

# **THE REAL FACTS ON ALCOHOL USE, INJURIES AND DEATHS**

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**MADD Canada  
dedicates this work  
to all those whose lives  
have been forever adversely  
affected by alcohol.**

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# INTRODUCTION

This report has grown out of MADD Canada's ongoing public education and research projects. First, almost all of these initiatives are based, in part, on an understanding of the adverse consequences and costs of alcohol consumption. Second, many of the projects require that this type of information be marshalled, explained and documented. The more current, comprehensive and authoritative the information, the stronger the project. Indeed, MADD Canada has made great strides in the last five years in ensuring that its work is based on the best available research and is fully documented.

The purpose of this report is to provide a single, fully-referenced source of current facts on alcohol-related trauma. While we have focused on Canada, data has also been included on the United States, the United Kingdom, Australia and, to a lesser extent, New Zealand and other nations. More information has been included from other jurisdictions when that data was current and comprehensive, or when the Canadian data was not as detailed as we would have wanted. Although the international data must be used with caution, it does provide a perspective in assessing how well Canada has fared in addressing certain alcohol-related problems.

Wherever possible, we have relied on the most current and authoritative sources. Nevertheless, the data on certain topics is stronger than others. It should also be noted that we did not undertake a systematic review of the research literature or verify what the sources reported. Despite these limits, the report should provide a useful resource.

The report should be considered a work in progress, in that it will need to be updated from time to time. Moreover, we expect that we will find additional information that was not initially included. We hope that others will assist by referring us to useful sources.

# PART I: GENERAL INFORMATION

## General Alcohol Facts

### CANADA

- For every 100,000 Canadians, there were 349 men and 193 women hospitalized in 1995-1996 due to alcohol.
- Alcohol-attributed hospitalizations accounted for 3.9% (about 51,765) of all hospitalizations for men and 1.6% (about 29,181) for women in 1995-1996.
- Accidental falls (16,720), alcohol dependence syndrome (11,709), and motor vehicle accidents (9,378) accounted for almost half of all alcohol-attributed hospitalizations.  
*Canadian Profile: Alcohol, Tobacco and Other Drugs* (Toronto: Canadian Centre on Substance Abuse and Centre for Addiction and Mental Health, 1999) at 28.
- In 1995, 15 Canadians died in air-space transport accidents which were attributed to alcohol (approximately 0.23% of total alcohol-attributed deaths).
- 23 Canadians died due to accidental excessive cold which was attributed to alcohol (approximately 0.35% of total alcohol-attributed deaths).
- 17 Canadians died in accidents involving objects/machines which were attributed to alcohol (approximately 0.26% of total alcohol-attributed deaths).
- 10 Canadians died in firearms accidents which were attributed to alcohol (approximately 0.15% of total alcohol-attributed deaths).  
*Canadian Profile: Alcohol, Tobacco and Other Drugs* (Toronto: Canadian Centre on Substance Abuse and Centre for Addiction and Mental Health, 1999) at 61.
- It was estimated that 6,507 Canadians died in 1995 due to alcohol consumption. The largest number of alcohol-related deaths stemmed from impaired-driving accidents.
- It was estimated that 82,014 Canadians were admitted to hospital because of alcohol misuse in 1995. The greatest number of these separations were for alcoholic psychosis, alcohol dependence syndrome or alcohol abuse (19,744 in total), accidents other than motor vehicle accidents (19,412), and motor vehicle accidents (9,591).
- It was estimated that in 1995, 43% of all motor vehicle fatalities were attributable to alcohol.
- Although accidents other than motor vehicle accidents accounted for only 12.2% of alcohol-related deaths, these accidents accounted for 23.7% of the alcohol-attributable admissions to hospital. These figures include victims who were killed or injured as a result of others' intoxication. In contrast, motor vehicle accidents accounted for 17.6% of alcohol-attributed deaths, but only 11.7% of the alcohol attributable admissions.
- Alcohol-attributable mortality and morbidity represent 3.1% of total mortality, 5.4% of total years of potential life lost, and 2.7% of all admissions to hospital for any cause in Canada for 1995.
- Less than one-fifth of alcohol-related deaths in 1995 (1,207 or 18.5%) were due to chronic conditions (diseases of the respiratory system, diseases of the circulatory system and cancer). In contrast, accidents and other acute causes accounted for nearly half (3,064 or 47.1%) of all alcohol-attributed deaths and well over half (107,554 or 62.5%) of potential years of life lost.  
**E. Single, J. Rehm, L. Robson & M.V. Truong, "The relative risks and etiologic fractions of different causes of death and disease attributable to alcohol, tobacco and illicit drug use in Canada" (2000) 162:12 Canadian Medical Association Journal 1669, online: <<http://www.cmaj.ca/cgi/content/full/162/12/1669>>.**
- A study involving 14 trauma centres in Ontario found that 29% of major injury hospitalizations in fiscal year 2000/2001 were alcohol-related.
- The proportion of males among alcohol-related major injury cases was 86%.
- The 19-29 year-old group constituted the largest proportion (37%) of alcohol-related major injury hospitalizations in Ontario.

- The leading causes of alcohol-related major injury hospitalizations were motor vehicle traffic incidents (54%), falls (16%), and assaults (15%). Together, these causes were responsible for 84% of all hospitalizations due to alcohol-related major injury in Ontario.  
**Canadian Institute for Health Information (CIHI). Ontario Trauma Registry Bulletin: Alcohol-Related Major Injury Hospitalizations in Ontario, 2000/2001. (Toronto, 2002) 1-5.**

## UNITED STATES

- In 1998, there were 19,515 alcohol-induced trauma deaths in the United States, not including motor vehicle fatalities.
- In 1998, there were 25,192 deaths from chronic liver disease and cirrhosis.
- 52% of Americans aged 12 and over consumed alcohol in the month prior to being surveyed.
- 16% of these are “binge drinkers” (consuming 5 or more drinks on the same occasion at least once in the past month).  
**National Center for Health Statistics, “Fast Stats A to Z”, online: <<http://www.cdc.gov/nchs/fastats/alcohol.htm>>.**
- More than 100,000 deaths are attributable to alcohol consumption each year in the United States.  
**D. Rice (1999). Economic Costs of Substance Abuse, 1995. *Proceedings for the Association of American Physicians* 111(2): 119-125.**
- Alcohol is a significant factor in the occurrence of brain injury. More than 50% of persons with brain injuries were intoxicated at the time of injury.  
**The Brain Injury Association of America, “Brain Injury: The Golden Years, Understanding and Preventing Brain Injury”, online: <[http://www.biausa.org/Golden%20Years%20\(Edited\).doc](http://www.biausa.org/Golden%20Years%20(Edited).doc)>, 1-11 at 3.**
- More than one-third of Americans report that alcohol has caused problems in their immediate family at some point in their lifetime.  
**F. Newport (1999). *Gallup News Service*, Nov. 3, 1999, online: <http://www.gallup.com/poll/releases/pr991103.asp>>.**

## UNITED KINGDOM

- There were approximately 75,000 premature years of life lost in England and Wales in 1996 that were attributable to alcohol consumption. The main causes of alcohol “contributable” mortality among those 16 to 24 years of age were: road traffic fatalities, suicide and assault. Among those 25 to 34 years of age, the top 3 causes of alcohol-related death were suicides, traffic accidents and liver diseases.  
**A. Britton & K. McPherson, “Mortality in England and Wales attributable to current alcohol consumption” (2001) 55 *Journal of Epidemiology and Community Health* 383-388 at 383.**
- A 1998 study showed that 1 in 6 people attending Accident and Emergency (A&E) departments for treatment had alcohol-related injuries or problems. The numbers rose to 8 out of 10 at peak times. About half of the seriously injured patients admitted via A&E and needing to stay in hospital have an alcohol-related injury.
- At a national level, the number of alcohol-related, non-fatal home accidents increased from 13,262 in 1990 to 33,345 in 1998 (152% increase). The number of alcohol-related, non-fatal leisure accidents increased from 33,266 in 1990 to 71,050 in 1998 (114% increase).
- Between 1993 and 1998, fatal alcohol-related accidents where the underlying cause was the toxic effect of alcohol, ranged from 127 to 166 per year.  
**Alcohol Concern, “Factsheet 9: Alcohol and Accidents”,  
online: <<http://www.alcoholconcern.org.uk/Information/Factsheets/Newfactsheet9.htm>>**
- Alcohol is estimated to be a contributing factor in 20-30% of all accidents.  
**IAS Fact Sheet, “Alcohol as a Medical and Social Problem (MEDSOC) - Alcohol and Accidents” Institute of Alcohol Studies, online: <<http://www.ias.org.uk/factsheets/medsoc4.htm>>.**

## EUROPE

- In the 1990s, between 40% and 60% of all the deaths in the European Region which resulted from intentional and unintentional injury were attributable to alcohol consumption.  
The Institute of Alcohol Studies, "European Alcohol Action Plan 2000-2005" (1999) 4 *The Globe Magazine*, online: <<http://www.ias.org.uk/theglobe/1999issue4/euro2000.htm>>.
- In 1999, more than 57,000 people aged 15-29 died in Europe due to alcohol attributable causes (this includes diseases etc.).  
J. Rehm & G. Gmel, "Average Mortality, Patterns of Drinking and Burden of Mortality in Europe", Centre for Addiction and Mental Health, online: <[www2.camh.net/kbs/abstracts/RehmJ\\_abs.htm](http://www2.camh.net/kbs/abstracts/RehmJ_abs.htm)>.
- A study suggested that alcohol plays a very significant role in both accidental falls and other accidents (including drowning, fires and poisoning) in northern Europe, particularly among males. This has been confirmed by other studies done on Finnish males in which the following percentages of alcohol-related deaths were found: falls 31%; drowning 63%; fire, flames, heat and cold 76%; and poisoning 33%.  
O-J. Skog, "Alcohol consumption and mortality rates from traffic accidents, accidental falls, and other accidents in 14 European countries" (2001) 96:Suppl.1 *Addiction* S49-S58 at S55.

## AUSTRALIA

- During 1997, 3,290 Australians died from injury and disease caused by high-risk drinking:
- 70% of these people were male and most died from strokes, alcoholic liver cirrhosis, road injuries, suicide or alcohol dependence.
- On average, 19 years of life were lost for each person who died prematurely from an alcohol-caused condition.
- Younger people were more likely to die from bouts of intoxication, while older people were more likely to die from conditions related to long-term alcohol misuse.
- Female alcohol-caused death rates decreased slowly but consistently between 1990 and 1997.
- Male rates declined rapidly between 1990 and 1993, but showed little evidence of decline in the following years.
- In South Australia, Western Australia and the Northern Territory, there were higher rates of alcohol-caused death in non-metropolitan regions than in the capital cities.
- During 1996-1997, high-risk drinking was responsible for 72,302 hospitalizations and 403,795 hospital bed-days in Australia. 70% of people attending hospital for an alcohol-caused condition were male, and most hospitalizations were due to falls, alcohol dependence, assaults or road injuries.
- Aboriginal populations had higher rates of alcohol-caused death than non-Aboriginal populations.  
T. Chikritzhs, H. Jonas, P. Heale, P. Dietze, K. Hanlin & T. Stockwell, *Alcohol-Caused Deaths and Hospitalizations in Australia, 1990-1997* (National Drug Research Institute: Perth, Western Australia, 1999).  
National Alcohol Indicators Bulletin No. 1 (December 1999),  
online: < <http://www.curtin.edu.au/curtin/centre/ndri/pdfs/naip001.pdf>> at 1.

## Consumption Patterns

### CANADA

- In 1996-97, 53% of Canadians aged 12 and older reported drinking at least one drink each month in the previous year. This is essentially unchanged from the 55% reported in 1994-95.
- The largest proportion of regular drinkers in Canada (43%) reported consuming an average of 1-6 drinks each week, while another third (32%) drank less than one drink per week.
- 9% of Canadians 12 years of age and older reported drinking 14 or more drinks weekly, or an average of two or more drinks per day.
- Men are significantly more likely than women to be regular drinkers (63% vs. 43%). This was true in all age groups, but was most pronounced among 25-44 year olds.
- Men are also more likely to drink more alcohol per week than women. 13% of men reported drinking 14 or more drinks each week, compared to 4% of women. Men were twice as likely as women to report drinking daily (9% vs. 4%). In contrast, women were almost twice as likely to report occasional drinking (less than one drink a month) (38% vs. 20%).
- The proportion of regular drinkers increases rapidly from ages 12-14 through ages 20-24, where it levels out, and then starts to decrease at ages 55-64.
- There is a positive relationship between regular drinking and education. As education increases, so does the likelihood that Canadians are drinkers.
- There is also a strong positive relationship between regular drinking and income level. People in the lowest income group were least likely (40%) to be regular drinkers and most likely (18%) to be abstainers. People in the highest income group were by far the most likely (68%) to be regular drinkers and the least likely (9%) to be abstainers.
- There are large interprovincial variations in drinking. New Brunswick and Prince Edward Island are well below the average in terms of regular drinking prevalence (42% and 44%, respectively), and Quebec and British Columbia are both above the average (57% and 56%, respectively). People from Newfoundland and Ontario were the most likely to be abstainers.

Meeting of the Ministers of Health, *Statistical Report on the Health of Canadians*, Cat. 82-570-XIE (Ottawa: Sept. 16-17, 1999) at 171-183.

