & Hough, R.L. (1999). Adolescent alcohol and drug abuse and health. *Journal of Adolescent Health, 24*(6), 412-421.
- Addiction Services Kenora, the Child Development Centre, Kenora Chiefs Advisory, Kenora Health Access Centre, Lake of the Wood District Hospital, Northwestern Health Unit, Centre for Addiction and Mental Health, First Nations and Inuit Health Branch and First Nations communities & schools. (2005). *First Nations student drug use survey general results: a first look*. Funded by Centre for Addiction and Mental Health.
- Adlaf, E. M., Begin, P., & Sawka, E. (Eds.). (2005). *Canadian Addiction Survey (CAS): A national survey of Canadians' use of alcohol and other drugs: Prevalence of use and related harms: Detailed report*. Ottawa, Ontario: Canadian Centre on Substance Abuse.
- Adlaf, E. M., & Paglia-Boak, A. (2005). *Drug use among Ontario students No. 16*. Toronto, Ontario, Canada: Centre for Addiction and Mental Health.
- Andersen, A., Holstein, B. E., & Due, P. (2006). School-related risk factors for drunkenness among adolescents: Risk factors differ between socio-economic groups. *The European Journal of Public Health, 17*(1), 27-32.
- Alcohol Policy Network. (2006). *Priorities 2006: Developments in alcohol policy since 1996*. Toronto, ON: Ontario Public Health Association.
- Austin, E. W., Chen, M., & Grube, J. W. (2006). How does alcohol advertising influence underage drinking? The role of desirability, identification and skepticism. *Journal of Adolescent Health, 38*(4), 376-384.
- Babor T., et. al. (2003). *Alcohol: No ordinary commodity: Research and public policy*. Oxford University Press. World Health Organization.
- Barnes, G. M., Hoffman, J. H., Welte, J. W., Farrell, M. P., & Dintcheff, B. A. (2006). Effects of parental monitoring and peer deviance on substance use and delinquency. *Journal of Marriage and Family, 68*(4), 1084.
- Bellis, M. A., Hughes, K., Morleo, M., Tocque, K., Hughes, S., Allen, T., Harrison, D., & Fe-Rodriguez, E. (2007). Predictors of risky alcohol consumption in schoolchildren and their implications for preventing alcohol-related harm. *Substance Abuse Treatment, Prevention, and Policy, 2*(15).

- Best, D., Manning, V., Gossop, M., Gross, S., & Strang, J. (2006). Excessive drinking and other problem behaviours among 14-16 year old schoolchildren. *Addictive Behaviors, 31*(8), 1424-1435.
- Brent, D. A., & Mann, J. J. (2006). Familial pathways to suicidal behavior: Understanding and preventing suicide among adolescents. *The New England Journal of Medicine, 355*(26), 2719-2822.
- Breslin, F. C., & Adlaf, E. M. (2005). Part-time work and adolescent heavy episodic drinking: The influence of family and community context. *Journal of Studies on Alcohol, 66*(6), 784-794.
- Chamberlain, E., & Solomon R. (2006). *Youth and impaired driving in Canada: Opportunities for progress*. London, Ontario: Faculty of Law, University of Western Ontario.
- Collins, R. L., Ellickson, P. L., McCaffrey, and Hambarsoomians, D. (2007). Early adolescent exposure to alcohol advertising and its relationship to underage drinking. *Journal of Adolescent Health, 40*(6), 527-534.
- Comeau, N., Stewart, S.H., & Loba, P. (2001). The relations of trait anxiety, anxiety sensitivity and sensation seeking to adolescents' motivations for alcohol, cigarette, and marijuana use. *Addictive Behaviors, 26*(6), 803-825.
- Conner, K. R., & Goldston, D. B. (2007). Rates of suicide among males increase steadily from age 11 to 21: Developmental framework and outline for prevention. *Aggression and Violent Behavior, 12*, 193-207.
- Conrod, P. J., Stewart, S. H., Comeau, N., & Maclean, A. M. (2006). Efficacy of cognitive-behavioural interventions targeting personality risk factors for youth and alcohol misuse. *Journal of clinical Child and Adolescent Psychology, 35*(4), 550-563.
- D'Amico, E. J., & McCarthy, D. M. (2006). Escalation and Initiation of Younger Adolescents' Substance Use: The Impact of Perceived Peer Use. *Journal of Adolescent Health, 39*(4), 481-487.
- Davis, C. G. (2006). *Risks associated with tobacco use in youth aged 15 to 19: Analysis drawn from the 2004 Canadian Addiction Survey*. Ottawa, ON: Canadian Centre on Alcohol Use.
- DeWit, D. J., Adlaf, E. M., Offord, D. R., & Ogborne, A. C. (2000). Age at first alcohol use: A risk factor for the development of alcohol disorders. *American Journal of Psychiatry, 157*(5), 745-750.

