

Alcohol, Trauma and Impaired Driving



This publication is a product of the partnership between MADD Canada and the Centre for Addiction and Mental Health. These organizations have many publications on the affects of alcohol and further information can be found on their respective websites.



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Alcohol, Trauma and Impaired Driving

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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 this information, the stronger the project.

This edition of the report is considerably longer and broader in scope than its predecessor. For example, the materials on alcohol consumption and costs, alcohol and fires, and alcohol and the workplace have been expanded. We have also included information on unlicensed or otherwise unauthorized drivers, as well as statistics on drug-impaired driving. The number of charts has been increased and we have placed them as close to the relevant text as possible.

The primary 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 Europe and New Zealand. 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 provides a perspective in assessing how well Canada has fared in addressing certain alcohol-related problems.

Whenever possible, we have relied on the most current and authoritative sources. Preference was given to articles from leading journals, review articles, government sources, and studies from well-recognized organizations, such as the National Highway Traffic Safety Administration, the Canadian Centre on Substance Abuse, the Centre for Addiction and Mental Health, and the Canadian Institute for Health Information. However, it is important to emphasize that we did not conduct a comprehensive review of the research literature, apply defined inclusion criteria, or undertake a systematic assessment of the relative quality of the research. Finally, we have not attempted to verify the findings that the various sources reported. Despite these limitations, this study should provide a useful resource for those interested in alcohol-related trauma and impaired driving in Canada.**

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PART I: GENERAL INFORMATION

SELECTED ALCOHOL FACTS

CANADA

- 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.

- For every 100,000 Canadians, there were 349 men and 193 women hospitalized in 1995/96 due to alcohol.
- In 1995/96, alcohol-attributed hospitalizations accounted for 3.9% (about 51,765) of all hospitalizations for men and 1.6% (about 29,181) of all hospitalizations for women.
- Accidental falls (16,720), followed by 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.

- 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 hospitalizations 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 admissions due to alcohol.
- These estimates of 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 *et al.*, “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 at 1675.

- In a 2002 survey, symptoms of alcohol dependence were reported by almost four times as many Canadians aged 15 and older (2.6% or 640,000) as symptoms of illicit drug dependence (0.7% or 170,000).
- Alcohol dependency was reported by 7% of Canadians (excluding the territories) aged 15 to 24, compared to 2% of those aged 25 to 64.

Statistics Canada, *Canadian Community Health Survey: Mental Health and Well Being (Ottawa: Statistics Canada, 2003) Cat. No. 82-617-XIE.*

- In Canada, every litre increase in per capita alcohol consumption between 1950 and 1998 was accompanied by an increase in accident morality of 5.9 males and 1.9 females per 100,000.

O-J. Skog, "Alcohol consumption and fatal accidents in Canada, 1950-98" (2003) 98 *Addiction* 883.

ONTARIO

- A study of 14 Ontario trauma centres found that 29% of major injury hospitalizations in 2000/01 were alcohol-related. The mean blood-alcohol concentration (BAC) of these cases was 0.15% (p. 3).
- Overall, 86% of the cases involved males, and the 19 to 29 year-old age group constituted the largest proportion (37%) (pp. 3 and 5).
- The leading causes of alcohol-related major injury hospitalizations were motor vehicle crashes (54%), falls (16%), and assaults (14%) (p. 8).
- The average age of the patients in the alcohol-related cases was 36, which was lower than the average age (42) in the remaining major hospitalizations (p. 3).
- Although the total number of cases with positive BACs has increased over time, the proportion that are alcohol-related has decreased from 47% in 1996/97 to 29% in 2000/01 (p. 4).

Canadian Institute for Health Information (CIHI), *Ontario Trauma Registry Bulletin: Alcohol-Related Major Injury Hospitalizations in Ontario, 2000/2001.* (Toronto: CIHI, 2002).

BRITISH COLUMBIA

- The provincial Vital Statistics Agency estimated that 1,689 British Columbians died as a result of alcohol consumption in 2000 (p. 13).
- 12% of women drink during pregnancy, leading to between 200 and 320 babies being born each year in British Columbia with either full or partial foetal alcohol syndrome (FAS). FAS is a set of physical and behavioural characteristics that include growth restrictions, neurological damage, and certain facial features. FAS often results in physical handicaps and mental retardation (pp. 9 & 11).

P. Kendall, *Public Health Approach to Alcohol Policy: A Report of the Provincial Health Officer (British Columbia: Ministry of Health Planning, 2002).*

UNITED STATES

- In 1996, 110,640 deaths were attributable to alcohol consumption in the United States. Since 1979, the number of deaths attributable to alcohol consumption in the United States has not dropped below 103,247.
- National Institute on Alcohol Abuse and Alcoholism, *Number of Deaths and Age-Adjusted Death Rates per 100,000 Population for Categories of Alcohol-Related (A-R) Mortality, United States and States, 1979-96, online: <http://niaaa.nih.gov/databases/ar_mort01.txt>.***
- In 1997, unintentional injuries were the leading cause of death among Americans aged 1-34, and approximately one-third of these deaths were estimated to be alcohol-related.
 - Compared to those who began drinking at the age of 21 or older, those who started before the age of 14, as well as those who started at each intervening age up to 21, were significantly more likely to suffer an unintentional injury while under the influence of alcohol sometime in their life.

R.W. Hingson *et al.*, “Age of Drinking Onset and Unintentional Injury Involvement After Drinking” (2000), 284 JAMA 1527.

- The risk of trauma death is 2.5 to 8 times higher among alcohol abusers than the general public. Patients with an alcohol problem are nearly 5 times more likely to die in motor vehicle crashes, 16 times more likely to die in falls, and 10 times more likely to become fire or burn victims.
- Alcoholism is by far the most common underlying health problem in trauma victims, affecting 25%-40% of patients, compared with a 2%-5% incidence for other co-morbidities.

C.W. Dunn, D.M. Donovan & L.M. Gentilelo, “Practical Guidelines for Performing Alcohol Interventions in Trauma Centres” (1997) 42(2) The Journal of Trauma: Injury, Infection and Critical Care 299.

- 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* (3 November 1999), online: <<http://www.gallup.com/poll/releases/pr991103.asp>>.

- In 2000, there were 19,358 alcohol-induced trauma deaths in the United States, not including motor vehicle fatalities.
- In 2000, there were 26,552 deaths from chronic liver disease and cirrhosis.

National Center for Health Statistics, *Fast Stats A to Z*, online: <<http://www.cdc.gov/nchs/fastats/alcohol.htm>>.

- Alcohol-related traffic deaths rose very slightly from 17,400 in 2001 to 17,419 in 2002. Alcohol-related crashes accounted for 41% of total traffic deaths and 6% of all crashes in 2002 (p. 1).

National Highway Traffic Safety Administration (NHTSA), *Traffic Safety Facts 2002, Alcohol, U.S. Department of Transportation*, online: <<http://www.nrd.nhtsa.dot.gov/pdf/nrd-30/ncsa/tsf2001/2001alcohol.pdf>>.

UNITED KINGDOM

- There are approximately 33,000 alcohol-related deaths a year in Great Britain.
- Alcohol is involved in 15% of traffic deaths, 26% of drownings and 39% of fire deaths.
- 1 in 4 acute male hospital admissions is related to alcohol.
- There were over 28,000 hospital admissions in 1994/95 due to alcohol dependence or the toxic effects of alcohol.

Alcoweb, *Alcohol, Health Statistics* (1996), online: www.alcoweb.com/english/gen_info/frames3/def_frame.html>.