- The Canadian Campus Survey was conducted in the fall of 1998. The data represented responses from 7,800 university undergraduate students in 16 universities across Canada. Responses were based on “lifetime” experience, experience over “the past 12 months” (ie. approximately November 1997-October 1998), and “since September” (September 1998-October 1998).
- It was found that 92% of students consumed alcohol at some point in their lives and 87% drank in the “past 12 months”.
- During the “past 12 months”, students who consumed alcohol reported drinking 1.1 times per week, resulting in 6.5 drinks per week. Moreover, on average, these students reported having 5 or more drinks on 13.4 occasions, and 8 or more drinks on 5.3 occasions during the “past 12 months”.
- During the “since September” period, students who consumed alcohol reported drinking 1.1 times a week, resulting in 5.6 drinks per week. On average, they reported having 5 or more drinks on 4.7 occasions, and 8 or more drinks on 1.9 occasions during this time period.
- During the “since September” period, men reported drinking more often than women (1.3 vs. 0.8 times per week), had a higher weekly alcohol intake (7.6 vs. 3.9 drinks per week), and drank 5 or more drinks on a single occasion more often (6.6 vs. 3.2 times).
- 62.7% of students reported drinking 5 or more drinks on a single occasion and 34.8% reported drinking 8 or more drinks on a single occasion in the “since September” period.
- Men were significantly more likely than women to report heavy drinking as measured by 5 or more (70.6% vs. 56.1%), and 8 or more drinks (46.5% vs. 25.2%) on a single occasion at least once in the “since September” period.
- Students reported the following levels of consumption when the reason for drinking was to get drunk (8.9 drinks), celebrate or party (5.7 drinks), forget their worries (5.5 drinks), and feel good (5.4 drinks).
- Of the drinking consequences, students were most likely to report having a hangover (37.6%), regretting their actions (12.6%), memory loss (11.2%), missing classes due to a hangover (10.5), and missing classes due to drinking (7.3%) in the “since September” period.

- Of the hazardous drinking consequences, students were most likely to report having unplanned sexual relations (6.5%), driving a car after drinking too much (4.9%), drinking while driving (3.3%), and having unsafe sex (2.7%). Men were significantly more likely than women to report experiencing both of the drinking and driving consequences.
- 30.4% of students indicated experiencing at least one consequence of dependent drinking. Reports of alcohol dependence were significantly more likely among first-year students (34.1%) and those living on campus (38.7%).  
L. Gliksman, E. Adlaf, A. Demers, B. Newton-Taylor & K. Schmidt, "Canadian Campus Survey, April 2000", Executive Summary. online: <[http://www.camh.net/press\\_releases/canadian\\_campus\\_survey.pdf](http://www.camh.net/press_releases/canadian_campus_survey.pdf)> 1-8.
- An analysis of data collected from 905 respondents aged 15-19, and 1055 respondents aged 20-24 for the 1994/1995 Canadian National Population Survey revealed that binge drinking was more common than smoking among teenagers and young adults.
- 52% of males and 35% of females aged 15-19 reported binge drinking at least once in the year prior to the survey. By comparison, 73% of men and 51% of women aged 20-24 reported binge drinking.  
N.L. Galambos and L.C. Tilton-Weaver, "Multi-risk behavior in adolescents and young adults" (1998) Autumn Health Reports, Statistics Canada, online: <<http://www.statcan.ca/english/ads/82-003-XPB/10-98.htm>>.

## BRITISH COLUMBIA

- A 1999 study of British Columbia youth showed that by age 13, 44% of youth reported consuming alcohol within the last year. By the age of 17, this figure climbs to 80%. Moreover, 40% of youth reported engaging in heavy drinking (defined as 5 or more drinks in 2 hours) in the month prior to the study.  
McCreary Centre Society (1999), Vancouver, British Columbia
- According to a 1999 National Population Health Survey, approximately 2/3 of men and 2/5 of women above the age of 15 drink alcohol at least once per month. Of those surveyed who reported consuming alcohol, approximately 40% of men and 20% of women reported drinking 5 or more drinks on at least one occasion during the year prior to the study.  
J. Greschner & W. Mitic, "Alcohol in the Lives and Deaths of Children and Youth in British Columbia: Key Findings and Policy Recommendations", online: <[www2.camh.net/kbs/abstracts/MiticW\\_abs.htm](http://www2.camh.net/kbs/abstracts/MiticW_abs.htm)>.

## UNITED STATES

- Drinking in hazardous amounts (more than 5 drinks on one occasion) accounts for 53% of all the alcohol consumed in the United States. Another 25% is consumed in at-risk amounts (3-4 drinks on one occasion). The heaviest drinking 10% of the American population consumes 60% of the alcohol.  
The Marin Institute for the Prevention of Alcohol and Other Drug Problems, "Big Alcohol's Smokescreen" (1998) 13, online: <<http://www.marininstitute.org/NLWIN98.html>>.
- A survey of adults (21 and older) found that 51% reported not drinking at all in the 30 days prior to the survey, and 29% reported drinking at non-hazardous levels (less than 5 drinks on any occasion).
- Frequent bingers (5 or more drinks at a time, 5 or more times in the past month) make up 6% of the population, but consume 50% of the total alcohol consumed by adults in the United States. Infrequent bingers (5 or more drinks at a time, but less than 5 times in the past month) make up 14% of the population, but consume 33% of the alcohol. Thus, frequent and infrequent bingers, who constitute 20% of the adult population, consume 83% of the alcohol.
- 51% of 12-14 year-old drinkers, 65% of 15-17 year-old drinkers, and 71% of 18-20 year-old drinkers report drinking 5 or more drinks in a sitting in the month prior to the survey.
- Young people who binge drink consume the vast majority of the alcohol consumed by their age group. Binge drinkers consume 92% of the alcohol consumed by 12-14 year-olds, and 96% of the alcohol consumed by both 15-17 year-olds and 18-20 year-olds.
- Underage drinkers consume about 12% of all the alcohol purchased in the United States, or 3.6 billion drinks annually. The vast majority of this is consumed in a risky fashion (5 or more drinks at one time).
- Americans are bombarded with \$4 billion of alcohol marketing each year. Price promotions, such as happy hours and drinking games, often target young drinkers and promote binge drinking.  
U.S. Department of Justice, *Drinking in America: Myths, Realities, and Prevention Policy* (Pacific Institute, 2001).

## Alcohol Consumption Charts

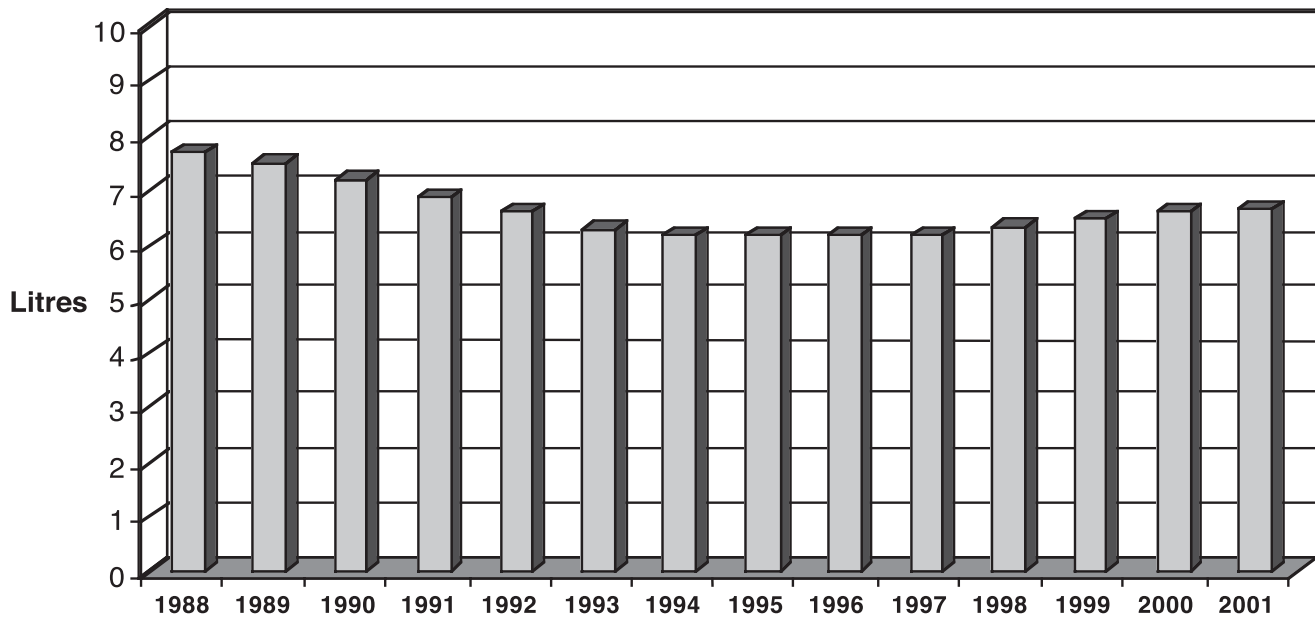
### **WORLD ALCOHOL CONSUMPTION - 1999** **Per Capita Consumption in Litres of Pure Alcohol**

<b>Country</b>	<b>Consumption</b>
Luxemburg**	12.2
Republic of Ireland***	11.6
Portugal**	11.0
France**	10.7
Germany***	10.6
Spain**	9.9
Hungary**	9.7
Denmark***	9.5
Austria**	9.3
Switzerland***	9.2
Greece*	8.9
Belgium**	8.2
Netherlands***	8.2
United Kingdom***	8.1
Italy***	7.7
Australia**	7.5
New Zealand***	7.4
Finland***	7.3
United States***	6.7
Japan**	6.6
Canada***	6.3
Sweden**	4.9
Norway**	4.4
Iceland**	4.0

\* “less reliable” information \*\* “reliable” information \*\*\* “very reliable” information

Alcoveb, “Evolution of the world consumption of alcohol”, online:  
<[http://www.alcoveb.com/english/gen\\_Info/alcohol\\_health\\_society/eco\\_aspects/consumption/world/world.html](http://www.alcoveb.com/english/gen_Info/alcohol_health_society/eco_aspects/consumption/world/world.html)>.

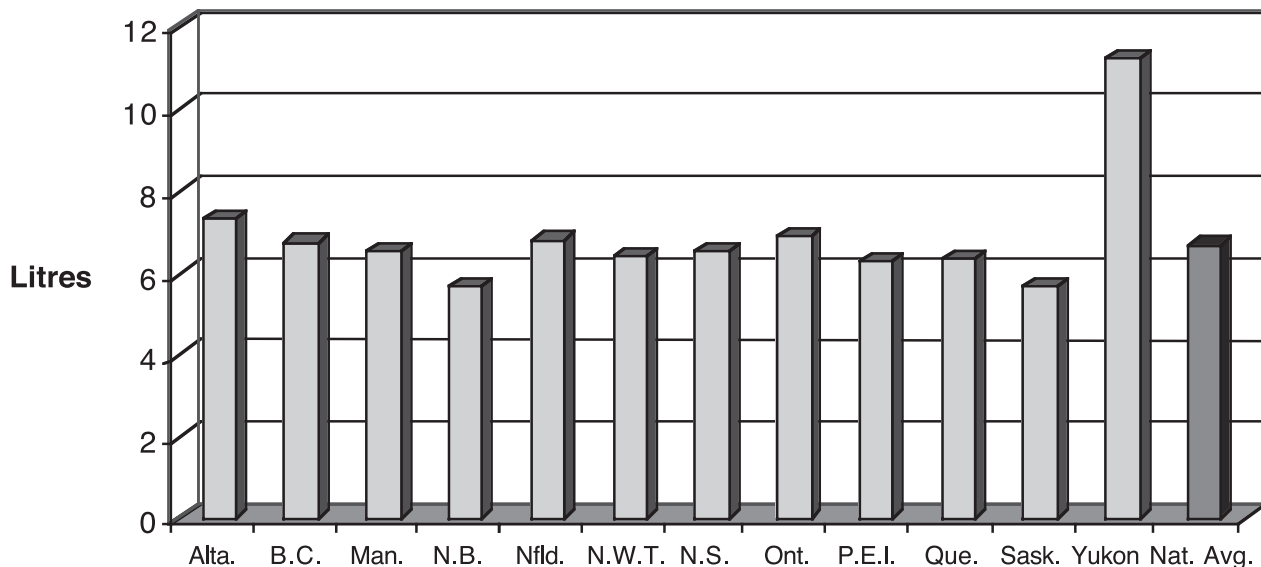
### **Absolute Alcohol Consumption per Capita: Canada (1988-2001)**



The consumption figures are based on total population. Declared or undeclared alcohol brought across the border, and home or assisted production of beer (u-brews) and wine (u-vins) are not included.

Brewers Association of Canada, *Annual Statistical Bulletin 2001*, (Ottawa: Brewers Association of Canada, 2002) at 39.

### **Absolute Alcohol Consumption per Capita: Provinces and Territories (2001)**



The consumption figures are based on total population. Declared or undeclared alcohol brought across the border, and home or assisted production of beer (u-brews) and wine (u-vins) are not included.

Brewers Association of Canada, *Annual Statistical Bulletin 2001*, (Ottawa: Brewers Association of Canada, 2002) at 40-63.