- Drixler, C., Krahn, H., & Wood, R. T. (2001). Teenage drinking and driving in rural Alberta. *Journal of Youth Studies, 4*(1), 63-81.
- Dube, S. R., Miller, J. W., Brown, D. W., Giles, W. H., Felitti, V. J., Dong, M., & Anda, R. F. (2006). Adverse childhood experiences and the association with ever using alcohol and initiating alcohol use during adolescence. *Journal of Adolescent Health, 38*(4), 444-e10.
- Ellickson, P. L., Collins, R. L., Hambarsoomians, K., & McCaffrey, D. F. (2005). Does alcohol advertising promote adolescent drinking? results from a longitudinal assessment. *Addiction, 100*(2), 235-246.
- Ellickson, P. L., Tucker, J. S., & Klein, D. J. (2003). Ten-year prospective study of public health problems associated with early drinking. *Pediatrics, 111*(5), 949.
- Engels, R. C. M. E., Scholte, R. H. J., van Lieshout, C. F. M., de Kemp, R., & Overbeek, G. (2006). Peer group reputation and smoking and alcohol consumption in early adolescence. *Addictive Behaviors, 31*(3), 440-449.
- Feldman, L., Harvey, B., Holowaty, P., & Shortt, L. (1999). Alcohol use beliefs and behaviors among high school students. *Journal of Adolescent Health, 24*(1), 48-58.
- Fowler, T., Shelton, K., Lifford, K., Rice, F., McBride, A., Nikolov, I., Neale, M. C., Harold, G., Thapar, A., & van den Bree, M. B. M. (2007). Genetic and environmental influences on the relationship between peer alcohol use and own alcohol use in adolescents. *Addiction, 102*(6), 894-903.
- Hajdu, P. (2007). *Photovoice: Youth and alcohol through their eyes: A comparison of the impact and use of alcohol between First Nations and mainstream youth* (thesis dissertation). Thunder Bay, ON: Lakehead University.
- Health Canada. (1999). *Statistical Report on health of Canadians*. Charlottetown, P.E.I: Federal, Provincial and Territorial Advisory Committee on Population Health.
- Hearst, M. O., Fulkerson, J. A., Maldonado-Molina, M. M., Perry, C. L., & Komro, K. A. (2007). Who needs liquor stores when parents will do? The importance of social sources of alcohol among young urban teens. *Preventive Medicine, 44*(6), 471-476.
- Heffernan, T. M., & Bartholomew, J. (2006). Does excessive alcohol use in teenagers affect their everyday memory? *Journal of Adolescent Health, 39*, 138-140.

- Henry, K. L., & Slater, M. D. (2007). The contextual effect of school attachment on young adolescents' alcohol use. *The Journal of school health, 77*(2), 67.
- Huang, B., White, H. R., Kosterman, R.F., Catalano, R. F., & Hawkins, J. D. (2001). Developmental associations between alcohol and interpersonal aggression during adolescence. *Journal of Research in Crime and Delinquency, 38*(1), 64-83.
- Jernigan, D. H. (2001). *Global Status Report: Alcohol and Young People*. Geneva: World Health Organization.
- Kairouz, S., & Adlaf, E. M. (2003). Schools, students and heavy drinking: A multilevel analysis. *Addiction Research and Theory, 11*(6), 427-439.
- Krank, M. D. & Kreklewitz, K. L. (2003). *Exposure to alcohol advertising increases implicit alcohol cognitions in adolescents* (abstract). Fort Lauderdale, FL, United States: Research Society on Alcoholism.
- Krank, M. D., Wall, A. M., Lai, D., Wekerle, C. & Johnson T. (2003). *Implicit and explicit cognitions predict alcohol use, abuse and intentions in young adolescents* (abstract). Fort Lauderdale, FL, United States: Research Society on Alcoholism.
- Kuntsche, E., Knibbe, R., Gmel, G., & Engels, R. (2005). Why do young people drink? A review of drinking motives. *Clinical Psychology Review, 25*(7), 841-861.
- Maxwell, K. A. (2002). Friends: The role of peer influence across adolescent risk behaviors. *Journal of Youth and Adolescence, 31*(4), 267.
- Miller, T. R., Levy, D. T., Spicer, R. S., & Taylor, D. M. (2006). Societal costs of underage drinking. *Journal of Studies on Alcohol, 67*, 519-528.
- Miller, J. W., Naimi, T. S., Brewer, R. D., & Jones, S. E. (2007). Binge Drinking and Associated Health Risk Behaviors Among High School Students. *Pediatrics, 119*(1), 76.
- Mitura, V. & Bollman, R. (2004). *Health Status and Behaviours of Canada's Youth: A Rural-Urban Comparison* No. 3. Ottawa, Ontario, Canada: Minister of Industry. Statistics Canada.
- Monshouwer, K., Van Dorsselaer, S., Van Os, J., Drukker, M., De Graaf, R., Ter Bogt, T., Verdurmen, J., & Vollebergh, W. (2007). Ethnic composition of schools affects episodic heavy drinking only in ethnic-minority students. *Addiction, 102*(5), 722-729.