- In 1996, there were approximately 75,000 premature years of life lost in England and Wales that were attributable to alcohol consumption. The main causes of alcohol “contributable” mortality among those 16 to 24 years old were: road traffic fatalities, suicides and assaults. Among those 25 to 34 years old, the 3 leading causes of alcohol-related death were suicides, traffic accidents and liver disease.

A. Britton & K. McPherson, “Mortality in England and Wales attributable to current alcohol consumption” (2001) 55 *Journal of Epidemiology and Community Health*, 383.

- A 1998 study found that 1 in 6 patients at Accident and Emergency (A&E) departments 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 departments had 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>>

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”, *The Globe Magazine* 4 (1999), online: <http://www.ias.org.uk/theglobe/1999issue4/euro_2000.htm>

- In 1999, more than 57,000 people aged 15-29 died in Europe due to alcohol attributable causes, including illnesses.

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>.

- A 2001 study indicated that alcohol plays a very significant role in accidental falls, drownings, fires, and poisonings in northern Europe, particularly among males. This is consistent with studies on Finnish males which found that 31% of fatal falls, 63% of drownings, and 33% of poisoning deaths were alcohol-related.

O-J. Skog, “Alcohol consumption and mortality rates from traffic accidents, accidental falls, and other accidents in 14 European countries” (2001) 96 (Supp. I) *Addiction* S49 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.
- Alcohol-caused death rates among females 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 1996/97, 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 *et al.*, *National Alcohol Indicators Bulletin No. 1: Alcohol-Caused Deaths and Hospitalizations in Australia, 1990-1997* (Perth: National Drug Research Institute, 1999).

CONSUMPTION PATTERNS

CANADA

- In 1998/99, 77% of Canadian males and 68% of Canadian females aged 12 and older reported drinking an average of at least one drink per week in the previous year.
- The largest proportion of regular drinkers in Canada (44%) reported consuming an average of 1-6 drinks each week, while 27% drank less than one drink per week.
- 11% of Canadians 12 years of age and older reported drinking 14 or more drinks weekly.
- Men are significantly more likely than women to be regular drinkers (58% v. 42%).
- Men are also more likely to drink more alcohol per week than women. 16% of men reported drinking 14 or more drinks each week, compared to 4% of women.
- The proportion of regular drinkers increases rapidly from ages 12-14 through ages 25-34, 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 the person is a regular drinker.

Statistics Canada, *Alcohol Consumption, by sex, age group and level of education* (Ottawa: Statistics Canada, 2003), Cat. No. 82M0009XCB, online: <<http://www.statscan.ca/english/Pgdb/health05b.htm>>.

- 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” (i.e. 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 during the 12-month period.
- During the 12-month period, 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 12-month period.
- 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.
- Since September, 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 since September.
- 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 since September.
- 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 measures, 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 et al., *Canadian Campus Survey, April 2000, Executive Summary*, online: <http://www.camh.net/press_releases/canadian_campus_survey.pdf> 1-8.

- In 2000/01, 44.4% of Canadians aged 12 and over admitted to binge drinking in the last year (5 or more drinks on one occasion).
- 67.8% of Canadians aged 20-24 binge drank in the previous 12 months, representing the largest percentage of binge drinkers.

Canadian Institute For Health Information (CIHI), *Frequency of drinking 5 or more drinks on one occasion in the last 12 months, by age group and sex, household population aged 12 and over who are current drinkers, Canada, 2000/01*. (Toronto: CIHI, 2002), Cat. No. 82-221-XIE.

ONTARIO

- In 2001, 65.6% of all high school students reported drinking during the past year. 36.1% of grade sevens used alcohol in the previous year, and the percentage rose to 86.2% by grade 13 (p. i).
- The percentage of students who reported using alcohol in the past year increased from 56.5% in 1993 to 62.6% in 2001 (p. iii).
- 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 (p. v).
- In 2001, 10.7% of students consumed alcohol weekly (p. v).
- 9.1% of students reported drinking at hazardous levels. This percentage equates to 83,400 students. Hazardous drinking varied significantly between males and females (11.4% v. 6.9%) (p. vi).
- In 2001, 0.9% of students reported having been in a treatment program for alcohol or other drugs during the past 12 months (p. vi).
- In 2001, 4% (about 36,600 Ontario students) reported both alcohol and mental health problems. Among students reporting hazardous drinking, 43% also reported elevated psychological distress (p. vi).

E. Adlaf & A. Paglia, *Drug Use Among Ontario Students : Findings From the OSDUS, 1977-2001* (Toronto : Centre For Addiction and Mental Health, 2001).

BRITISH COLUMBIA

- A 1999 study of British Columbia youth showed that by age 13, 44% reported consuming alcohol within the last year and this percentage rose to 80% by age 17. Moreover, 40% of these youth reported engaging in heavy drinking (5 or more drinks in 2 hours) in the month prior to the study (p. 8).
- In 1999, British Columbia (56%) was second only to Quebec (57%) in the proportion of the population (age 12 and over) reporting "regular drinking" (at least one drink each month) (p. 7).
- In 1998/99, 26% of British Columbia residents were "regular heavy drinkers" (5 or more drinks per occasion, 12 or more times per year), according to the National Population Health Survey (p. 10).
- An estimated 1,689 British Columbians died as a result of alcohol consumption in 2000 (p. 13).
- The rate of binge drinking among B.C. high school students increased from 36% in 1992 to 44% in 1998 (p. 10).

P. Kendall, *Public Health Approach to Alcohol Policy: A Report of the Provincial Health Officer* (British Columbia: Ministry of Health Planning, 2002).

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 Alco-hol's Smokescreen*, 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.
- 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.

Pacific Institute for Research and Evaluation, *Drinking in America: Myths, Realities, and Prevention Policy* (Washington: U.S. Department of Justice, Office of Juvenile Justice and Delinquency Prevention, 2001).

- Underage drinkers consume 25% of the alcohol sold in the United States (p. ii).
- In 1998, underage drinkers accounted for up to \$27 of the \$108 billion spent on alcohol in the United States (p. ii).
- Alcohol is a major contributing factor in the three leading teen causes of death - accidents, homicides and suicides (p. ii).
- The financial costs of underage drinking approach \$53 billion in accidents, drowning, burns, violent crime, suicide attempts, fetal alcohol syndrome, alcohol poisoning and emergency medical care (p. ii).
- Each year approximately 3.3 million students between the ages of 12-17 start drinking (p. 2).
- 41% of ninth graders, 49.7% of tenth graders, 50.9% of eleventh graders and 61.7% of twelfth graders currently use alcohol (pp. 2-3).
- In 1999, 41.6% of 12th graders admitting binge drinking at least once in the last 30 days and 5 million teenagers admitted binge drinking at least once a month (p. 3).
- High school students who use alcohol are five times more likely to drop out than high school students who do not (p. 4).
- Teen heavy drinkers and binge drinkers are more than twice as likely as non-drinkers to say they deliberately try to hurt or kill themselves or think about hurting or killing themselves (p. 3).
- Two-thirds of teens who are heavy drinkers also use at least one other illicit drug, compared to only 5.5% of teens who do not drink (p. 4).
- Teen heavy drinkers are 12 times more likely to be on juvenile probation than teens who do not drink (19% vs. 1.5%) (p. 4).
- Current alcohol use is nearly identical between male and female ninth graders (40.2% vs. 41%) as is binge drinking (21.7% vs. 20.2%) (p. 3).

The National Center on Addiction and Substance Abuse (CASA), *Teen Tipplers: America's Underage Drinking Epidemic* (New York: CASA, 2002).