## **Costs Of Alcohol Abuse**

### **CANADA**

#### **Overview Of Economic Costs Associated With Alcohol**

- In 1992, alcohol accounted for more than \$7.5 billion in costs, or \$265 per capita. (Pg. 36)
- This represents 41% of the total costs of substance abuse. (Pg.36)
- The largest economic costs of alcohol were \$4.14 billion for lost productivity due to morbidity and premature mortality, \$1.36 billion for law enforcement and \$1.30 billion in direct health care costs. (Pg. 36)

#### **Police**

- It was estimated that in 1992, 11.9% of all incidents (offences which officially come to the attention of the police) were related to alcohol. (Pg. 48)
- In 1992, total policing expenditures were estimated at \$5.394 billion. The policing costs attributed to alcohol were estimated at \$665.4 million. (Pg. 49)

#### **Fire Damage**

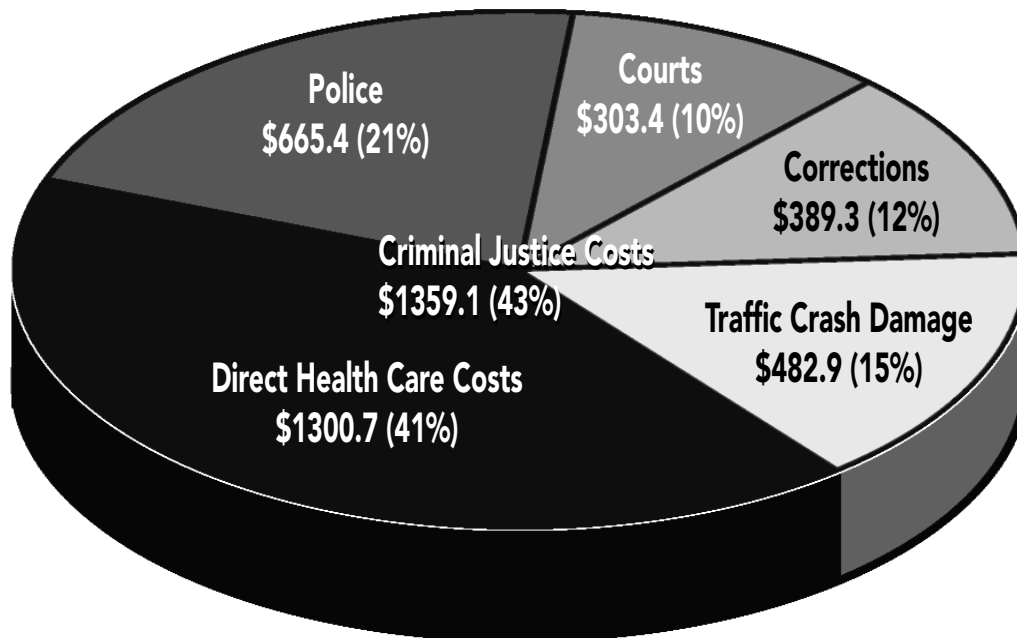
- Fire damage to property, excluding forest fires, totalled more than \$1.24 billion in Canada in 1992. (Pg. 50)
- In 1992, the attributable loss for alcohol-related fire damage amounted to \$35.2 million. (Pg. 50)

#### **Motor Vehicle Property Damage**

- The total amount of private and commercial motor vehicle property damage claims in 1992 was estimated at \$3.1 billion. (Pg. 50)
- It was estimated that alcohol contributed to 0.158% of the motor vehicle property claims, yielding an estimate of \$482.8 million for alcohol-related property damage from motor vehicle accidents. (Pg. 50)  
E. Single, L. Robson, X. Xie & J. Rehm, in collaboration with R. Moore, B. Choi, S. DesJardins & J. Anderson, *The Costs of Substance Abuse in Canada* (Ottawa: Canadian Centre on Substance Abuse, 1996).
- \* *N.B. Single et al.'s estimates of alcohol-related fire damage and motor vehicle property damage are far lower than those provided by other researchers.*

### **UNITED STATES**

- More than 100,000 deaths are attributable to alcohol consumption each year in the United States and the economic costs associated with alcohol problems total more than \$100 billion (US) annually.  
D. Rice (1999). *Economic Costs of Substance Abuse, 1995. Proceedings of the Association of American Physicians* 111(2): 119-125.

**Costs of Alcohol in Millions: Canada (1992)**

**Total Costs: \$3141.7 million**

E. Single, L. Robson, X. Xie & J. Rehm, in collaboration with R. Moore, B. Choi, S. DesJardins & J. Anderson, *The Costs of Substance Abuse in Canada* (Ottawa: Canadian Centre on Substance Abuse, 1996) at Table 4.

# PART II: NONTRAFFIC-RELATED TRAUMA

## Alcohol, Boating And Drowning

### CANADA

- Alcohol is involved in 4 of 10 boating fatalities (40%).  
“Boating Fatalities In Canada, 2000 Special Report”, Lifesaving Society,  
online: <[www.lifesaving.ca/Publications/Publications%20EN.htm](http://www.lifesaving.ca/Publications/Publications%20EN.htm)>.
- Overall, there were 551 drownings and preventable water-related deaths in 1998.
- 32% (about 176) of all 1998 preventable water-related deaths involved alcohol.
- Alcohol was involved in 36% of all preventable water-related deaths from 1993 to 1998.  
“The National Drowning Report, 2000 edition”, Lifesaving Society,  
online: <[www.lifesaving.ca/Publications/Publications%20EN.htm](http://www.lifesaving.ca/Publications/Publications%20EN.htm)>.

### BRITISH COLUMBIA

- A review of child and youth (under the age of 19) deaths in British Columbia, found that alcohol was present in one-third of the drownings investigated.  
J. Greschner & W. Mitic, “Alcohol in the Lives and Deaths of Children and Youth in British Columbia: Key Findings and Policy Recommendations”, online: <[www2.camh.net/kbs/abstracts/MiticW\\_abs.htm](http://www2.camh.net/kbs/abstracts/MiticW_abs.htm)> at 10.

### ONTARIO

- Alcohol intoxication was the second most frequent cause of death in preventable water-related deaths. Alcohol was involved in 47 (29%) deaths per year on average over the past five years (1994-1998). The victims were usually male adults, involved in recreational or daily living activities, often after dark. (Pg. 6)
- Alcohol was involved in half of all powerboating fatalities between 1994 and 1998. (Pg. 15)
- Alcohol was involved in 42% of canoeing deaths between 1993 and 1997. (Pg. 15)
- In terms of preventable water-related deaths, alcohol consumption was twice as high among adult men (51%) compared to adult women (24%). (Pg. 21)
- Activities with the highest 1994-1998 alcohol consumption were: snowmobiling (69%), daily living boat travel (61%), walking near water (61%), sport fishing (52%), powerboating (46%), and canoeing (42%). (Pg. 21)
- A very high level of alcohol involvement was seen in fatal incidents after dark - 74% of deaths involving alcohol took place after dark from 1994 to 1998, and 62% occurred after dark in 1998. (Pg. 21)
- The average BAC among victims of preventable water-related deaths (known to have consumed alcohol) was 0.167% in 1994-1998. In boating and snowmobiling incidents, the average BAC for victims was 0.146% and 0.141% respectively. (Pg. 21)
- 26% of all 1994-1998 Ontario drowning victims, 27% of victims in boating incidents, and 43% of victims in snowmobiling incidents had a BAC above 0.08%. (Pg. 21)  
“The Drowning Report: A profile of drownings and water-related deaths in Ontario, 2000 edition”, Lifesaving Society, online: <<http://www.lifesavingsociety.com/PDF/98DrowningRpt00.pdf>>.

### UNITED STATES

- In 1988, about one-fifth of all drowning deaths occurred as a result of boating accidents. Alcohol use seems to be common among recreational boaters: between 20% and 50% report drinking while boating, and boaters who drown in boating accidents are more likely to be intoxicated at the time of the mishap than are other boaters.
- Drownings were the third leading cause of accidental death in the United States in 1990. That year, there were over 5,000 drowning fatalities.

- A review of the relevant literature reveals that alcohol was involved in 27% to 47% of drownings; the median value for all studies considered was 34%. An update of this review found that in studies in which there was complete BAC data, 41% of drownings were alcohol-related.
- Alcohol involvement has also been documented for near-fatal drownings. One study found that among people who nearly died in drowning accidents, one-third had been drinking at the time of the accident.  
**C.J. Cherpitel, "The Epidemiology of Alcohol-Related Trauma" (1992) 16:3 Alcohol Health & Research World 191-196 at 194.**
- A boat operator who is intoxicated is 10 times more likely to be killed in a boating accident than a boat operator who has not been drinking (Statistics are for 1999).  
**The Brain Injury Association of America, "Brain Injury: The Golden Years, Understanding and Preventing Brain Injury", online: <[http://www.biausa.org/Golden%20Years%20\(Edited\).doc](http://www.biausa.org/Golden%20Years%20(Edited).doc)>, 1-11 at 5.**
- 800 people died in the U.S. in 1998 from recreational boating. Data from 4 states with high testing rates for 1980 to 1985 suggest that 51% of people involved in boating fatalities had a BAC of at least 40mg/dL, and 30% had a BAC higher than 100 mg/dL.  
**G.S. Smith, P.M. Keyl, J.A. Hadley, C.L. Bartley, R.D. Foss, W.G. Tolbert & J. McKnight, "Drinking and Recreational Boating Fatalities: A Population-Based Case-Control Study" (2001) 286:23 JAMA: Journal of American Medical Association 2974, online: <<http://jama.ama-assn.org/issues/v286n23/abs/joc11510.html>>.**

## UNITED KINGDOM

- About 30% of all drownings are estimated to be alcohol-related. This proportion may rise to 50% in the 20-30 age group [no year specified on site].  
**IAS Fact Sheet, "Alcohol as a Medical and Social Problem (MEDSOC) - Alcohol and Accidents", Institute of Alcohol Studies, online: <<http://www.ias.org.uk/factsheets/medsoc4.htm>>.**
- There were 79 alcohol-related drownings in the United Kingdom in 1998 (15% of all drownings). Of these, 71 were men (90%) and 8 were women (10%).  
**Alcohol Concern, "Factsheet 9: Alcohol and Accidents", online: <<http://www.alcoholconcern.org.uk/Information/Factsheets/Newfactsheet9.htm>>.**

## EUROPE

- A study suggested that alcohol plays a very significant role in both accidental falls and other accidents (including drowning, fires and poisoning) in northern Europe, particularly among males. This has been confirmed by other studies done on Finnish males in which the following percentages of alcohol-related deaths were found: falls 31%; drowning 63%; fire, flames, heat and cold 76%; and poisoning 33%.  
**O-J. Skog, "Alcohol consumption and mortality rates from traffic accidents, accidental falls, and other accidents in 14 European countries" (2001) 96:Suppl Addictions S49-S58 at S55.**

## Alcohol And Falls

### CANADA

- Alcohol-related falls in Canada put more people in the hospital for more days than impaired driving. E. Single, L. Robson, X. Xie & J. Rehm, *The Costs of Substance Abuse in Canada* (Ottawa: Canadian Centre on Substance Abuse, 1992) at 32.
- It was estimated that 86,076 alcohol-related hospitalizations (56,474 for men and 29,602 for women) occurred in 1992. The greatest number of alcohol-related hospitalizations involved accidental falls (16,901 or about 20%), alcohol dependence syndrome (14,316 or about 17%) and motor vehicle accidents (11,154 or about 13%).
- The greatest number of hospitalization days involved accidental falls (308,224 days), indicating the serious nature of such injuries. Thus, although accidental falls accounted for only 6% (408) of alcohol-related deaths, they accounted for 20% of hospitalizations and 27% of hospitalization days attributed to alcohol.
- In contrast, motor vehicle accidents accounted for 22% of deaths, but only 13% of hospitalizations and 12% of hospitalization days. E. Single, L. Robson, J. Rehm & X. Xie, "Morbidity and Mortality Attributable to Alcohol, Tobacco, and Illicit Drug Use in Canada" (1999) 89:3 *American Journal of Public Health* 385-390 at 386.
- Of the 6,503 deaths attributed to alcohol in 1995, 452 (about 6%) resulted from accidental falls. *Canadian Profile: Alcohol, Tobacco and Other Drugs* (Toronto: Canadian Centre on Substance Abuse and Centre for Addiction and Mental Health, 1999) at 61.

### ONTARIO

- Falls accounted for 16% of the alcohol-related major injury hospitalizations in 14 Ontario trauma centres from 1996/1997 to 2000/2001.
- In 2000/2001, 27% of the 203 people, who were admitted due to a fall and tested, had a blood-alcohol concentration (BAC) at or above 0.08%, the federal legal limit for driving. Canadian Institute for Health Information (CIHI). *Ontario Trauma Registry Bulletin: Alcohol-Related Major Injury Hospitalizations in Ontario, 2000/2001*. (Toronto, 2002) at 8-10.

### UNITED STATES

- Falls are the second leading cause of accidental death in the United States. They also account for more than 60% of nonfatal injuries each year.
- In 1990, more than 12,000 fatalities resulted from falls.
- A review of the relevant studies on alcohol consumption and falls found that an average of 28% of people fatally injured in falls had been drinking prior to the injuring event. Percentages ranged from 21% to 77%, depending on the study. The same review found that an average of 30% of non-fatally injured fall victims had positive BACs. The percentage of fall victims with positive BACs ranged from 17% to 53%, depending on the study.
- In other studies that have described an association between alcoholism and the risk of fatal falls, it has been observed that alcoholics are 3 to 16 times more likely to suffer a fatal fall than people in the general population. C.J. Cherpitel, "The Epidemiology of Alcohol-Related Trauma" (1992) 16:3 *Alcohol Health & Research World* 191-196 at 194.

### UNITED KINGDOM

- A 1998 survey of casualty departments found that a quarter of facial injuries were linked to alcohol consumption, with the most common causes being falls (40%) and assaults (25%). IAS Fact Sheet, "Alcohol and Crime" Institute of Alcohol Studies, online: <<http://www.ias.org.uk/factsheets/alcoholandcrime.pdf>>.

## **Alcohol And Fires**

### **CANADA**

- Fire damage to property, excluding forest fires, totalled more than \$1.24 billion in Canada in 1992.
- In 1992, the attributable loss for alcohol-related fire damage amounted to \$35.2 million.
- Of the 6,701 deaths attributed to alcohol in 1992, 123 (about 2%) resulted from fire.  
E. Single, L. Robson, X. Xie & J. Rehm, in collaboration with R. Moore, B. Choi, S. DesJardins & J. Anderson, *The Costs of Substance Abuse in Canada* (Ottawa: Canadian Centre on Substance Abuse, 1996) at 50 and 86.
- Of the 6,503 deaths attributed to alcohol in 1995, 106 (about 2%) resulted from fire.  
*Canadian Profile: Alcohol, Tobacco and Other Drugs* (Toronto: Canadian Centre on Substance Abuse and Centre for Addiction and Mental Health, 1999) at 61.

\*Note that the Canadian statistics on alcohol-related fire deaths and costs appears to be far lower than comparable American and United Kingdom statistics.

### **UNITED STATES**

- Fires and burns are the fourth leading cause of accidental death in the United States, accounting for more than 4,000 fatalities in 1990. A review of pertinent studies on alcohol's role in burn injuries revealed that from 9% to 86% of burn fatalities involved alcohol, with a median value of 47%.
- The same review found that from 1% to 50% (median value 17%) of non-fatal burn injuries involved alcohol. An update of this review has found that 33% to 61% of burn fatalities, and 22% to 27% of non-fatal burn injuries involved alcohol.
- Based on findings from studies in which BACs were obtained, an average of approximately 50% of those fatally injured were intoxicated at the time of death. Alcohol's presence was most frequent among victims of fires caused by cigarettes.
- Alcoholism seems to increase the risk of dying in fires. Studies have shown that alcoholics are 10 to 26 times more likely to die in fires than are members of the general population.  
C.J. Cherpitel, "The Epidemiology of Alcohol-Related Trauma" (1992) 16:3 *Alcohol Health & Research World* 191-196 at 194.
- Alcohol has been implicated in more than half of fatal residential fires. Of the 190 fatalities, 124 (65%) were male, 78 (41%) were home alone, and 69 (53%) of the 130 adults whose BAC was measured were intoxicated (BAC > 100 mg/dL).
- The individuals who were most likely to die (high-vulnerability group) were under 5 years old, 64 years of age or older, physically or cognitively disabled, or impaired by alcohol or other drugs.
- Of the 48 juvenile fatalities (<18 years), 14 died in 9 fires without adult supervision. Seven died in 4 fires in which 1 or more of the surviving adults had been judged as being impaired by alcohol or other drugs.  
S.W. Marshall, C.W. Runyan, S.I. Bangdiwala, M.A. Linzer, J.J. Sacks & J.D. Butts, "Fatal Residential Fires: Who dies and who survives?" (1998) 279 *JAMA: Journal of American Association* 1633,  
online: <<http://jama.ama-assn.org/issues/v279n20/rfull/joc72035.html>>.