- Nairn, K., Higgins, J., Thompson, B., Anderson, M., & Fu, N. (2006). 'It's just like the teenage stereotype, you go out and drink and stuff': Hearing from young people who don't drink. *Journal of Youth Studies*, 9(3), 287-304.
- Nash, S. G., McQueen, A., & Bray, J. H. (2005). Pathways to adolescent alcohol use: family environment, peer influence, and parental expectations. *Journal of Adolescent Health*, 37(1), 19-28.
- National Alcohol Strategy Working Group. (2007). *Reducing alcohol-related harm in Canada: Toward a culture of moderation: Recommendations for a national alcohol strategy*. Retrieved August, 2007 from, http://www.nationalframework-cadrenational.ca/detail_e.php?id_sub=1&id_top_sub=2
- Ontario Public Health Association. (2007). *Response of the Ontario Public Health Association to the consultation on proposed reforms to the Liquor License Act*. Toronto, ON. Retrieved September, 2007 from, http://opha.on.ca/advocacy/letters/liquor_license_changes-21Mar07.pdf
- Poulin, C. (2006). *Harm reduction policies and programs for youth*. Ottawa, Ontario: Canadian Centre on Substance Abuse.
- Poulin, C., Boudreau, B., & Asbridge, M. (2006). Adolescent passengers of drunk drivers: A multi-level exploration into the inequities of risk and safety. *Addiction*, 102(1), 51-61.
- Poulin, C., Hand, D., Boudreau, B., & Santor, D. (2005). Gender differences in the association between substance use and elevated depressive symptoms in a general adolescent population. *Addiction*, 100(4), 525-535.
- Poulin, C., & Nicholson, J. (2005). Should harm minimization as an approach to adolescent substance use be embraced by junior and senior high schools? empirical evidence from an integrated school- and community-based demonstration intervention addressing drug use among adolescents. *International Journal of Drug Policy*, 16(6), 403-414.
- Rehm, J., Monga, N., Adlaf, E., Taylor, B., Bondy, S. J., & Fallu, J. (2005). School matters: Drinking dimensions and their effects on alcohol-related problems among Ontario secondary school students. *Alcohol and Alcoholism*, 40(6), 569-574.
- Rehm, J., Baliunas, D., Brochu, S., Fischer, B., Gnam, W., Patra, J., Popova, S., Sarnocinska-Hart, A., & Taylor, B. (2006). *The costs of substance abuse in Canada 2002: Highlights*. Ottawa, Ontario: Canadian Centre on Substance Abuse.