UNITED KINGDOM

- 1 in 25 people in Britain are dependent on alcohol – twice as many as are dependent on other drugs.
- 1.4 million men (6%) and half a million women (2%) drink at very risky levels (over 50 units a week for men and over 35 units a week for women).

Alcoveb, *Alcohol, Health Statistics* (1996), online: <www.alcoveb.com/english/gen_info/alcohol_health_society/statistic/statistic.html>.

- In 2001, those over 14 years of age consumed an average of 10.52 litres of alcohol, which is more than double average consumption in 1956, the first year in which this data was recorded.
- Men reported drinking an average of 15.5 units of alcohol per week and women drank an average of 7.9 units per week.
- In 2001, almost three-fifths of the alcohol consumed was beer, 25% was wine and 17% were spirits.
- Two-thirds of the alcohol is consumed on licensed premises.
- In 2000, over £33.5 billion were spent on alcohol in the U.K., which constitutes 5.4% of all consumer expenditures.

Institute of Alcohol Studies, *Drinking in Great Britain*, (June 2003), online: <www.ias.org.uk/factsheets/alcoholdrinkinggb.pdf>.

- In 2000, 32% of females aged 16-19 in the U.K. had a hazardous drinking pattern (drinking to the point where the individual is at risk of physical or psychological harm) (p. 1).
- In men, hazardous drinking peaks in the 20-24 age group, with 62% reporting such drinking (p. 1).
- The prevalence of drinking in the last week rose from 21% among 11-15 year olds in 1998 and 1999, to 24% in 2002 (p. 2). In 2002, 47% of 15 year olds had consumed alcohol within the last week (p. 3).
- Over 5% of 14-15 year olds and just below 10% of 15-16 year olds reported exceeding the maximum limits of regular consumption recommended for adults (21 drinks per week for men and 14 drinks per week for women) (p. 8).
- Among 18-24 year olds, approximately 42% of men and 22% of women reported exceeding these limits (p. 8).
- A Liverpool hospital reported that children as young as 8 are being admitted with acute alcohol intoxication. While 20 children were treated in 1986, the figure rose to 200 by 1996 (p. 9).
- Figures suggest that up to 50,000 U.K. teenagers are now being admitted with acute alcohol intoxication each year (p. 7)
- A survey of U.K. 15-16 year olds found that they came at or near the top internationally for binge drinking, drunkenness and experiencing alcohol problems (p. 9).
- Approximately half of the boys and girls in the survey reported drinking five or more drinks in a row at least once in the previous month, and 40% reported having been drunk by the age of 13 or younger (p. 9).

IAS Fact Sheet, *Young People and Alcohol* (St. Ives: Institute For Alcohol Studies, April 2003).

ALCOHOL CONSUMPTION CHARTS

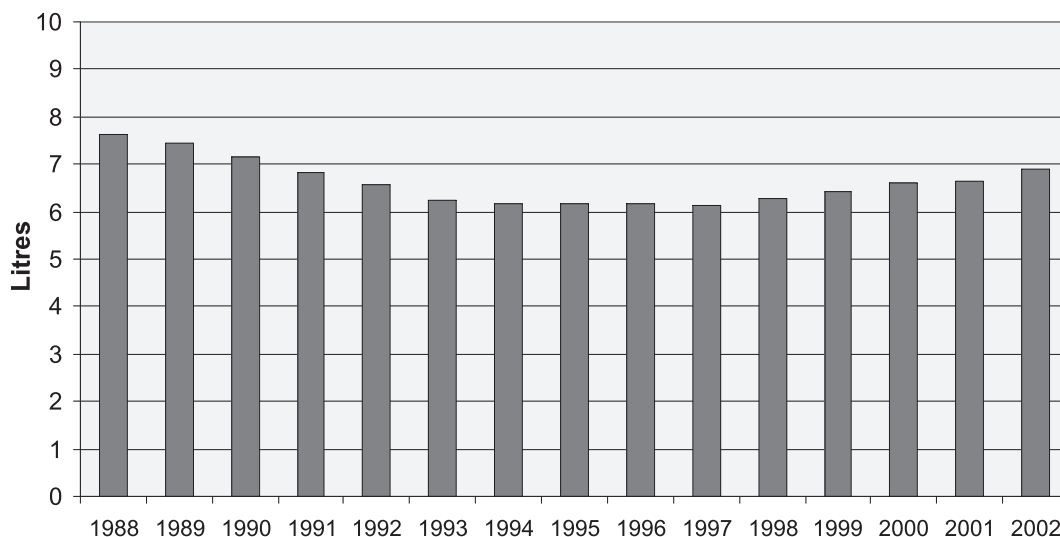
NATIONAL PER CAPITA CONSUMPTION RATES, 1999

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

* “less reliable” information; ** “reliable” information; *** “very reliable” information

Source: Alcoweb, *Evolution of the world consumption of alcohol*, online: <http://www.alcweb.com/english/gen_Info/alcohol_health_society/eco_aspects/consumption/world/world.html>.

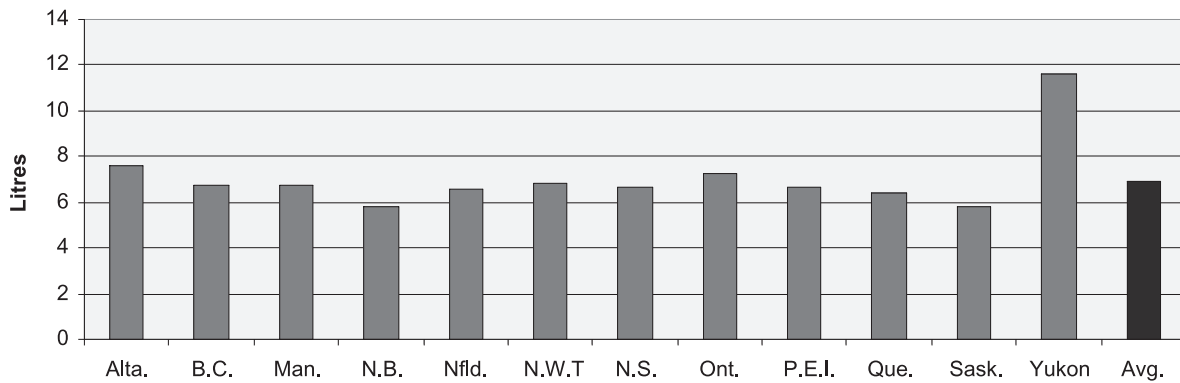
ALCOHOL CONSUMPTION PER CAPITA: CANADA, 1988/02



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.

Source: Brewers Association of Canada, *Annual Statistical Bulletin 1998* (Ottawa: Brewers Association of Canada, 1999) at 39 and Brewers Association of Canada, *Annual Statistical Bulletin 2002* (Ottawa: Brewers Association of Canada, 2003) at 39.