### **UNITED KINGDOM**

- A series of studies of the causes of fire deaths by the Department of Forensic Medicine at Glasgow University found a raised BAC in 50% of the cases. Moreover, in a high proportion of these cases, the victim's BAC was high enough to have impaired escape.  
IAS Fact Sheet, "Alcohol as a Medical and Social Problem (MEDSOC) - Alcohol and Accidents", Institute of Alcohol Studies, online: <<http://www.ias.org.uk/factsheets/medsoc4.htm>>.
- Alcohol is the single most important factor in burns and is implicated in up to 65% of cases where people are admitted to hospital or die from burns.  
Alcohol Concern, "Factsheet 9: Alcohol and Accidents",  
online: <<http://www.alcoholconcern.org.uk/Information/Factsheets/Newfactsheet9.htm>>.

## Alcohol And The Workplace

### ALBERTA

- 5.2% of workers report having used alcohol at work (including lunch and other breaks) in the month prior to the survey. This translates into over 60,000 workers out of Alberta's 1.2 million person workforce. Those least likely to report drinking at work are those in the health care and forestry/mining industries. Those most likely to report drinking at work are in the oil and gas extraction industry, the construction industry, the telecommunications industry, and the manufacturing industry.  
**Alberta Alcohol and Drug Abuse Commission, "Alcohol Use and the Alberta Workplace",**  
online: <[http://corp.aadac.com/alcohol/profiles/alcohol\\_use\\_workplace.asp](http://corp.aadac.com/alcohol/profiles/alcohol_use_workplace.asp)>.

### UNITED STATES

- Up to 40% of industrial fatalities and 47% of industrial injuries can be linked to alcohol consumption and alcoholism
- Alcohol is the most widely abused drug among working adults. An estimated 6.2% of adults working full-time are heavy drinkers.
- More than 1 in 3 (38%) workers between the ages of 18 and 25 are binge drinkers.
- Among employed adults, the highest rates of heavy drinking and current illicit drug use are reported by white, non-Hispanic males who are between the ages of 18-25 and have less than a high school education.
- The highest rates of current illicit drug use and heavy drinking were reported by: food preparation workers, waiters, waitresses and bartenders (19%); construction workers (14%); service occupations (13%); and transportation and material moving workers (10%).
- 1 in 5 workers report that they have had to work harder, redo work or cover for a co-worker, or have been put in danger or injured as a result of a fellow employee's drinking.
- Alcohol and drug abuse has been estimated to cost American businesses roughly \$81 billion dollars in lost productivity a year - \$37 billion due to premature death and \$44 billion due to illness. Of these combined costs, 86% are attributed to drinking.
- Alcoholism is estimated to cause 500 million lost workdays annually.
- Individuals who are current heavy alcohol users are more likely (8%) to have changed employers three or more times in the past year than those who are not heavy drinkers (4.4%).
- Individuals who are current heavy alcohol users are also more likely (11.3%) to have skipped one or more work days in the past month than those who are not heavy drinkers (5.1%).  
**Working Partners, "Small Business Workplace Kit, Facts and Figures",**  
online: <<http://www.dol.gov/asp/programs/drugs/workingpartners/Screen15.htm>>.
- In 1992, 24% of workers surveyed at a large manufacturing plant reported drinking at work at least once during the year before the survey.
- In a survey of 6,540 employees at 16 worksites representing a range of industries, 23% of upper-level managers reported drinking during working hours in the previous month (survey originally published in 1998).
- In a 1999 study, drinking at work, problem drinking, and frequency of getting "drunk" in the past 30 days were positively associated with frequency of absenteeism, arriving late to work or leaving early, doing poor work, doing less work, and arguing with co-workers.  
**National Institute on Alcohol Abuse and Alcoholism, Alcohol Alert "Alcohol and the Workplace" (1999) 44,** online: <<http://www.niaaa.nih.gov/publications/aa44.htm>>.
- Studies of alcohol-related work injuries have found that rates of injury vary greatly by type of industry. However, the proportion of individuals with positive BACs in work-related accidents is low compared to other kinds of injuries in the United States.
- In a study of work-related fatalities, it was estimated that 15% of workers who were tested for alcohol had positive BACs.

- A review of emergency room studies on nonfatal work injuries shows that, on average, 4% (ranging from 1% to 16%, depending on the study) involve alcohol.  
C.J. Cherpitel, "The Epidemiology of Alcohol-Related Trauma" (1992) 16:3 Alcohol Health & Research World 191-196 at 194-5.

## UNITED KINGDOM

- There are no definitive statistics on the contribution of alcohol to accidents at work, but a study in Scotland showed that of 35 industrial fatalities, 20% involved BACs in excess of the British drink drive limit of 80 mg%.  
IAS Fact Sheet, "Alcohol as a Medical and Social Problem (MEDSOC) - Alcohol and Accidents" Institute of Alcohol Studies, online: <<http://www.ias.org.uk/factsheets/medsoc4.htm>>.

## NEW ZEALAND

- 20-25% of occupational injuries involve intoxicated workers.
- Absenteeism is 2-3 times higher for employees using drugs and alcohol.  
Accident Compensation Corporation, "Drugs and Alcohol in the Workplace",  
online: <<http://www.acc.org.nz/injury-prevention/safe-at-work/hazard-management/people/drugs/>>.

## GENERAL

- Heavy drinking is a major contributory cause of workplace accidents.
- American studies have consistently found disproportionately high BAC levels among accident victims. These findings have been corroborated by survey data indicating a higher risk of accidents for self-reported heavy drinkers.
- A positive relationship between heavy or problem drinking and workplace accidents has also been found in France, the Netherlands, Australia, Zambia and Spain.  
*Canadian Profile: Alcohol, Tobacco and Other Drugs* (Toronto: Canadian Centre on Substance Abuse and Centre for Addiction and Mental Health, 1999) at 236.

## **Alcohol And Sports**

### **ONTARIO**

- Of the 310 people who were hospitalized in Ontario for a major sports/recreational injury in 1999-2000, 37% (116) were tested for alcohol. Of these, 21% (24) had a BAC over 0.08%.  
APOLNET-L, "Sports & Recreational Injuries in Ontario",  
online: <<http://www.web.ca/~apolnet/apolnet-l/msg00172.html>>.

### **UNITED STATES**

- Consumption of alcohol was reported as a contributing factor in 31 of 126 (25%) sports-related spinal cord injuries in Oklahoma among persons over 4 years of age. White males represented 26 of the 31 (84%) spinal cord injuries involving alcohol.
- Diving was the leading cause of sports-related spinal cord injury for both males and females over 7 years old (1988-1994), accounting for 53 of the 142 (37%) cases. Males represented 91% (48 of 53) of the diving-related spinal cord injuries and 55% of these injuries were among those 15-24 years of age. Alcohol was involved in 52% of the spinal cord diving injuries among males.  
Injury Update: A report to Oklahoma Injury Surveillance Participants, "Sports-Related Spinal Cord Injuries, Oklahoma, 1988-1994", September 13, 1996,  
online: <<http://www.health.state.ok.us/program/injury/updates/sportsci.html>>.

## **Alcohol And Violence**

### **CANADA**

- Of the 6,503 deaths attributed to alcohol in 1995, 131 (about 2%) resulted from an assault.  
*Canadian Profile: Alcohol, Tobacco and Other Drugs* (Toronto: Canadian Centre on Substance Abuse and Centre for Addiction and Mental Health, 1999) at 61.
- Research suggests that alcohol intoxication, rather than mere alcohol consumption, is associated with aggression. Moreover, alcohol intoxication is more strongly associated with physical aggression than with verbal aggression.  
**S. Wells, K. Graham & P. West, "Alcohol-Related Aggression in the General Population" (2000) 61:4 Journal of Studies in Alcohol 626-632.**
- About 50% of violent crimes involve an offender and/or victim who has been drinking.  
**S. Wells & K. Graham, "I'm okay. You're drunk! Self-other differences in the Perceived Effects of Alcohol in Real-Life Incidents of Aggression" (London, Centre for Addiction and Mental Health) at 2.**
- 54% of offenders entering federal custody [2 years imprisonment or more] reported having been under the influence of a psychoactive substance when they committed the most serious crime on their current sentence. Alcohol intoxication was more common than drug intoxication (24% vs. 19%).
- Federal inmates who reported having used neither drugs nor alcohol during a six-month period after release reported committing an average of 1.7 crimes a week. Those who used one or more substances without being dependent upon them committed an average of 3.3 crimes a week.
- In total, 30% of federal inmates committed their most serious crime under at least the partial influence of drugs, and 38% committed their most serious crime under the partial influence of alcohol.
- Among assault offenders, 39% reported being under the influence of alcohol at the time of the crime and 24% reported being under the influence of both drugs and alcohol.
- Among those convicted of homicide, 34% reported being under the influence of only alcohol and 21% reported being under the influence of both alcohol and illicit drugs.  
**K. Permanen, M-M. Cousineau, S. Brochu & F. Sun, "Proportions of Crimes Associated with Alcohol and Other Drugs in Canada" (Canadian Centre on Substance Abuse, April 2002),**  
online: <<http://www.ccsa.ca/docs/crime2002.pdf>> (Executive Summary Pgs. 5-11).

### **ONTARIO**

- Assaults accounted for 15% of the alcohol-related major injury hospitalizations in 14 Ontario trauma centres from 1996/1997 to 2000/2001.
- In 2000/2001, 38% of the 125 people, who were admitted due to an assault and tested, had a blood-alcohol concentration (BAC) at or above 0.08%, the federal legal limit for driving.  
**Canadian Institute for Health Information (CIHI). Ontario Trauma Registry Bulletin: Alcohol-Related Major Injury Hospitalizations in Ontario, 2000/2001 (Toronto, 2002) at 10-11.**

### **UNITED STATES**

- Alcohol consumption is closely associated with about half of all violent events.
- Both domestic and foreign studies conducted between 1951 and 1992 have found a consistent relationship between alcohol and violence. Alcohol-related homicide rates were relatively higher than those for assaults and rapes/sexual assaults.
- Research has consistently found that alcohol is involved in 50% to 67% of homicides, 25% of serious assaults, and 25% of rapes.  
**S. Martin, "The epidemiology of alcohol-related interpersonal violence" (1992) 16:3 Alcohol, Health & Research World 230-237.**

- Alcohol involvement becomes more likely as the severity of violent injury increases. The BACs for violence-related deaths (recorded in coroners' reports) were compared to those found in a sample of emergency room patients. 47% of all violence-related deaths had alcohol involvement compared to 17% of the emergency room sample.  
C.J. Cherpitel, "Alcohol and casualties: A comparison of emergency room and coroner data" (Paper presented at the Research Society on Alcoholism annual meeting, San Antonio, TX, 1993) Available from the author at Alcohol Research Group, 2000 Hearst Ave, Ste 300, Berkeley, CA 94709.
- Alcohol is the drug most likely to be present in rapes. Common sources of information are state prison inmates, emergency room reports by victims, and arrest records. Studies, when averaged, suggest that the perpetrator, victim, or both, had been drinking prior to approximately 50% of all rapes.
- Studies of rapists alone find that more than 25% of offenders use alcohol immediately preceding a rape.
- In general, alcohol involvement is considerably higher in date rapes than in other types of rapes. One study reported that 53% of perpetrators and 46% of victims had been drinking prior to reported college campus date rapes. That study also found alcohol to be among the four strongest predictors of the likelihood of date rape.
- In another study, 68% of college women who had been raped or sexually intimidated reported that their male assailants had been drinking at the time of the attack.
- Studies of child abuse report that from 22% to 63% of cases involve alcohol. Studies of sexual molestation and incest indicate that alcohol is involved in 30% to 71% of cases. Partner battery studies indicate that alcohol involvement ranges from 60% to 70% of cases.  
J.F. Mosher, "Like Pouring Gasoline on a Fire: Reducing Alcohol's Role in Societal Violence" (October 1998) (revised version of a paper delivered at the 125th Annual Meeting of the American Public Health Association, Indianapolis, Indiana, November 9-13, 1997) at 5-6.
- Violent incidents frequently involve alcohol use by the perpetrator, victim or both. A recent review of the research found that 28% to 86% of homicide offenders, 24% to 37% of assault offenders, 13% to 60% of sexual offenders, 6% to 57% of male domestic violence assailants, and 10% to 27% of female domestic violence victims were drinking at the time of the incident.  
Alcohol-Related Injury and Violence (ARIV) 1998, Alcohol and Violence: Literature Review, online: < <http://www.tf.org/tf/alcohol/ariv/reviews/violen5.html> >.
- It has been estimated that eliminating the glut of alcohol outlets in inner city areas would cut the homicide rates by 10%, saving 2000 lives a year.  
IAS Fact Sheet, "Alcohol and Crime", Institute of Alcohol Studies, online: <<http://www.ias.org.uk/factsheets/alcoholandcrime.pdf>>.
- Several studies have demonstrated the connection between the density of alcohol outlets in a community and the rates of violence, particularly among youth.  
U.S. Department of Justice, *Drinking in America: Myths, Realities, and Prevention Policy* (Pacific Institute, 2001) at 4.