- Rhoades, B., & Maggs, J. L. (2006). Do academic and social goals predict planned alcohol use among college-bound high school graduates? *Journal of Youth and Adolescence*, 35(6), 913-923.
- Ringel, J. S., Collins, R. L., & Ellickson, P. L. (2006). Time trends and demographic differences in youth exposure to alcohol advertising on television. *Journal of Adolescent Health*, 39(4), 473-480.
- Roerecke, M. Haydon, E. & Giesbrecht, N. (2007). *Alcohol and chronic disease: An Ontario Perspective*. Toronto, ON: Alcohol Policy Network, Ontario Public Health Association.
- Rose, R., Dick, D. M., Viken, R. J., & Kaprio, J. (2001). Gene-environment interaction in patterns of adolescent drinking: Regional residency moderates longitudinal influences on alcohol use. *Alcoholism: Clinical and Experimental Research*, 25(5), 637-643.
- Statistics Canada. (2007). *Age Groups (14) and Sex (3) for the Population of Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2006 Census - 100% Data*. Retrieved September 2007, from <http://www12.statcan.ca/english/census/index.cfm>
- Statistics Canada. (2007b). Suicides and suicide rate, by sex and by age group. Retrieved September 2007, from <http://www40.statcan.ca/101/cst01/hlth66a.htm>
- Stewart, S. H., Conrod, P. J., Marlatt, G. A., Comeau, N. M., Thush, C., & Krank, M. (2005). New developments in prevention and early intervention for alcohol abuse in youths. *Alcoholism: Clinical and Experimental Research*, 29(2), 278-286.
- U.S. Department of Health & Human Services, National Institutes of Health. (2006). *Alcohol alert: Underage drinking: Why do adolescents drink, what are the risks, and how can underage drinking be prevented? No. 67*. U.S.: National Institutes of Health, National Institutes on Alcohol Abuse and Alcoholism.
- van Beurden, E., Zask, A., Brooks, L., & Dight, R. (2005). Heavy episodic drinking and sensation seeking in adolescents as predictors of harmful driving and celebrating behaviors: Implications for prevention. *Journal of Adolescent Health*, 37(1), 37-43.
- van der Vorst, H., Engels, R. C. M. E., Meeus, W., & Dekovic, M. (2006). The impact of alcohol-specific rules, parental norms about early drinking and parental alcohol use on adolescents' drinking behavior. *Journal of Child Psychology and Psychiatry*, 47(12), 1299-1306.

Veldhuizen, S., Urbanoski, K., & Cairney, J. (2007). Geographical variation in the prevalence of problematic substance use in Canada. *The Canadian Journal of Psychiatry*, 52(7), 426-433.

World Health Organization. (2002). *The world health report 2002- reducing risks, promoting healthy life*. Geneva: World Health Organization. Retrieved May 2007, from <http://www.who.int/whr/2002/en/>

World Health Organization. (2007). *Evidence-based strategies and interventions to reduce alcohol-related harm: Global assessment of public-health problems caused by harmful use of alcohol*. Retrieved May 2007, from http://www.who.int/gb/ebwha/pdf_files/WHA60/A60_14-en.pdf

World Health Organization Regional Office for Europe. (2006). *Declaration on young people and alcohol, 2001*. Retrieved May 2007, from http://www.euro.who.int/AboutWHO/Policy/20030204_1/

Appendix A

Key Informant Interview Questions – Professional

1. Why do youth drink?
2. Why don't youth drink?
3. What is your opinion of binge drinking and is it seen as a problem/issue?
4. Age of onset for drinking? Consequences of this?
5. Other substance use which occurs with alcohol use?
6. What are the consequences of drinking during youth?
7. What do youth believe their consequences are for alcohol use?
8. Are there any other issues that should be researched that are associated with youth and alcohol use?
9. What are some realistic approaches and recommendation to address this issue?

Appendix B

Key Informant Interview Questions – Youth

1. Spelling of your name
2. Age
3. Do peers within your age group drink alcohol?
4. Why do you think your friends/people in your age group drink?
5. Why do those in your peer group choose not to drink?
6. Name the top three consequences of drinking?
 - a. Do you know someone who has been affected by these or any other consequences?
7. What do you think can be done to stop your peers/age group from drinking?
8. Is it difficult for peers in your age group to obtain alcohol?
 - a. What is the most common source for obtaining alcohol? (ie. From an older brother/sister/friend, parent, etc.)
9. What do people your age do for fun in your town/city?
10. What is the alcohol of choice among your peer group? (i.e. beer, liquor, coolers, etc.)
11. Where do your peers/people in your age group consume alcohol?
12. What age did your friends start drinking?
13. Do your friends that consume alcohol also smoke cigarettes?
14. How much do your friends drink at a party? How often?
15. Do people in your age group think drinking will lead to other health problems?
16. How many drinks would someone have to have to be considered binge drinking (aka. Heavy Episodic Drinking)?