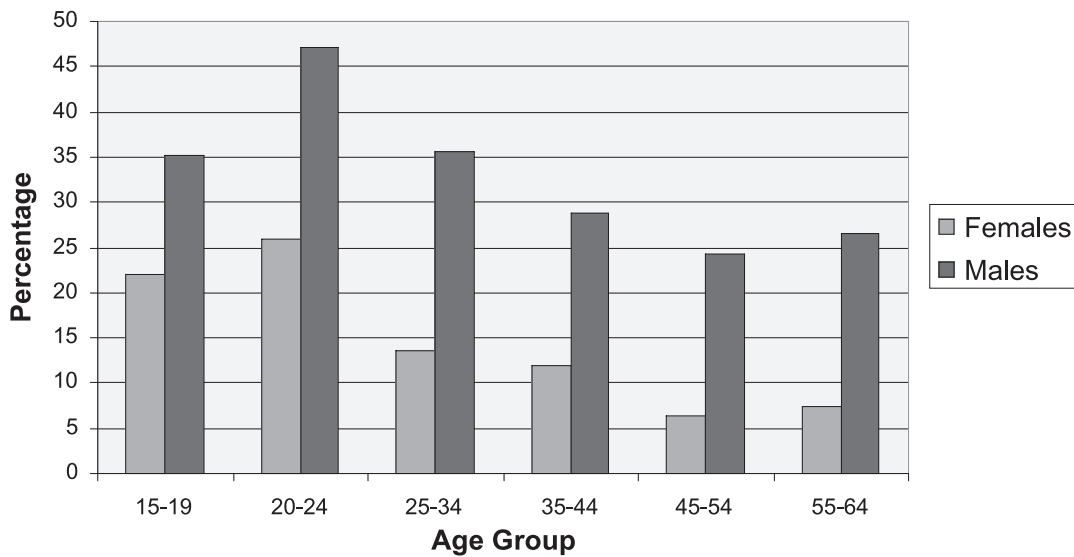
**ALCOHOL CONSUMPTION PER CAPITA:
PROVINCES AND TERRITORIES, 2002**



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

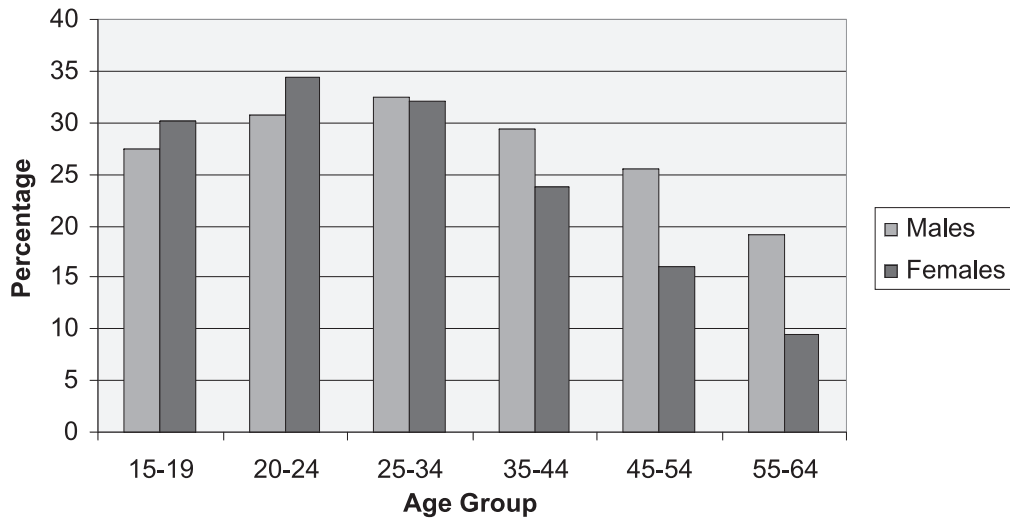
Source: Brewers Association of Canada, *Annual Statistical Bulletin 2002* (Ottawa: Brewers Association of Canada, 2003) at 41-63.

**FREQUENCY OF BINGE DRINKING 12 OR MORE TIMES:
CANADA, 2000/01**



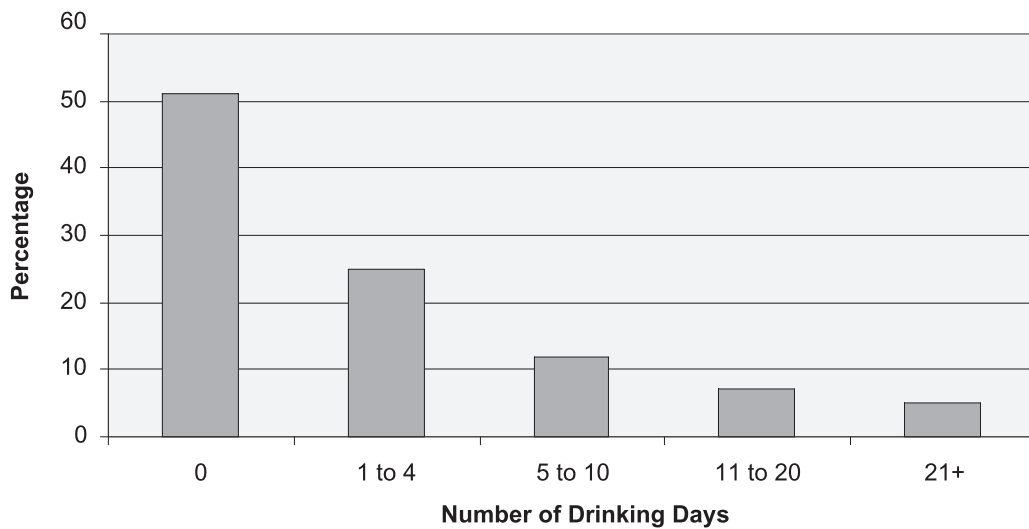
Source: Canadian Institute for Health Information (CIHI), *Frequency of Drinking 5 of More Drinks ... Canada, 2000/01* (Toronto: CIHI, May 2002), Cat. No. 82-221-XIE.

**FREQUENCY OF BINGE DRINKING 1 TO 11 TIMES:
CANADA, 2000/01**



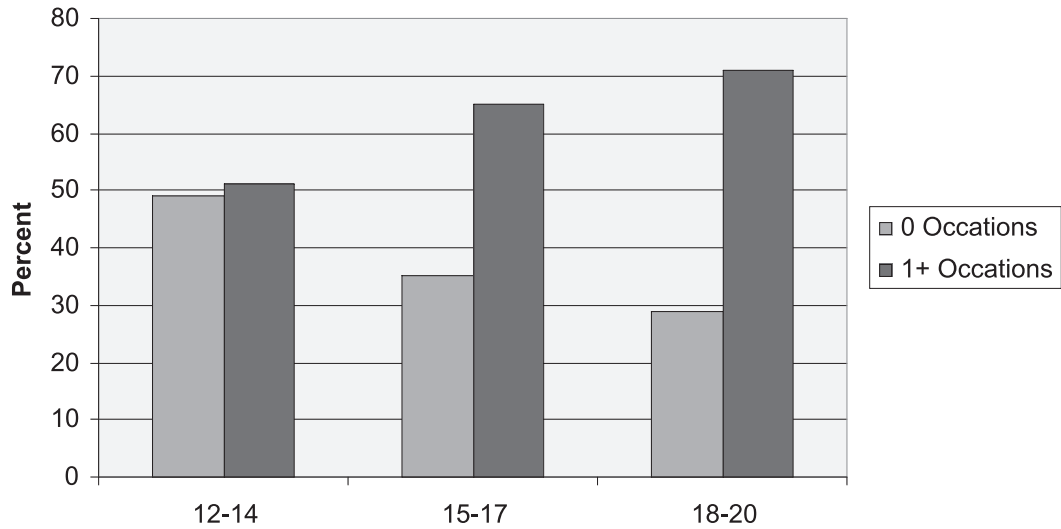
Source: Canadian Institute for Health Information (CIHI), *Frequency of Drinking 5 of More Drinks ... Canada, 2000/01* (Toronto: CIHI, May 2002), Cat. No. 82-221-XIE.

FREQUENCY OF DRINKING AMONG US ADULTS 21 AND OVER WITHIN PAST 30 DAYS



Source: *National Household Survey on Drug Abuse, 1999* (Washington: US Department of Health and Human Services, 2000).