## UNITED KINGDOM

- In 1993, it was found that alcohol was a factor in 60%-70% of homicides, 75% of stabbings, 70% of beatings, and 50% of fights and domestic assaults. The Police Superintendents advised that alcohol is present in half of all crime. The National Association of Probation Officers found that 30% of offenders on probation and 58% of prisoners have severe alcohol problems, and that alcohol is a factor in the prisoners' offence or pattern of offending.
- In 1993, it was found that between 20%-30% of violent offences and disorderly conduct occurred in or near licensed premises.
- The 2000 British Crime Survey found that 44% of domestic violence, 17% of muggings, 53% of stranger violence and 36% of acquaintance violence are perpetrated by assailants under the influence of alcohol (40% of total violence).

- Surveys carried out in 1996 and 1999 found varying proportions of arrestees tested positive for alcohol. In 1996, 32% of aggravated bodily harm, 32% of robbery, 24% of burglary, 36% of joyriding, 46% of criminal damage, and 75% of breach of the peace arrestees tested positive. In 1999, 32% of assault and 75% of robbery, 29% of criminal damage, 61% of breach of the peace, and 30% of vehicle theft arrestees tested positive.
- A 1998 survey of casualty departments found that a quarter of facial injuries were linked to alcohol consumption, with the most common causes being falls (40%) and assaults (25%).
- Up to 1,000 young people a week suffer serious facial injuries as a result of drunken assaults and 18,000 young people are scarred for life each year.  
**IAS Fact Sheet, "Alcohol and Crime", Institute of Alcohol Studies,**  
online: <<http://www.ias.org.uk/factsheets/alcoholandcrime.pdf>>.
- Studies show that in 1999 there were a range of injuries frequently associated with alcohol, including: 69.6% of all assaults, 13% of home accidents, 8% of accidents at work, and 11% of road casualties.  
**Alcohol Concern, "Factsheet 9: Alcohol and Accidents",**  
online: <<http://www.alcoholconcern.org.uk/Information/Factsheets/Newfactsheet9.htm>>
- One cohort study showed that male alcoholics were 15.23 times more likely to die from assaults than age-matched men in the general population.
- Similarly, female alcoholics were 12.50 times more likely to die from assaults than age-matched women in the general population.
- Males aged 16-24 years have the highest rates of "heavier" drinking in Great Britain, and males aged 16-30 years in Great Britain have the highest rates of violence victimization.  
**R.N. Norton & M.Y. Morgan, "The Role of Alcohol in Mortality and Morbidity from Interpersonal Violence" (1989)**  
**24:6 Alcohol & Alcoholism 565 at 566-75.**

## AUSTRALIA

- Alcohol is a major contributing cause of violence in Australia.
- It has been estimated that 47% of all perpetrators of assault and 43% of all victims of assault were intoxicated prior to the event.
- It was estimated that in 1997, there were 124 deaths, 4,381 years of life lost prematurely and 26,882 hospital bed-days due to alcohol-caused violence.
- Measures indicate a consistently high level of alcohol-related violence in Australia during the 1990s.
- It was estimated that in 1998-1999 there were 8,661 people admitted to hospital from alcohol-caused assaults in Australia (4.6 per 10,000 persons). Many more serious alcohol-related assaults were reported to the police (62,534), and still more were unreported.
- Of these hospital admissions, 74% were male and two-thirds were aged 15 to 34 years. About one-third were aged 15-24 years.
- Non-metro areas of the Northern Territory, Western Australia, Queensland, and South Australia had markedly higher levels of hospital admissions for assault than metro regions.
- For all years, the Northern Territory had the highest estimated rate of alcohol-caused assault hospitalizations and also the highest rate of per capita alcohol consumption.
- For most jurisdictions, estimated rates of alcohol-related police reported assaults showed similar trends to alcohol-caused assault hospitalizations.
- Most jurisdictions showed relatively steady trends in alcohol-related violence from 1995-1996 to 1998-1999. Although the Northern Territory and Western Australia showed some evidence of increases in recent years.  
**S. Matthews, T. Chikritzhs, P. Catalano, T. Stockwell & S. Donath, *Trends in Alcohol-Related Violence in Australia, 1991/92-1999/00* (National Drug Research Institute: Perth, Western Australia, 2002). National Alcohol Indicators Bulletin No. 5 (April 2002).**

## Alcohol And Suicide

### CANADA

- In 1992, about 27% of all male suicides and 17% of all female suicides were attributed to alcohol. E. Single, J. Rehm, L. Robson & M.V. Truong, "The relative risks and etiologic fractions of different causes of death and disease attributable to alcohol, tobacco and illicit drug use in Canada" (2000) 162:12 *Canadian Medical Association Journal* 1669, online: <<http://www.cmaj.ca/cgi/content/full/162/12/1669>>.
- Of the 6,503 deaths attributed to alcohol in 1995, 955 deaths (about 15%) resulted from suicide. *Canadian Profile: Alcohol, Tobacco and Other Drugs* (Toronto: Canadian Centre on Substance Abuse and Centre for Addiction and Mental Health, 1999) at 61.

### BRITISH COLUMBIA

- In a British Columbia study of child and youth (under the age of 19) deaths between 1996 and 2000, 34 of the 489 deaths resulted from suicide. Of these suicides, alcohol was mentioned in 71% of the fatality reports and was present in 32% of the deceased. J. Greschner & W. Mitic, "Alcohol in the Lives and Deaths of Children and Youth in British Columbia: Key Findings and Policy Recommendations", online: <[www2.camh.net/kbs/abstracts/MiticW\\_abs.htm](http://www2.camh.net/kbs/abstracts/MiticW_abs.htm)> at 3 and 11.

### ONTARIO

- Suicides (excluding poisoning) accounted for 24% (752) of all injury deaths in 1998-1999. Drugs and/or alcohol were involved in 31% (231) of these suicide deaths. SmartRisk, "Injury Toll Falls in Ontario", online: <<http://www.smartrisk.ca/toll.html>>.

### UNITED STATES

- Alcohol may be a factor in "impulsive" or "spontaneous", as opposed to "planned", suicides.
- It was concluded that the "impulsive suicides" probably would not have been committed had the individuals not been drinking. J.W. Welte, E.L. Abel & W. Wiczorek, "The role of alcohol in suicides in Erie County, NY, 1972-1984" (1988) 103:6 *Public Health Reports* 648-652.
- A study of alcohol use and suicide in the United States between 1934 and 1987 found that when unemployment rates rose, so did per capital alcohol consumption and suicides for the population as a whole, as well as among people under age 60.
- Overall, an increase in alcohol consumption of 1 litre per year increased the risk of suicide by about 3%.
- Among those under age 60, an increase in alcohol consumption of 1 litre per year increased the risk of suicide by about 5%.
- The effect of alcohol consumption on the suicide rate of women is similar to its effect on men.
- The authors suggested that alcohol consumption does not play a significant role in suicides among older people, because alcohol use is lower among this group. Heavy drinking, often associated with suicide, is relatively uncommon among older people, probably because people who drink heavily are less likely to live past age 60. F. Caces & T. Harford, "Time series analyses of alcohol consumption and suicide mortality in the United States, 1934-1987" (1998) 59 *Journal of Studies on Alcohol* 455-461.
- A recent study of three states found that suicide rates among 18-20 year-olds decreased when the minimum legal drinking age was raised to 21. This corresponds to saving 424 lives per year. T.L. Toomey, A.C. Wagenaar, E.H. Harwood & W. Manning, "Effect of minimum legal drinking age on suicides" (Paper presented at the Alcohol Policy Conference IX: Chicago, IL, May 10-13, 1998).

- Suicide is the ninth leading cause of death in the United States, and the third leading cause of death among 15-24 year olds.
- Alcohol is associated with a high percentage of suicides – between 18% and 66% of suicide victims have alcohol in their blood at the time of death.  
Alcohol-Related Injury and Violence (ARIV) 1998, Alcohol and Suicide: Literature Review, online: <<http://www.tf.org/tf/alcohol/ariv/reviews/revsuic5.html>>.

## EUROPE

- According to a review of studies from several different countries, a history of alcohol abuse and heavy drinking was present in 10%-54% of suicides.  
T. Norstrom, O. Hemstrom, M. Ramstedt, I. Rossow & O-J. Skog, "Mortality And Population Drinking: The Post-War Experiences of 14 European Countries" (Paper presented at the 27th annual alcohol epidemiology symposium of the Kettil Bruun Society: Toronto, 28 May - 1 June 2001) at 6,  
online: <[http://www2.camh.net/kbs/abstracts/NorstromT\\_abs.htm](http://www2.camh.net/kbs/abstracts/NorstromT_abs.htm)>.

## GENERAL

- A recent study found that homicide and suicide rates demonstrated positive associations with per capita alcohol consumption in 9 out of 13 countries for which time series analyses were conducted.  
D. Lester, "The association between alcohol and consumption and suicide and homicide rates: A study of 13 nations" (1995) 30 Alcohol and Alcoholism 465.

# PART III: SPECIAL TOPICS IN TRAFFIC-RELATED TRAUMA

## Alcohol, Pedestrians And Cyclists

### CANADA

#### Over the 10-year period, 1988-1997:

- Pedestrian fatalities averaged 486 per year with an average of 15,358 pedestrians injured.
- Overall, males represented 61.5% of pedestrian fatalities while females accounted for 38.5% of fatalities.
- The 65+ age group accounted for 25% of male pedestrian fatalities and 38% of female pedestrian fatalities. Over the period, male fatalities over 64 years old decreased 29.9% and female fatalities over 64 years old decreased 38.8%.
- Pedestrian fatalities decreased 31% compared to a 26% decrease for all road users including pedestrians. Male pedestrian fatalities were down 34% and female pedestrian fatalities were down 27%.  
Transport Canada Fact Sheet #RS2001-01, February 2001,  
online: <[www.tc.gc.ca/roadsafety/STATS/Pedestrians/En/ped\\_rs2001-01\\_e.htm](http://www.tc.gc.ca/roadsafety/STATS/Pedestrians/En/ped_rs2001-01_e.htm)>.
- More than 38% of fatally injured pedestrians who were tested during the 1993-1997 period had BACs above 0.08%.  
Canada's Road Safety Targets to 2010 - Publication by Transport Canada,  
online: <[http://www.tc.gc.ca/roadsafety/tp/tp13736/pdf/CRS\\_Target.pdf](http://www.tc.gc.ca/roadsafety/tp/tp13736/pdf/CRS_Target.pdf)> at 12.
- In 1999, 473 pedestrians were fatally injured and 288 (60.9%) of these pedestrians were tested for alcohol. Among tested pedestrians, 41.0% had been drinking, and most of these had BACs over 0.08%.
- Among fatally injured male pedestrians, 47.2% had been drinking, and 84.0% of these had BACs over 0.08%. Only 27.0% of female pedestrians had been drinking, however 87.5% of these had BACs over 0.08%.
- In 1999, 21.6% of fatally injured bicyclists had been drinking at the time of their collisions, and among these, 87.5% had BACs over the legal limit.  
D.R. Mayhew, S.W. Brown & H.M. Simpson, "The Alcohol-Crash Problem in Canada: 1999" (January 2002),  
online: <[http://www.tc.gc.ca/roadsafety/tp/tp11759/1999/en/pdf/tp11759\\_1999e.pdf](http://www.tc.gc.ca/roadsafety/tp/tp11759/1999/en/pdf/tp11759_1999e.pdf)> at 24-25 and 26-8.

### BRITISH COLUMBIA

- Among non-child pedestrian casualties, coroners' data indicate that 30% of fatally injured pedestrians had BACs greater than 0.08%, and 24% had BACs greater than 0.15%.
- Impaired pedestrian collisions are more likely to take place in business or commercial areas, less likely in residential areas, and more likely in rural areas. 36% of impaired pedestrians were crossing a street with no signal or crosswalk (compared to 26.4% of non-impaired pedestrians) at the time of the collision.  
R.J. Wilson & M.R.D. Fang, "Alcohol and Drug Impaired Pedestrians Killed or Injured in Motor Vehicle Collisions" (International Conference on Alcohol, Drugs and Traffic Safety 2000),  
online: <[www.vv.se/traf\\_sak/t2000/finalpaper.htm](http://www.vv.se/traf_sak/t2000/finalpaper.htm)>.

### ONTARIO

- Of the 428 hospitalizations due to cycling injuries from 1995-1996 to 1999-2000, 31% (134) were tested for alcohol. Of these, 26% (35) had BACs over 0.08%.  
APOLNET-L, "Sports & Recreational Injuries in Ontario",  
online: <<http://www.web.ca/~apolnet/apolnet-l/msg00172.html>>.

## UNITED STATES

- In 2000, 4,739 pedestrians were killed in traffic crashes in the United States, a decrease of 27% from the 6,482 pedestrians killed in 1990. In 2000, a pedestrian was killed in a traffic crash on average every 111 minutes.
- There were 78,000 pedestrians injured in traffic crashes in 2000. On average, a pedestrian was injured in a traffic crash every 7 minutes.
- Alcohol involvement - either for the driver or for the pedestrian - was reported in 47% of the traffic crashes that resulted in pedestrian fatalities. Of the pedestrians involved, 31% had BACs of 0.10% or greater. The intoxication rate for the drivers involved was only 13%, less than one-half that for the pedestrians. In 5% of the crashes, both the driver and the pedestrian were intoxicated.