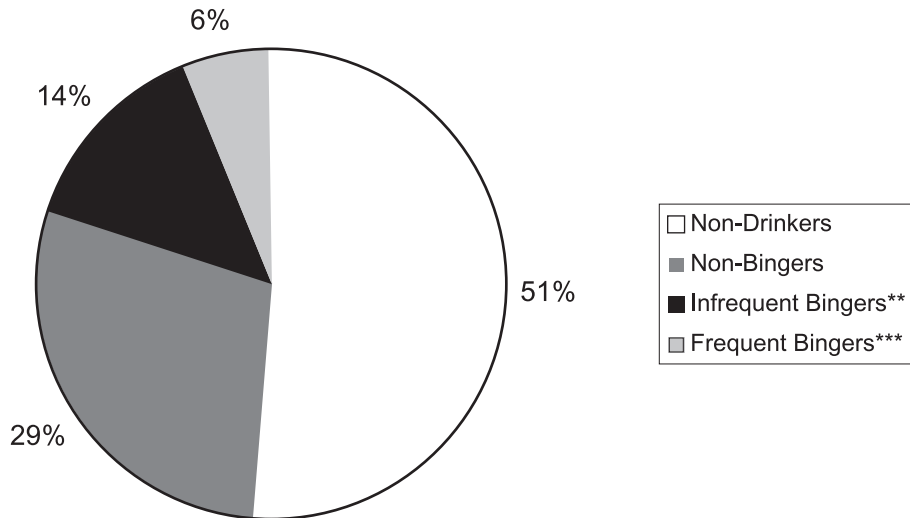
**FREQUENCY OF BINGE DRINKING AMONG US YOUTH 12-21
WITHIN PAST 30 DAYS***



* 5 or more drinks per occasion

**Source: National Household Survey on Drug Abuse, 1999
(Washington: US Department of Health and Human Services, 2000).**

**DRINKING PATTERNS AMONG US ADULTS 21 AND OVER
WITHIN PAST 30 DAYS***

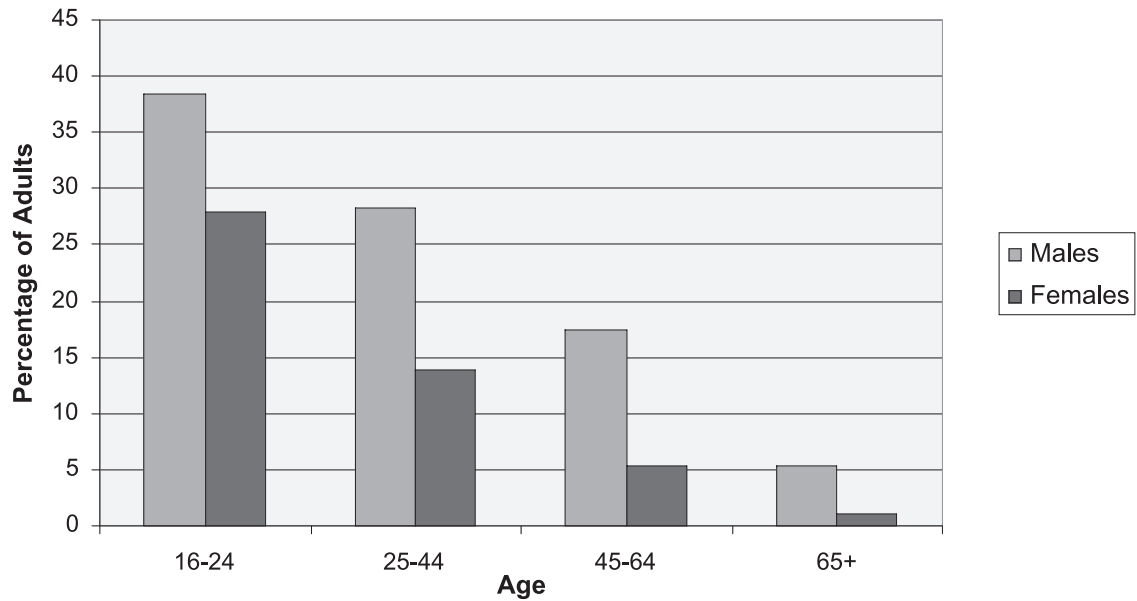


* 5 or more drinks per occasion

** Drinkers who have had five or more drinks at a time less than five times in the past month

*** Drinkers who have had five or more drinks at a time five or more times in the past month

**Source: National Household Survey on Drug Abuse, 1999
(Washington: US Department of Health and Human Services, 2000).**

BINGE DRINKING AMONG UK ADULTS, 2000/01

* Binge drinking was defined as consuming more than 8 units of alcohol for men and 6 units for women per day. These levels are more than double the recommended daily limits. A unit of alcohol in the UK is the equivalent of about 60% of a standard drink in Canada.

**Source: "Binge Drinking Costing Billions" *BBC News* (19 September 2003),
online: <[http:// news.bbc.co.uk/go/pr/fr/-/1/hi/health/3121440.stm](http://news.bbc.co.uk/go/pr/fr/-/1/hi/health/3121440.stm)>.**

COSTS OF ALCOHOL USE

CANADA

Total Economic Costs

- In 1992, alcohol accounted for more than \$7.5 billion in costs, or \$265 per capita (p. 36).
- This represents 41% of the total costs of substance abuse (p. 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 (p. 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 (p. 48).
- In 1992, total policing expenditures were estimated at \$5.394 billion. The policing costs attributed to alcohol were estimated at \$665.4 million (p. 49).

Fire Damage

- Fire damage to property, excluding forest fires, totalled more than \$1.24 billion in Canada in 1992 (p. 50).
- In 1992, the attributable loss for alcohol-related fire damage amounted to \$35.2 million (p. 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 (p. 50).
- It was estimated that alcohol contributed to 15.8% of the motor vehicle property claims, yielding an estimate of \$482.8 million for alcohol-related property damage from motor vehicle accidents (p. 50).

E. Single *et al.*, *The Costs of Substance Abuse in Canada* (Ottawa: Canadian Centre on Substance Abuse, 1996).

BRITISH COLUMBIA

- In 1992, the province's alcohol-related health care costs were estimated at \$179 million annually. Law enforcement costs added \$143 million, with a further \$529 million for lost productivity due to morbidity, premature mortality and crime, and \$93 million for fire damage, traffic accidents and other direct costs (p. 16).
- B.C.'s annual per capita alcohol costs were \$272, which was the third highest in Canada, behind Alta. (\$285) and P.E.I. (\$283) (p. 16).
- The net income of the British Columbia Liquor Distribution Branch was \$642 million in 2000/01 (p. 15).

P. Kendall, *Public Health Approach to Alcohol Policy: A Report of the Provincial Health Officer* (British Columbia: Ministry of Health Planning, 2002).

UNITED STATES

- In 2000, U.S. drivers with BACs of 0.10% and above were involved in an estimated 2,058,400 crashes that killed 12,892 and injured 448,630.
- Drivers with BACs between 0.08% and 0.099% were involved in an estimated 35,410 crashes that killed 1,097 and injured 20,150.
- Drivers with positive BACs below 0.08% were involved in an estimated 69,400 crashes that killed 2,664 and injured 43,730.