**Traffic Safety Facts 2000, Pedestrians, NHTSA - National Highway Traffic Safety Administration, US Department of Transportation, online: <<http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/ncsa/tsf2000/2000pedfacts.pdf>>.**

## UNITED KINGDOM

- A study of injured pedestrians in Cardiff found that 46% of those tested for alcohol had BACs above 0.09g/L and 32% had BACs over 1.5g/L.
- In 1997, 37% of fatally-injured adult (> 15 years) pedestrians had a BAC over 0.8g/L. In 1982-1983, the comparable figure 28%.
- In contrast, only 19% of fatally-injured drivers had an illegal BAC in 1998.  
**A.B. Clayton, M.A. Colgan & R.J. Tunbridge, "The Role of the Drinking Pedestrian in Traffic Accidents" (International Conference on Alcohol, Drugs and Traffic Safety, 2000), online: <[www.vv.se/traf\\_sak/t2000/finalpaper.htm](http://www.vv.se/traf_sak/t2000/finalpaper.htm)>.**
- In 1998, 36% of pedestrians killed on the roads had BACs over 0.08%.  
**Alcohol Concern, "Factsheet 9: Alcohol and Accidents", online: <<http://www.alcoholconcern.org.uk/Information/Factsheets/Newfactsheet9.htm>>.**

## SWEDEN

- Of the 286 pedestrian fatalities who were autopsied between 1977 and 1995, blood-alcohol was detected in 19% of the fatalities, with a median concentration of 1.6g/l. The proportion of test-positive victims did not change significantly during the period of study.  
**M. Ostrom & A. Eriksson, "Pedestrian Fatalities and Alcohol" (2001) 33 Accident Analysis & Prevention 173-180 at 173 and 174.**

## INDUSTRIALIZED COUNTRIES

### (FRANCE, UNITED STATES, ENGLAND, AUSTRALIA)

- 30-35% of fatally injured, non-child pedestrians have BACs exceeding 0.08%, with the distribution of BACs among impaired pedestrians skewed toward the very high end.  
**R.J. Wilson & M.R.D. Fang, "Alcohol and Drug Impaired Pedestrians Killed or Injured in Motor Vehicle Collisions" (International Conference on Alcohol, Drugs and Traffic Safety 2000), online: <[www.vv.se/traf\\_sak/t2000/finalpaper.htm](http://www.vv.se/traf_sak/t2000/finalpaper.htm)>.**

## GENERAL

- Fatally injured cyclists were almost twice as likely to be intoxicated as injured cyclists in a trauma centre (22% vs. 13%).  
**D. Dawson, "Alcohol and Mortality from External Causes", National Institute on Alcohol Abuse and Alcoholism (National Institutes of Health), online: <[http://www2.camh.net/kbs/abstracts/DawsonD\\_abs.htm](http://www2.camh.net/kbs/abstracts/DawsonD_abs.htm)> at 2.**

## **Alcohol, Snowmobiles And All-Terrain Vehicles**

### **CANADA**

- Between 1987 and 1998, 70.6% of fatally injured snowmobile operators had consumed alcohol prior to the crash. Of these, 21.3% had a BAC below 0.08%, 25.8% had a BAC between 0.08% and 0.15%, and 52.9% had BACs of 0.15% or higher.  
**D.J. Beirness, "Alcohol Involvement in Snowmobile Operator Fatalities in Canada" (Sept-Oct 2001) 92:5 Canadian Journal of Public Health 359-360 at 359.**
- In 1999, of the fatally-injured snowmobile drivers who had been drinking, 77.1% had BACs over the legal limit.  
**D.R. Mayhew, S.W. Brown & H.M. Simpson, "The Alcohol-Crash Problem in Canada: 1999" (January 2002),**  
online: <[http://www.tc.gc.ca/roadsafety/tp/tp11759/1999/en/pdf/tp11759\\_1999e.pdf](http://www.tc.gc.ca/roadsafety/tp/tp11759/1999/en/pdf/tp11759_1999e.pdf)> at 24-25.

### **ONTARIO**

- After a low of only 3 water-related fatalities in 1997, water-related snowmobiling deaths rose to 11 in 1998 - above the long-term average. Most of these fatal snowmobiling incidents involved alcohol (73%), and the victim was not wearing a personal flotation device or flotation suit (91%).  
**"The Drowning Report: A profile of drownings and water-related deaths in Ontario 2000 edition", Lifesaving Society, online: <<http://www.lifesavingsociety.com/PDF/98DrowningRpt00.pdf>> at 14.**
- Of the 264 hospitalizations due to snowmobiling injuries from 1995-1996 to 1999-2000, 65% (171) were tested for BAC. Of these, 29% (49) had a BAC over the legal limit.
- Of the 110 hospitalizations due to all-terrain vehicle injuries, 54% (59) were tested for BAC. Of these, 31% (18) had BACs over the legal limit.  
**APOLNET-L, "Sports & Recreational Injuries in Ontario",**  
online: <<http://www.web.ca/~apolnet/apolnet-l/msg00172.html>>.

## Alcohol And Motorcycles

### CANADA

- The percentage of fatally injured motorcyclists who were legally impaired decreased steadily from 42.4% in 1993 to 26.5% in 1997.  
**Canada's Road Safety Targets to 2010 - Publication by Transport Canada,**  
online: <[http://www.tc.gc.ca/roadsafety/tp/tp13736/pdf/CRS\\_Target.pdf](http://www.tc.gc.ca/roadsafety/tp/tp13736/pdf/CRS_Target.pdf)> at 12.
- 170 motorcycle drivers were killed in road crashes in Canada in 1999. In 161 of these cases (94.7%), it was possible to determine if alcohol was a factor in the crash.
- 54 (33.5%) motorcycle drivers died in alcohol-related crashes in Canada during 1999.
- The alcohol-related deaths among motorcycle drivers represent 5.2% of all the people killed in alcohol-related crashes in Canada during 1999.
- Of the fatally injured motorcycle drivers who were tested, 66.7% showed no evidence of alcohol, 3.8% had BACs below 0.05%, 4.5% had BACs from 0.05% to 0.08%, 12.1% had BACs from 0.081% to 0.15%, and 12.9% had BACs over 0.15%.  
**D.R. Mayhew, S.W. Brown & H.M. Simpson, "The Alcohol-Crash Problem in Canada: 1999" (January 2002),**  
online: <[http://www.tc.gc.ca/roadsafety/tp/tp11759/1999/en/pdf/tp11759\\_1999e.pdf](http://www.tc.gc.ca/roadsafety/tp/tp11759/1999/en/pdf/tp11759_1999e.pdf)> at 14 and 17-18.

### UNITED STATES

- In 2000, 2,862 motorcyclists were killed and 58,000 were injured in traffic crashes - 15% more than the 2,483 killed and 16% more than the 50,000 injured in 1999.
- Intoxication rates for vehicle operators involved in fatal crashes were 27% for motorcycles, 20% for light trucks, 19% for passenger cars, and 1% for large trucks.
- In 2000, 28% of all fatally injured motorcycle operators were intoxicated (BAC of 0.10% or greater). An additional 11% had BACs of 0.01% to 0.09%. The intoxication rate was highest for fatally injured operators between 40-44 years old (42%), followed by ages 35-39 (39%), and ages 45-49 (34%).
- Almost half (41%) of the 1,203 motorcycle operators who died in single-vehicle crashes in 2000 were intoxicated. Almost three-fifths (57%) of those killed in single-vehicle crashes on weekend nights were intoxicated.
- Motorcycle operators killed in traffic crashes at night were nearly 4 times as likely to be intoxicated as those killed during the day (43% and 12% respectively).
- The reported helmet use rate for intoxicated motorcycle operators killed in traffic crashes was 41%, compared with 61% for fatally-injured sober motorcycle operators.  
**Traffic Safety Facts 2000, Motorcycles, NHTSA - National Highway Traffic Safety Administration, US Department of Transportation,** online: <<http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/ncsa/tsf2000/2000mcyfacts.pdf>>.

## Alcohol And Youth

### CANADA

- Younger drivers are at the greatest risk of being killed per kilometer driven. In 2001, 43.4 Canadian drivers aged 16-19 years were killed in motor vehicle crashes per billion kilometres travelled. This is more than double the number of 20-24 year-old drivers killed (21.1), more than 7 times the number of 25-34 year-old drivers killed (6.0), more than 12 times the number of 35-44 year-old drivers killed (3.6), and 14 times the number of 45-54 year-old drivers killed (3.1).

**The Canadian Council of Motor Transport Administrators, *Road Safety Vision 2010 - The 2001 Update* (Ottawa: Minister of Public Works and Government Services, 2002) at 15.**

- Between 1992 and 1997, the death rate from road crashes among teens dropped only 5%.
- The percentage of fatally injured teen drivers who had been drinking has showed only marginal improvements in recent years. Between 1990 and 1997, the proportion dropped by only 7%. (Pg. vi)
- The percentage of fatally injured teen drivers who had alcohol levels in excess of 0.08% actually increased from 26% to 31% between 1990 and 1997. (Pg. vi)
- Young drivers are the least likely of any age group to drink and drive or to have alcohol levels in excess of the legal limit of 0.08%. For example, a recent roadside survey showed that only 3.6% of the night-time drivers aged 16-19 had been drinking. In contrast, 24.7% of those aged 46-55 had been drinking. Only 0.3% of the teens had alcohol levels over the legal limit, compared to 2.4% of the 46-55 year olds. (Pg. vii)
- 40% of the teenage drivers who were killed had been drinking. 75% of these drinking drivers had BACs over 0.08% and 44% had BACs above 0.15%. (Pg. vii)
- Of young drinking drivers who are killed or seriously injured, the smallest proportion are 16 years old (7.2% and 9.2% respectively), and the largest proportion are 19 years old (46.9% and 37.6% respectively). (Pg. vii)
- Males account for 87% of the fatally injured and 89% of the seriously injured young drinking drivers. (Pg. vii)
- A large percentage of young drinking drivers die or are seriously injured in crashes on the weekend (55% and 49.8% respectively). (Pg. vii)
- The vast majority of young drinking drivers die or are seriously injured in crashes at night (74% and 86% respectively). (Pg. vii)
- Young drinking drivers are more likely to be involved in single-vehicle crashes - 77% of the drinking drivers who died and 91% of those who were injured were involved in a single-vehicle crash. (Pg. vii)

**D.R. Mayhew & H.M. Simpson, "Youth and Road Crashes: Reducing the Risks from Inexperience, Immaturity, and Alcohol" (Ottawa: Traffic Injury Research Foundation - November 1999) at vi - vii.**

- The Canadian Campus Survey was conducted in the fall of 1998. The data represented responses from 7,800 university undergraduate students in 16 universities across Canada. Responses were based on "lifetime" experience, experience over "the past 12 months" (ie. approximately November 1997-October 1998), and "since September" (September 1998-October 1998).
- It was found that 92% of students consumed alcohol at some point in their lives and 87% drank in the "past 12 months".
- During the "past 12 months", students who consumed alcohol reported drinking 1.1 times per week, resulting in 6.5 drinks per week. Moreover, on average, these students reported having 5 or more drinks on 13.4 occasions, and 8 or more drinks on 5.3 occasions during the "past 12 months".
- During the "since September" period, students who consumed alcohol reported drinking 1.1 times a week, resulting in 5.6 drinks per week. On average, they reported having 5 or more drinks on 4.7 occasions, and 8 or more drinks on 1.9 occasions during this time period.
- During the "since September" period, men reported drinking more often than women (1.3 vs. 0.8 times per week), had a higher weekly alcohol intake (7.6 vs. 3.9 drinks per week), and drank 5 or more drinks on a single occasion more often (6.6 vs. 3.2 times).
- 62.7% of students reported drinking 5 or more drinks on a single occasion and 34.8% reported drinking 8 or more drinks on a single occasion in the "since September" period.
- Men were significantly more likely than women to report heavy drinking as measured by 5 or more (70.6% vs. 56.1%), and 8 or more drinks (46.5% vs. 25.2%) on a single occasion at least once in the "since September" period.

- Students reported the following levels of consumption when the reason for drinking was to get drunk (8.9 drinks), celebrate or party (5.7 drinks), forget their worries (5.5 drinks), and feel good (5.4 drinks).
- Of the drinking consequences, students were most likely to report having a hangover (37.6%), regretting their actions (12.6%), memory loss (11.2%), missing classes due to a hangover (10.5), and missing classes due to drinking (7.3%) in the “since September” period.
- Of the hazardous drinking consequences, students were most likely to report having unplanned sexual relations (6.5%), driving a car after drinking too much (4.9%), drinking while driving (3.3%), and having unsafe sex (2.7%). Men were significantly more likely than women to report experiencing both of the drinking and driving consequences.
- 30.4% of students indicated experiencing at least one consequence of dependent drinking. Reports of alcohol dependence were significantly more likely among first-year students (34.1%) and those living on campus (38.7%).

L. Gliksmann, E. Adlaf, A. Demers, B. Newton-Taylor & K. Schmidt, “Canadian Campus Survey, April 2000”, Executive Summary. online: <[http://www.camh.net/press\\_releases/canadian\\_campus\\_survey.pdf](http://www.camh.net/press_releases/canadian_campus_survey.pdf)> 1-8.

## BRITISH COLUMBIA

- A British Columbia review of 489 child and youth (under the age of 19) deaths revealed that alcohol was present in about 40% of the motor vehicle fatalities.

J. Greschner & W. Mitic, “The Role of Alcohol in the Lives and Deaths of Children and Youth in British Columbia” Centre for Addiction and Mental Health, online: <[http://www2.camh.net/kbs/abstracts/MiticW\\_abs.htm](http://www2.camh.net/kbs/abstracts/MiticW_abs.htm)> at 10.

## ONTARIO

- In 2001, 65.6% of all high school students reported drinking during the past year, and 70.6% reported drinking during their lifetime. Past-year drinking varied by grade (increasing from 36.1% for grade 7 students to 86.2% for grade 13 students), and region (students from the North reported the highest rate, at 73.3%).
- The percentage of drinkers remained stable between 1999 and 2001 among the total sample (67.5% to 65.6%).
- Rates of binge drinking (5 or more drinks per occasion) continue to exceed rates found in the early 1990s. Although there was a small decline between 1999 and 2001 (from 28.0% to 25.3%), the 2001 rate remained significantly higher than the 17.7% found in 1993.
- 6.4% of drinkers in 2001 reported binge drinking at least five times during the four weeks before the survey, a percentage significantly higher than in 1995 (3.9%) and 1993 (4.2%).
- In 2001, 9.1% of students (13.9% of drinkers) reported drinking at hazardous levels, a percentage representing 83,400 students. Hazardous drinking varied significantly between males and females (11.4% vs. 6.9%).
- In 2001, 4% (about 36,600 students) reported both alcohol and mental health problems. Among students reporting hazardous drinking, 43% also reported elevated psychological distress.
- In 2001, 0.9% of students (about 8,200) reported having been in a treatment program for alcohol or other drugs during the past 12 months.

E. Adlaf & A. Paglia, “Drug Use Among Ontario Students 1977-2001. Findings from the OSDUS (Ontario Student Drug Use Survey)” Centre for Addiction and Mental Health, online: <[http://www.camh.net/research/pdfs/osdus2001\\_DrugReport.pdf](http://www.camh.net/research/pdfs/osdus2001_DrugReport.pdf)> at v and vi.