- Alcohol is a factor in 26% of the total crash costs. Alcohol-related crashes cost the American public an estimated \$114.3 billion in 2000, including \$51.1 billion in monetary costs and an estimated \$63.2 billion in quality of life losses.
- People other than the drinking driver paid \$71.6 billion of the alcohol-related crash bill.
- The average alcohol-related fatality costs \$3.5 million, which includes \$1.1 million in monetary costs and \$2.4 million in quality of life losses.
- The estimated cost per injured survivor of an alcohol-related crash averaged \$99,000, which includes \$49,000 in monetary costs and \$50,000 in quality of life losses.
- Crash costs averaged \$5.80 per mile driven at BACs of 0.10% and above, \$2.50 per mile driven at BACs between 0.08% and 0.099%, and \$0.10 per mile driven at BACs of 0.00%.
- Alcohol-related crashes accounted for an estimated 18% of the \$103 billion in U.S. auto insurance payments. Reducing alcohol-related crashes by 10% would save \$1.8 billion in insurance payments and loss adjustment expenses.

National Highway and Traffic Safety Administration, *Impaired Driving in the United States*, online: <www.nhtsa.dot.gov/people/injury/alcohol/impaired_driving_pg2/us.htm>.

- The cost of motor vehicle crashes in the United States in 2000 was \$230.6 billion (p. 1).
- The lifetime economic cost to society for each fatality is over \$977, 000. More than 80% of this amount is attributable to lost workplace and household productivity (p. 1).
- In 2000, alcohol-involved crashes resulted in 16,792 fatalities, 513,000 non-fatal injuries, and \$50.9 billion in economic costs (22% of all crash costs) (p. 2).
- Drivers and non-occupants with BACs of 0.10% or greater accounted for 75% of all alcohol-involved crash costs (p. 2).
- The impact of alcohol involvement increases with injury severity. Alcohol-involved crashes accounted for 10% of property damage only crash costs, 21% of non-fatal injury costs and 46% of fatal injury costs (p. 2).

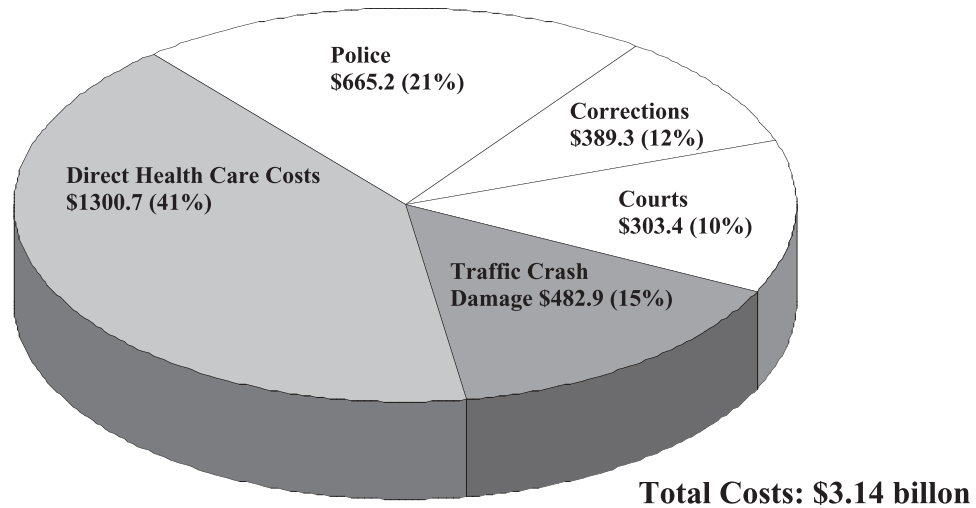
Lawrence Blincoe *et al.*, *The Economic Impact of Motor Vehicle Crashes 2000*, (Washington: National Highway Traffic Safety Administration, 2001), online: <<http://www.nhtsa.dot.gov/people/economic/ecoimpact2000/index.htm>>.

UNITED KINGDOM

- A 2003 report estimated that alcohol-related problems cost the U.K. £20.1 billion a year. Of this total, £6.4 billion was attributable to lost productivity, £1.7 was attributable to health problems, £4.7 billion arose from human and emotional costs, and £7.3 billion was due to physical costs. The authors suggested that these figures may be conservative estimates.

United Kingdom, Prime Minister's Strategy Unit, *The United Kingdom's Alcohol Problem* (London: Cabinet Office, 2003).

COSTS OF ALCOHOL IN MILLIONS: CANADA, 1992



Source: E. Single et al., *The Costs of Substance Abuse in Canada* (Ottawa: Canadian Centre on Substance Abuse, 1996) at Table 4.

**ESTIMATED COST OF IMPAIRED DRIVING CRASHES:
CANADA, 1999***

All Impaired	Fatal	Personal Injury	Property Damage Only	Total
Number of Crashes	1,039	57,624	153,748	212,410
Real Dollar Costs (millions) **	\$284	\$1,414	\$237	1,935
Deferred Future Income (millions) ***	\$864	\$1,157	\$943	\$2,964

* Includes alcohol and drug impairment.

** The real dollar costs include vehicle repairs, medical costs and insurance payouts.

*** Deferred future income includes the real dollar costs plus lost days of work, reduced employment opportunities, and shortened life span.

Source: M. Marshall & B. Mercer, *Estimating the Presence of Alcohol and Drug Impairment in Traffic Crashes and their Costs to Canadians: A Discussion Paper* (Vancouver: Applied Research and Evaluation Services, July 2002) at 29.

PART II: NONTRAFFIC-RELATED TRAUMA

ALCOHOL, DROWNING AND BOATING

CANADA

- Drowning is the second leading cause of unintentional death for Canadians under 65 years old, exceeded only by motor vehicle accidents.
- In 1998, there were 551 drownings in Canada, down from 685 in 1993.
- Alcohol was involved in 42% of preventable water-related deaths involving victims aged 18 and over from 1990 to 1998.
- From 1990 to 1998, 40% of boating accidents were alcohol related, and they constituted 36% of the total preventable water-related deaths in Canada.
- In 1998, alcohol was involved in 36% of 1998 water-related deaths involving adults.

Lifesaving Society, *National Drowning Trends Report Since 1990* (Ottawa: Lifesaving Society, 2001).

BRITISH COLUMBIA

- Alcohol was present in one-third of the drownings among those under 19 years old.

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> at 10.

ONTARIO

- Alcohol consumption was involved in 39% of the preventable water-related deaths from 1996-2000 (p. 22).
- Alcohol involvement is twice as high among adult men (51%) compared to adult women (24%) (p. 22).
- Alcohol was involved in 78% of the fatal incidents after dark (p. 22).
- Between 1996 and 2000, the activities with the highest rates of alcohol involvement were walking near water (73%), snowmobiling (71%), sport fishing (52%), powerboating (48%), canoeing (43%) and daily living boat travel (40%) (p. 22).
- The average BAC for alcohol-positive victims was 0.166%. The average BACs for boating and snowmobile drowning victims were 0.164% and 0.150% respectively (p. 22).
- From 1996 to 2000, 25% of all Ontario drowning victims, 23% of victims in boating incidents, 42% of canoeing victims, and 46% of victims in snowmobiling incidents had BACs above 0.08% (p. 22).
- Alcohol intoxication has been the second most frequent cause of death, cited by Ontario coroners in preventable water-related deaths, involved in 41 (28%) deaths per year on average from 1996 to 2000 (p. 22).

Lifesaving Society, *The Drowning Report: A Profile of Drownings and Water-Related Deaths in Ontario, 2003 edition* (Toronto: Lifesaving Society, 2000).

- In 2000, there were 50 boating fatalities in Ontario, 46% of which involved alcohol.

Lifesaving Society, *Ontario Boating Fatalities 2003* (Toronto: Lifesaving Society, 2003), online: <www.lifesavingsociety.com/PDF/98OntarioBoatingFatalities2003edition.pdf>.