## UNITED STATES

- Among drivers aged 15-20, fatal crashes involving a single vehicle at night are three times more likely than other fatal crashes to be alcohol-related.
- A study of the American states that introduced zero or low BAC requirements for young drivers between 1983 and 1992 found a 16% decrease in the proportion of single vehicle nighttime fatal crashes among affected drivers, while the proportion in “control” states actually increased by 1%.

Hingson, R., Heeren, T. & Winter, M., “Lower Legal Blood Alcohol Limits for Young Drivers” (1994) 109:6 Public Health Reports 738-744 at 738.

- In 1995, the crash rate per million miles driven was 34.5 for 16 year-olds, 20.2 for 17 year-olds, 13.8 for 18 year-olds, 12.8 for 19 year-olds, 7.8 for drivers in their 20s, and 3.9 for drivers aged 30-69. The crash risk for 16 year-old drivers was more than twice that of the oldest teenagers, and almost 10 times that of the 30-69 year-old drivers. This was prior to the widespread adoption of comprehensive graduated licensing policies.
- With two, three or more passengers in a vehicle, the fatal crash risk for young drivers is 4-5 times higher than when the youth is driving alone.  
A. Williams, "North America's Approach to the Young Driver Problem" (paper presented at the Novice Drivers Conference: United Kingdom, June 1-2, 2000),  
online: <<http://www.roads.dft.gov.uk/roadsafety/novice/proceed/pdf/12.pdf>> at 3 and 5.
- From 1985 to 1995, drivers younger than 21 years experienced a 50% drop in fatal crashes involving alcohol. Although drivers younger than 21 years were more likely to have consumed 6 or more drinks on at least 1 occasion during the previous month than older drivers, a smaller percentage of younger drivers had BACs of 0.01% or higher.  
Roeper, P.J. & Voas, R.B., "Underage drinkers are separating drinking from driving" (1999) 89 American Journal of Public Health 755-757 at 755.
- Students on campuses that have many binge drinkers experience higher rates of second-hand problems, compared with students on campuses with lower rates of binge drinking. Students who binge drink and live on high-binge campuses are twice as likely to report being assaulted, awakened, or kept from studying by drinking students than are non-binge drinkers and abstainers at low-binge campuses.  
Wechsler, H., Lee, J.E., Kuo, M., and Lee, H., "College Binge Drinking in the 1990s: A Continuing Problem - Results of the Harvard School of Public Health 1999 College Alcohol Study" (2000) 48 Journal of American College Health 199-210 at 209, online: <<http://www.hsph.harvard.edu/cas/rpt2000/rpt2000.pdf>>.
- In 2000, 21% of 15 to 20 year-old drivers who were killed in crashes were intoxicated (had BACs of 0.10% or greater).
- In 2000, 3% of the 15 to 20 year-old drivers involved in property-damage only crashes had been drinking, 5% of those involved in crashes resulting in injury had been drinking, and 22% of those involved in fatal crashes had been drinking.
- The number of 15 to 20 year-old drivers involved in fatal crashes who were intoxicated dropped by 38% between 1990 and 2000.
- For young drivers 15 to 20 years old, alcohol involvement is higher among males than females. In 2000, 26% of the young male drivers involved in fatal crashes had been drinking, compared with 13% of the young female drivers involved in fatal crashes.
- Drivers are less likely to use restraints when they have been drinking. In 2000, 69% of the young drivers of passenger vehicles involved in fatal crashes who had been drinking were unrestrained. Of the young drivers who had been drinking and were killed in crashes, 80% were unrestrained.  
Traffic Safety Facts 2000, Young Drivers, NHTSA - National Highway Traffic Safety Administration, US Department of Transportation, online: <<http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/ncsa/tsf2000/2000ydrive.pdf>>.
- In a study of low BAC limits for drivers under 21 in 30 American states, frequency of driving after any drinking and driving after 5 or more drinks declined 19% and 23% respectively. Lower BAC limits did not affect overall consumption or total number of miles driven.  
Wagenaar, A.C., O'Malley, P.M. & LaFond, C., "Lowered Legal Blood Alcohol Limits for Young Drivers: Effects on Drinking, Driving, and Driving-After-Drinking Behaviors in 30 States" (2001) 91 American Journal of Public Health 801-804 at 801, online: <<http://www.epi.umn.edu/alcohol/pdf/YouthBAC.pdf>>.

## UNITED KINGDOM

- In women, hazardous drinking reaches its peak in the 16-19 age group, with 32% having a hazardous drinking pattern. (Hazardous drinking was defined as drinking bringing the risk of physical or psychological harm now or in the future.)

- In men, the peak is in the 20-24 age group, with 62% having a hazardous drinking pattern.
- A 1991-1992 survey found that more than 25% of boys aged 9-10 and 33% of those aged 10-11 drank alcohol at least once in the previous week, normally at home.
- A 1999 survey in England, Wales and Scotland found that by age 15-16, binge drinking (5 or more drinks in one session) and being “seriously drunk” were common. About half the boys and girls reported drinking 5 or more drinks in a row at least once in the previous month; 40% (42% boys and 38% girls) reported having been drunk at the age of 13 or younger; 48% of boys and girls reported having been drunk at least once in the last month.
- Among 18-24 year olds, about 42% of men and 22% of women exceed what is defined as “regular consumption” (21 drinks a week for men and 14 per week for women).  
**IAS Fact Sheet, “Young People and Alcohol” Institute of Alcohol Studies,**  
online: <<http://www.ias.org.uk/factsheets/alcoholyp.pdf>>.

## EUROPE

- In 1999, more than 57,000 deaths of people aged 15-29 were attributable to alcohol in Europe. 25% of all young male deaths were alcohol attributable, as opposed to 9% of young female deaths.
- Accidents and injuries accounted for the overwhelming majority of deaths with the following rank order: transport accidents, poisonings, self-inflicted injuries and homicide.  
**J. Rehm & G. Gmel, “Average mortality, patterns of drinking and burden of mortality in Europe”,**  
online: <[http://www2.camh.net/kbs/abstracts/RehmJ\\_abs.htm](http://www2.camh.net/kbs/abstracts/RehmJ_abs.htm)> at 2 & 7.

# PART IV: GENERAL TRAFFIC-RELATED TRAUMA

## Canadian Alcohol-Related Traffic Facts

- Between 1986 and 1989, a study was done of those admitted to a trauma unit following a crash. It found that police reported only 68.8% of all the BAC-positive drivers to have been drinking or impaired prior to their crashes. Of the BAC-positive drivers who were interviewed, the percentage of those who were over the legal limit was 63.6%, with 31.8% having BACs of 0.15% or greater.  
**E. Vingilis, G. Stoduto, M.S. Macartney-Filgate, C.B. Liban & B.A. McLellan, "Psychosocial Characteristics of Alcohol-Involved and Nonalcohol-Involved Seriously Injured Drivers" (1994) 26:2 Accident Analysis and Prevention 195-206 at 198-199.**
- In 1996, 41.6% of fatally injured drivers had some alcohol in their blood, 34.9% were over the legal BAC limit of 0.08%, and 25.6% were over 0.15%. Between 1987 and 1996, the percentage of tested fatally injured drivers with no alcohol in their blood has slowly increased from 46.9% to 58.4%.  
**Canadian Profile: Alcohol, Tobacco and Other Drugs (Toronto: Canadian Centre on Substance Abuse and Centre for Addiction and Mental Health, 1999) at 29-30.**
- There were significant reductions in alcohol-related crash deaths from the levels of the early 1980s. However, this downward trend came to an abrupt halt in 1990. Since then, alcohol-related crash deaths have increased slightly (62% in 1981; 43% in 1990; 48% in 1992; and 44% in 1994).
- It is estimated that 1,690 Canadians die and 74,000 are injured each year in alcohol-related crashes. In this study, the term "injury" referred to the total number of injuries of all degrees of severity.  
**D.J. Beirness, D.R. Mayhew & H.M. Simpson, "DWI Repeat Offenders: A Review and Synthesis of the Literature" (Ottawa: Health Canada, 1997) at 10 -11.**
- Younger drivers are at the greatest risk of being killed per kilometer driven. In 2001, 43.4 Canadian drivers aged 16-19 were killed in motor vehicle crashes per billion kilometres travelled. This is more than double the number of 20-24 year-old drivers killed (21.1), more than 7 times the number of 25-34 year-old drivers killed (6.0), more than 12 times the number of 35-44 year-old drivers killed (3.6), and 14 times the number of 45-54 year-old drivers killed (3.1).  
**The Canadian Council of Motor Transport Administrators, Road Safety Vision 2010 - The 2001 Update (Ottawa: Minister of Public Works and Government Services, 2002) at 15.**
- In 1999, 72,925 people were charged with an impaired driving offence in Canada. This is a charge rate of 1 in every 287 licensed drivers. The comparable American rate is 1 in every 121 licensed drivers. (see American Alcohol-Related Traffic Facts).  
**Statistics Canada, Centre for Justice Statistics, 1999. Table 3.4 of Cat# 85-205-XIE; and Canadian Motor Vehicle Traffic Collision Statistics 1999, Transport Canada, online: <[http://www.tc.gc.ca/roadsafety/tp/tp3322/1999/er/page 12-e.htm](http://www.tc.gc.ca/roadsafety/tp/tp3322/1999/er/page%2012-e.htm)>.**
- Among the 2,969 road users that were killed and the 17,500 that were seriously injured in traffic collisions during 1999, alcohol was a factor in more than 1,200 (about 40%) fatalities and more than 3,600 (about 21%) serious injuries.  
**Road Safety Vision 2001 [2000 Update] Publication by Transport Canada (Adopted by the Canadian Council of Motor Transport Administrators - CCMTA), online: <<http://www.tc.gc.ca/roadsafety/vision/2000/pdf/RSV.pdf>> at 10.**
- Of the fatally injured automobile drivers who were tested, 70.0% showed no evidence of alcohol, 2.4% had BACs below 0.05%, 3.0% had BACs from 0.05% to 0.08%, 6.9% had BACs from 0.081% to 0.150%, and 17.7% had BACs over 0.15%. (Pg. 17-18)

- Of the fatally injured motorcycle drivers who were tested, 66.7% showed no evidence of alcohol, 3.8% had BACs below 0.05%, 4.5% had BACs from 0.05% to 0.08%, 12.1% had BACs from 0.081% to 0.15%, and 12.9% had BACs over 0.15%. (Pg 17-18)
- Of all the fatally injured impaired drivers (i.e., BACs over 0.08%), 29.9% were aged 26-35; 20.8% were aged 20-25; 19.9% were aged 36-45; 11.0% were aged 46-55; 10.0% were over 55; and 8.3% were aged 16-19. (Pg. 19)
- Only 21.6% of fatally injured bicyclists had been drinking prior to the collision. However, among those who had been drinking, 87.5% had BACs over the legal limit. (Pg. 24-25)
- 18,787 drivers were involved in crashes in which someone was seriously injured. Among these, 18.5% were alcohol-related crashes. (Pg. 33)

D.R. Mayhew, S.W. Brown & H.M. Simpson, "The Alcohol-Crash Problem in Canada: 1999" (January 2002), online: <[http://www.tc.gc.ca/roadsafety/tp/tp11759/1999/en/pdf/tp11759\\_1999e.pdf](http://www.tc.gc.ca/roadsafety/tp/tp11759/1999/en/pdf/tp11759_1999e.pdf)>.

## **American Alcohol-Related Traffic Facts**

- Drivers with poor driving records have higher rates of impaired driving than drivers with fewer traffic convictions. After examining 254 drivers in a remedial program, it was found that 11.4% of the drivers were convicted for impaired driving. This is five times greater than the rate of impaired driving convictions among the general population.  
**D.M. Donovan, R.L. Umlauf & P.M. Salzberg, "Bad Drivers: Identification of a Target Group for Alcohol-Related Prevention and Early Intervention" (1990) 51:2 Journal of Studies in Alcohol 136-141 at 138.**
- Traffic fatalities in alcohol-related crashes rose by 4% from 1999 to 2000. The 16,653 alcohol-related fatalities in 2000 (40% of total traffic fatalities for the year) represent a 25% reduction from the 22,084 alcohol-related fatalities reported in 1990 (50% of the total).
- The National Highway Traffic Safety Administration (NHTSA) estimates that alcohol was involved in 40% of fatal crashes and in 8% of all crashes in 2000. The 16,653 fatalities in alcohol-related crashes (crashes where one party had at least a BAC of 0.01%) during 2000 represent an average of one alcohol-related fatality every 32 minutes.
- An estimated 310,000 persons were injured in crashes where police reported that alcohol was present - an average of one person injured approximately every 2 minutes.
- Approximately 1.5 million drivers were arrested in 1999 for driving under the influence of alcohol or narcotics. This is an arrest rate of 1 for every 121 licensed drivers in the United States (2000 data not yet available). The comparable Canadian rate is 1 in every 287 licensed drivers.
- In 2000, 31% of all traffic fatalities occurred in crashes in which at least one driver or non-occupant had a BAC of 0.10% or greater.
- 69% of the 12,892 people killed in such crashes were themselves intoxicated (a BAC of 0.10% or greater).
- The highest intoxication rates in fatal crashes in 2000 were recorded for drivers 21-24 years old (27%), followed by ages 25-34 (24 %) and 35-44 (22%).
- Intoxication rates for drivers in fatal crashes in 2000 were highest for motorcycle operators (27%) and lowest for drivers of large trucks (1%). The intoxication rate for drivers of light trucks was higher than that for passenger car drivers (20% and 19% respectively).  
**Traffic Safety Facts 2000, Alcohol, NHTSA - National Highway Traffic Safety Administration, US Department of Transportation, online:< <http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/ncsa/tsf2000/2000alcfacts.pdf>>.**
- A 1999 NHTSA survey indicated that the proportion of the population who reported driving within two hours of drinking in the past year was 23%. This compares with 24% in 1991 and 1993, 20% in 1995, and 21% in 1997.
- The proportion of people who put themselves at risk by riding with a potentially impaired driver declined from 15% in 1991 to about 12% in 1999.  
**Traffic Tech Technology Transfer Series, Issue: February 2001 Number: 242, NHTSA - National Highway Traffic Safety Administration, US Department of Transportation.**
- Alcohol-related fatal crashes are currently a smaller societal problem than they were 10 years ago. However, over 15,000 people still die each year in alcohol-related crashes, and over 12,000 people are killed in crashes involving a person with a BAC of 0.10% or higher. There is evidence that drivers at BACs much higher than 0.10% account for a disproportionate share of the alcohol-crash problem.  
**Traffic Tech Technology Transfer Series, Issue: February 2002 Number: 265, NHTSA - National Highway Traffic Safety Administration, US Department of Transportation, online: <<http://www.nhtsa.dot.gov/people/outreach/traftech/TT265.htm>>.**

## **United Kingdom Alcohol-Related Traffic Facts**

- Alcohol is a contributory factor in 60% of fatal car accidents involving young men between 10 pm and 4 am. Some 30% of pedestrians killed in road accidents are above the legal limit for driving and more have drunk some alcohol up to the limit.

**IAS Fact Sheet, "Alcohol as a Medical and Social Problem (MEDSOC) - Alcohol and Accidents", Institute of Alcohol Studies, online: <<http://www.ias.org.uk/factsheets/medsoc4.htm>>.**

- Since the early 1980s, there has been a substantial decline in drinking and driving, and in the number of alcohol-related deaths and injuries on the roads, which reached their lowest levels in 1998 and 1999. (Pg. 1)
- However, in 2000 - the latest year for which figures are available - the number of casualties increased by 10%, to the highest level for 10 years. (Pg. 1)
- In 2000, there were 18,000 drink-drive casualties (deaths and serious injuries) of all severities. More than 13% of road deaths occurred when someone was driving over the legal alcohol limit. (Pg. 1)
- In recent years, there have been an average of 450 - 580 deaths and over 16,000 injuries involving illegal blood-alcohol levels. Around half of the casualties were people other than the drinking drivers themselves. (Pg. 1)
- On average, there are 200-300 road deaths each year associated with blood-alcohol levels between 10mg%-80 mg%. (Pg. 3)
- The highest rates of drink drive accidents per 100,000 licence holders occur in young men up to 34 years of age, particularly the age group 20-24. (Pg. 3)
- A 1990 roadside survey found that 0.3% of 16-19 year olds were over the legal limit, compared with 0.8% of 20-24 year olds. The breath test failure rate in 1996 among drivers tested following injury accidents was 3.5% for drivers under 20, and 5% for 20-24 year olds. (Pg. 3)
- In 2000, there were 68 drink-drive accidents per 100 thousand licence holders in the 17-19 age group, and 27 drink-drive accidents per 100 million miles driven. In the 20-24 age group, there were 71 drink-drive accidents per 100 thousand licence holders, and 13 drink-drive accidents per 100 million miles driven. In the 25-29 age group, there were 44 drink-drive accidents per 100 thousand licence holders, and 6 drink-drive accidents per 100 million miles driven. (Pg. 5)

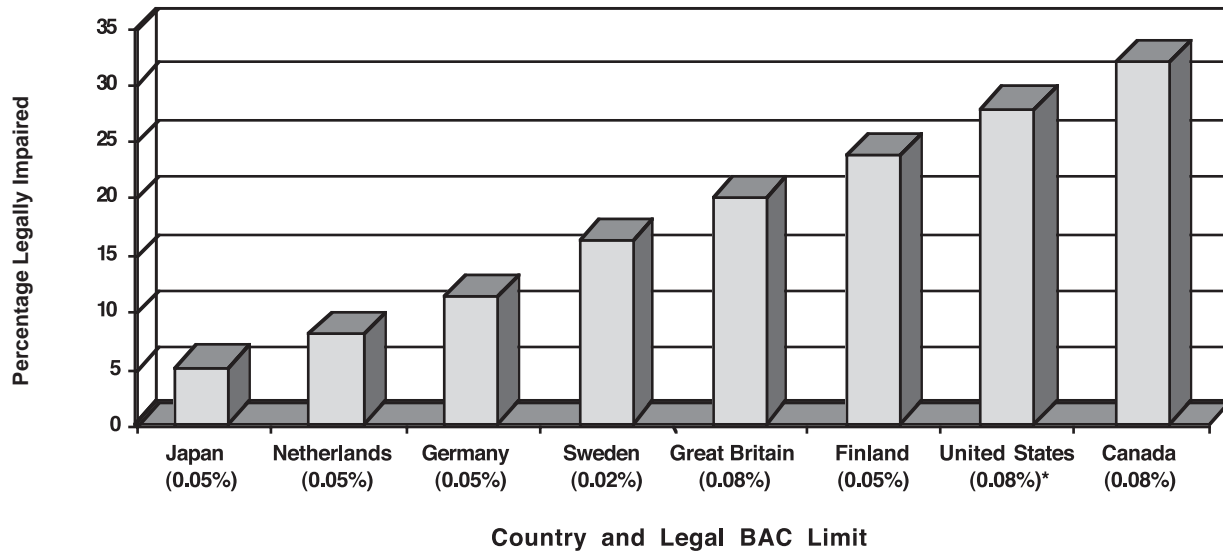
**IAS Fact Sheet, "Drinking and Driving" Institute of Alcohol Studies, online: <<http://www.ias.org.uk/factsheets/alcoholdd.pdf>> 1-11.**

## Australian Alcohol-Related Traffic Facts

- Alcohol is a major cause of road injury in Australia.
  - It was estimated that in 1997, high-risk drinking caused 418 road deaths and 7,789 hospitalizations.
  - The average cost of a single road fatality or hospitalization in Australia has been estimated at about \$750,000 and \$132,000 respectively, resulting in a total of over \$1.3 billion for 1997.
  - The estimated proportions of all driver/pedestrian road fatalities associated with BACs exceeding 0.10mg/ml and 0.15mg/ml were about 28% and 23% respectively (1990-1997).
  - It is estimated that between 1990 and 1997, 31% of all driver and pedestrian deaths on Australian roads were alcohol-related.
  - National rates of alcohol-related road deaths and serious injury declined between 1990 and 1996, broadly following changes in per capita alcohol consumption. Most of this reduction occurred between 1990 and 1992. There was a slight increase from 1993 to 1995.
  - Most jurisdictions followed the national trend. Only Western Australia had slightly higher levels of alcohol-related road injuries by 1997, though other road injuries also increased in that jurisdiction.
  - Over 70% of people with serious alcohol-related road injuries were male, while only 56% of people with other road injuries were male.
  - The average age of alcohol-related crash victims was 27.5, with over 50% between 15 and 24 years of age. The average age for other road injuries was 37.6.
  - The Northern Territory had the largest estimated proportion of alcohol-related fatalities.
- T. Chikritzhs, T. Stockwell, P. Heale, P. Dietze & M. Webb, *Trends in Alcohol-Related Road Injury in Australia, 1990-1997* (National Drug Strategy) National Drug Research Institute: Perth, Western Australia, National Alcohol Indicators Bulletin No. 2 (May 2000), online: < <http://www.curtin.edu.au/curtin/centre/ndri/pdfs/naip002.pdf>> at 1.

## Drinking and Driving Charts

### Legal Impairment Among Fatally Injured Drivers (1997-1998)



\*At the time of the report, the criminal BAC limit was 0.08% in 15 American states and 0.10% in 33 states. Over 60% of American states now have a criminal BAC limit of 0.08%.  
*Road Safety Forum: Beyond 2001 (CD ROM). Ottawa: Transport Canada, 2001.*

### Relative Risk of Fatal Single-Vehicle Crash for Males at Various BACs

	0.020%-0.049%	0.050%-0.079%	0.080%-0.099%	0.100%-0.149%
Age 16-20	4.64	17.32	51.87	240.89
Age 21-34	2.75	6.53	13.43	36.89
Age 35+	2.57	5.79	11.38	29.30

The study used a baseline relative risk of 1.00 for drivers with BACs of 0.00% and of the same age and sex as the respective study groups. That is, 16-20 year-old males were compared to 16-20 year-old males with 0.00% BAC, whose relative risk was taken to be 1.00.

P.L. Zador, S.A. Krawchuk, R.B. Voas, "Alcohol-Related Relative Risk of Driver Fatalities and Driver Involvement in Fatal Crashes in Relation to Driver Age and Gender: An Update Using 1996 Data" (2000) 61 *Journal of Studies in Alcohol*, 387-95.

**BACs of Dead, Alcohol-Positive Drivers\* in Canada: 1990-1999**

Year	Total No. of Drivers Tested	Number and Percentage ( ) of Drivers with BACs at:		
		0.01% - 0.08%	0.081% - 0.150%	> 0.151%
1990	787	155 (20%)	159 (20%)	483 (60%)
1991	785	127 (16%)	168 (21%)	490 (62%)
1992	762	126 (17%)	165 (22%)	471 (62%)
1993	749	115 (15%)	162 (22%)	472 (63%)
1994	703	127 (18%)	143 (20%)	433 (62%)
1995	702	129 (18%)	143 (20%)	430 (62%)
1996	598	97 (16%)	133 (22%)	368 (62%)
1997	576	108 (19%)	122 (21%)	346 (60%)
1998	559	90 (16%)	136 (24%)	333 (60%)
1999	499	90 (18%)	110 (22%)	299 (60%)

This chart is based on data provided by Transport Canada and the Traffic Injury Research Foundation.

\* The figures exclude drivers of bicycles, snowmobiles, as well as farm tractors and other non-highway vehicles.

**Distribution of Traffic Fatalities by Road User Class -1998  
From Selected OECD Member Countries**

Country	% Pedestrians	% Cyclists	% Motorcycle/ Moped Riders	% Motor Vehicle Occupants
Sweden	13.0	10.9	9.8	66.3
United Kingdom	26.5	4.6	14.6	54.3
Switzerland	20.4	7.9	15.4	56.3
Japan	28.3	12.6	18.3	40.7
Norway	14.2	7.1	13.1	65.6
Australia	18.1	2.5	10.3	69.1
Netherlands	10.3	18.2	15.5	56.0
Germany	13.9	8.2	13.0	64.9
Canada	14.1	2.7	5.8	77.4
Finland	15.5	13.5	6.3	64.8
Italy	13.4	5.8	18.9	62.0
Austria	17.1	5.9	12.5	64.5
United States	12.8	1.9	5.6	79.7

Canada's Road Safety Targets to 2010 (Ottawa: Transport Canada, 2000) at 3.

### BACs for Males in Relation to Time, Weight and Standard Canadian Drinks

	2 hours		3 hours	
	180 lbs	200 lbs	180 lbs	200 lbs
2 standard drinks	0.0158%	0.0112%	0.0008%	0.0000%
3 standard drinks	0.0387%	0.0319%	0.0237%	0.0169%
4 standard drinks	0.0617%	0.0525%	0.0467%	0.0375%
5 standard drinks	0.0846%	0.0731%	0.0696%	0.0581%
6 standard drinks	0.1075%	0.0937%	0.0925%	0.0787%
7 standard drinks	0.1304%	0.1144%	0.1154%	0.0994%

### BACs for Females in Relation to Time, Weight and Standard Canadian Drinks

	2 hours		3 hours	
	130 lbs	140 lbs	130 lbs	140 lbs
2 standard drinks	0.0451%	0.0398%	0.0301%	0.0248%
3 standard drinks	0.0827%	0.0746%	0.0677%	0.0596%
4 standard drinks	0.1202%	0.1095%	0.1052%	0.0945%
5 standard drinks	0.1578%	0.1444%	0.1428%	0.1294%
6 standard drinks	0.1953%	0.1793%	0.1803%	0.1643%

The above two charts are based on Canadian standard drinks, which are generally accepted to contain 13.46 grams of alcohol. Moreover, they adopt, with one exception, certain assumptions about human physiology that the National Highway Traffic Association (NHTSA) uses in calculating BACs: *Computing a BAC Estimate*. (Washington: National Highway Traffic Administration, 1994). Rather than using NHTSA's average metabolism rate for a moderate drinker (a 0.017% decrease in BAC per hour), the charts used a lower or conservative metabolism rate (0.015%), which appears to be more widely accepted in Canada: H.R. Fisher, R.I. Simpson, B.M. Kapur, "Calculation of Blood Alcohol Concentration (BAC) by Sex, Weight, Number of Drinks and Time", (1987) 78 Canadian Journal of Public Health at 300-304.

### Charges and Dispositions in Provincial and Territorial Courts: Cumulative Averages from 1994-1998

	No. of Charges	Dispositions				
		Stay/Withdrawal	Acquittal	Guilty	Transfer*	Other**
Impaired Driving (s. 253(a))	55,705	61%	4%	31%	0%	5%
Driving with a BAC over 0.08% (s. 253(b))	53,745	33%	3%	61%	0%	3%
Impaired Driving Causing Death (s. 255(3))	193	43%	3%	23%	28%	3%
Impaired Driving Causing Bodily Harm (s. 255(2))	1,365	45%	3%	33%	16%	3%
Failing to Provide Samples (s. 254(5))	6,450	36%	4%	56%	1%	3%
Driving While Disqualified (s. 259(4))	8,207	21%	0%	74%	1%	4%

\* To a superior court.

\*\* This category includes acquittals due to not guilty by reason of mental disorder, and charges waived out of the province.

Statistics Canada, Canadian Centre for Justice Statistics, *Adult Criminal Court Survey*. See E. Chamberlain and R. Solomon, *MADD Canada's Rating the Provinces: The 2000 Report*, MADD Canada: Toronto, 2000.

### Convictions and Sentences in Canada: Cumulative Averages from 1994-1998

	No. of Charges	No. of Convictions	Sentences*				
			Prison	Probation	Fine	Other	Unknown
Impaired Driving Causing Death (s. 255(3))	193	45	90%	6%	2%	1%	1%
Impaired Driving Causing Bodily Harm (s. 255(2))	1,365	445	76%	13%	9%	1%	1%

\* If more than one sentence is imposed, such as imprisonment and a fine, only the most serious sentence was recorded. Statistics Canada, Canadian Centre for Justice Statistics, *Adult Criminal Court Survey*. See E. Chamberlain and R. Solomon, *MADD Canada's Rating the Provinces: The 2000 Report*, (MADD Canada: Toronto, 2000).



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