- During the 2001 boating season, alcohol was a factor in 50% of the marine fatalities investigated by the OPP. **J.H. McDonnell, C. Hughes & L. Lee-Davidson, “Ontario Provincial Police Specialized Patrols Trails and Waterways Enforcement Snowmobile All-Terrain Vehicle Vessel Enforcement (S.A.V.E.) Teams”, in D. Mayhew and C. Dussault eds., *Proceedings of the 16th International Conference on Alcohol, Drugs and Traffic Safety – T’2002* (Montreal: Société de l’assurance automobile du Québec, 2002).**

UNITED STATES

- A review of the research literature between 1950 and 1985 indicated that alcohol was involved in between 25% and 50% of all adult drownings.

J. Howland & R. Hingson, “Alcohol as a risk factor for drowning: a review of the literature (1950-1985)” (1988) 20 *Accid. Anal. And Prev* 19.

- In 1988, about one-fifth of all drowning deaths resulted from boating accidents. Between 20% and 50% of recreational boaters reported drinking while boating.
- In 1990, drownings were the third leading cause of accidental death in the United States, accounting for over 5,000 fatalities.
- A review of the relevant literature reveals that alcohol was involved in 27% to 47% of drownings; the median value for the studies 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 drowned, one-third had been drinking at the time.

C.J. Cherpitel, “The Epidemiology of Alcohol-Related Trauma” (1992) 16(3) *Alcohol Health & Research World* 191 at 194.

- In 1998, 800 people died in the U.S. while involved in recreational boating. Data from 4 states with high testing rates suggest that 51% of people involved in boating fatalities had BACs of at least 0.04% and 30% had BACs above 0.10%.

G.S. Smith *et al.*, “Drinking and Recreational Boating Fatalities: A Population-Based Case-Control Study” (2001) 286(23) *JAMA* 2974.

- In 2001, the U.S. Coast Guard received reports of 6,419 recreational boating accidents, involving 681 fatalities and 4,274 injuries (p. 6).
- In 2001, alcohol was involved in 594 boating accidents, down from 696 in the previous year (p. 33).
- Alcohol-involvement accounted for 34% of all boating fatalities, up 8% from 1999 (p. 6).
- The Coast Guard estimates that boat operators with BACs above 0.10% are ten times more likely to be killed than boat operators with a 0.00% BAC (p. 6).

United States Coast Guard, *Boating Statistics - 2001* (Washington: U.S. Department of Transportation, February 2003), online: <<http://www.uscg.org/DesktopDefault.aspx?tabid=54>>.

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>>.

EUROPE

- Alcohol plays a very significant role in drownings in northern Europe, particularly among males. This has been confirmed by studies on Finnish males, in which 63% of drowning deaths were found to be alcohol related.

O-J. Skog, “Alcohol consumption and mortality rates from traffic accidents, accidental falls, and other accidents in 14 European countries” (2001) 96(Supp. I) *Addiction* S49 at S55.

ALCOHOL AND FALLS

CANADA

- 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 hospital days involved accidental falls (308,224 days), indicating the serious nature of such injuries. Although accidental falls accounted for only 6% (408) of alcohol-related deaths, they accounted for 20% of hospitalizations and 27% of hospital days attributed to alcohol.
- In contrast, motor vehicle accidents accounted for 22% of deaths, but only 13% of hospitalizations and 12% of hospital days.

E. Single *et al.*, “Morbidity and Mortality Attributable to Alcohol, Tobacco, and Illicit Drug Use in Canada” (1999) 89(3) American Journal of Public Health 385 at 386.

- Of the 6,503 deaths attributed to alcohol in 1995, 452 (about 6%) deaths 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.***
- In 2000/01, more than one-half of all injury admissions were due to unintentional falls. These injuries accounted for over 1.3 millions days in hospital, which represented 71% of all days in hospital due to injury. ***Canadian Institute for Health Information (CIHI), National Trauma Registry, 2003 Report (Ottawa: CIHI, 2003) at 7.***

ONTARIO

- Falls accounted for 16% of the alcohol-related major injury hospitalizations in 14 Ontario trauma centres from 1996/97 to 2000/01.
- In 2000/01, 27% of the 203 people, who were hospitalized due to a fall and tested, had BACs at or above 0.08%.

Canadian Institute for Health Information (CIHI), *Ontario Trauma Registry Bulletin July 2002: Alcohol-Related Major Injury Hospitalizations in Ontario, 2000/2001 (Toronto: CIHI, 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 non-fatal accidental 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 an average of 28% of people fatally injured in falls had been drinking prior to the 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 at 194.

UNITED KINGDOM

- A 1998 survey of casualty departments found a quarter of facial injuries were linked to alcohol consumption, with the most common causes being falls (40%) and assaults (25%).

Institute of Alcohol Studies, *IAS Fact Sheet: Alcohol and Crime* (St. Ives: Institute of Alcohol Studies, 2003) online: <<http://www.ias.org.uk/factsheets/alcoholandcrime.pdf>>.

- The most common type of alcohol-related accident in 1998 was falls, which accounted for 41% of all alcohol-related home injuries.

Alcohol Concern, *Factsheet 9: Alcohol and Accidents* (Great Britain: 2001), online: <<http://www.alcoholconcern.org.uk/Information/Factsheets/Newfactsheet9.htm>>.

EUROPE

- An early Finnish study of falls requiring emergency room treatment found that, relative to those with a BAC of 0.05% or less, the risk of a fall was 3 times greater for people with a BAC of between 0.10% and 0.15%, and 60 times greater for those with a BAC of 0.16% or higher.

R.L. Honkanen *et al.*, “The role of alcohol in accidental falls” (1983) 44(2) *Journal of Studies of Alcohol* 231.

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 was \$35.2 million.
- Of the 6,701 deaths attributed to alcohol in 1992, 123 (about 2%) deaths resulted from fires.

E. Single *et al.*, *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%) deaths 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 estimates of alcohol-related fire deaths and costs are far lower than comparable American and United Kingdom estimates.**

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 indicated 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 the fatally-injured were intoxicated at the time of death. Alcohol was present most frequently 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 at 194.

- A New Jersey study found that 29.5% of people who died of fire, burns or smoke inhalation had been drinking prior to or at the time of their death, and that the average BAC among these victims was 0.19%.

D. Barillo & R. Goode, "Substance abuse in victims of fire" (1996) 17(1) *Journal of Burn Care and Rehabilitation* 71.

- Alcohol has been implicated in more than half of fatal residential fires. In this study of the 190 fatalities, 124 victims (65%) were male, 78 victims (41%) were home alone, and 69 (53%) of the 130 adult victims whose BACs were measured were intoxicated (BAC above 0.10%).
- Those most likely to die were children under 5 years old, those 64 years of age or older, individuals who were physically or cognitively disabled and those who were impaired by alcohol or other drugs.
- Of the 48 fatalities among those under 18 years of age, 14 victims died in 9 fires without adult supervision. 7 victims died in 4 fires in which 1 or more of the surviving adults had been judged as impaired by alcohol or other drugs.

S.W. Marshall *et al.*, "Fatal Residential Fires: Who dies and who survives?" (1998) 279 *JAMA* 1633 at 1636.

- Fires and burns are responsible for at least 5,000 deaths and 1.4 million injuries a year in the United States - the 4th leading cause of unintentional injury deaths in the country.
- Alcohol contributes to about 40% of residential fire deaths, approximately 85% of which occur in single-family homes and duplexes.

Healthlink, Medical College of Wisconsin, *Preventing Home Fires During the Holidays*, (December 2001), online: <www.healthlink.mcw.edu/article/1008273330.html>.

UNITED KINGDOM

- A series of studies by the Department of Forensic Medicine at Glasgow University found a positive BAC in 50% of fire deaths. 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 – 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

CANADA

- 22% of Canadians report using alcohol on the job (p. 7).
- Alcohol impairment is a major cause of unemployment, absenteeism and workplace accidents (p. 9).
- The most frequent workplace alcohol problems were absenteeism (cited as “often” by 35% of enterprises), impaired performance (30%), lateness (33%), and reduced motivation (29%) (p. 9).
- Workers who misuse alcohol and drugs tend to leave their jobs, voluntarily or involuntarily, sooner than other workers (p. 14).
- Lower-status workers, young people and males are most likely to experience a workplace problem due to their use of alcohol or other drugs (p. 8).
- Illicit drug users are more likely to engage in disruptive behaviour, such as spreading rumours, intentionally doing poor work, pilfering, and vandalism (p. 18).
- Annual productivity losses in Canada due to alcohol use have been estimated at \$4.1 billion (p. 24).

E. Single, *Substance Abuse and the Workplace in Canada* (Toronto: Canadian Centre on Substance Abuse, 1998).

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. The 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 those in the oil and gas extraction, construction, telecommunications, and the manufacturing industries.

Alberta Alcohol and Drug Abuse Commission, *Alcohol Use and the Alberta Workplace*, online: <http://corp.aadac.com/alcohol/profiles/alcohol_use_workplace.asp>.

UNITED STATES

- 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 ER studies on non-fatal work injuries shows that an average of 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, at 194-95.

- 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%).

- 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 3 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](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.
- 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.
- In 1995, productivity losses attributable to alcohol were estimated at \$119 billion.
- Absenteeism among alcoholics or problem drinkers is 3.8 to 8.3 times greater than normal and up to 16 times greater among employees with both alcohol and other drug-related problems.

National Institute on Alcohol Abuse and Alcoholism, *Alcohol Alert, Alcohol and the Workplace*, online: <<http://www.niaaa.nih.gov/publications/aa44.htm>>.

- 6.6% of Americans employed in full-time jobs report heavy drinking, defined as drinking five or more drinks per occasion on five or more days in the past 30 days.
- 4.9% of part-timers and 10.4% of unemployed workers also report heavy drinking.
- The highest percentage of heavy drinkers (12.2%) are unemployed workers aged 26-34.
- 60% of alcohol-related work performance problems can be attributed to employees who are not alcohol dependent, but who occasionally drink too much on a work night or drink during a weekday lunch.
- 21% of workers have reported being injured or put in danger, having to re-do work or to cover for a co-worker, or needing to work harder due to others’ drinking.

National Council on Alcoholism and Drug Dependence, *Alcohol and Other Drugs in the Workplace*, **online:** <www.ncadd.org/facts/workplac.html>.

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 0.08%.

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

- It is estimated that alcohol misuse is responsible for between 8-14 million days of lost work at a cost to industry of about 700 million English pounds.

Institute of Alcohol Studies, *Alcohol and the Workplace*, online: <www.ias.org.uk/factsheets/alcoholworkplace.pdf>.

- In the United Kingdom, 25% of accidents at work involve intoxicated workers.
- Alcohol-related problems costs British industry an estimated £2 billion a year due to absenteeism and poor work performance (this figure does not include the 25% of workplace accidents which are alcohol-related).

Alcoveb, *Alcohol, Health: Statistics*, (1996), online: <http://www.alcoveb.com/english/gen_info/alcohol_health_society/statistic/statistic.html>.

- The absence of an alcoholic employee is on average 3.3 times longer and the frequency of stoppages is 1.4 times higher than in the whole workforce. The average rate of absenteeism is 20 days a year for non-drinking employees, but 32 days a year for confirmed alcoholics.
- More than 70% of an employee's financial burden resulting from alcoholic employees is due to absenteeism.

Alcoveb, *Alcohol, Health: Alcohol & Work*, (1996), online: <http://www.alcoveb.com/english/gen_info/alcohol_health_society/alco_social_env/socio_prof_env/work/work.html>.

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/>>.

ALCOHOL AND SPORTS

ONTARIO

- Of the 310 people who were hospitalized in Ontario for a major sports/recreational injury in 1999/00, 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 from 1988 to 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 to 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 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%) deaths 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.***
- 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% v. 19%).
- Federal inmates who reported not using either drugs or alcohol during a six-month period in freedom reported an average of 1.7 crimes a week. Those who used one or more substances without being dependent 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.
- Alcohol intoxication was a dominant characteristic in the various violent crimes committed by the federal inmates. 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. Pernanen *et al.*, *Proportions of Crimes Associated with Alcohol and Other Drugs in Canada (Ottawa: Canadian Centre on Substance Abuse, April 2002)*, online: <[http:// www.ccsa.ca/docs/crime2002.pdf](http://www.ccsa.ca/docs/crime2002.pdf)> (Executive Summary at 5-11).

ONTARIO

- Assaults accounted for 15% of the alcohol-related major injury hospitalizations from 1996/97 to 2000/01. ***Canadian Institute for Health Information (CIHI), Ontario Trauma Registry Bulletin July 2002: Alcohol-Related Major Injury Hospitalizations in Ontario, 2000/2001 (Toronto: CIHI, 2002) at 10.***

BRITISH COLUMBIA

- About half of the 4,944 spousal assaults reported in B.C. were alcohol-related. This proportion has not changed substantially since 1993 (p. 11).
- In 2000, about 5% of parents of children under 12 said drinking is a source of tension or disagreement at home. Children in these families are being exposed to inappropriate consumption and are at increased risk of alcohol misuse themselves (p. 11).

P. Kendall, *Public Health Approach to Alcohol Policy: A Report of the Provincial Health Officer (British Columbia: Ministry of Health Planning, 2002)*.

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, with alcohol-related homicide rates 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.

- In 1996, corrections authorities supervised an estimated 5.3 million offenders a day. Nearly 2 million (36%) had been drinking at the time of the offence (p. vi).
- Among violent offenders in 1996, 41% of probationers, 41% of those in local jails, 38% of those in state prisons, and 20% of those in federal prisons were estimated to have been drinking when they committed the crime (p. vii).

U.S. Department of Justice Bureau of Statistics, *Alcohol and Crime* (Washington: 1998), online: <<http://www.ojp.gov/bjs/pub/pdf/ac.pdf>>.

- 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>>.

- 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 find that more than 25% 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 indicate 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” (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.

UNITED KINGDOM

- 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 (p. 573).
- Similarly, female alcoholics were 12.50 times more likely to die from assaults than age-matched women in the general population (p. 573).
- 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 (p. 574).

R.N. Norton & M.Y. Morgan, “The Role of Alcohol in Mortality and Morbidity from Interpersonal Violence” (1989) 24(6) *Alcohol & Alcoholism* 565.

- A 1995 study 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.

- The same 1995 study found that between 20%-30% of violent offences and disorderly conduct occurred in or near licensed premises.
- The 2001/02 British Crime Survey found that 45% of domestic violence, 19% of muggings, 58% of stranger violence, and 51% of acquaintance violence are perpetrated by assailants under the influence of alcohol (47% of total violence).
- In 1999, 32% of assault, 75% of robbery, 29% of criminal damage, 61% of breach of the peace, and 30% of vehicle theft arrestees tested positive for alcohol.
- A 1998 survey of casualty departments found that a quarter of facial injuries were linked to alcohol consumption.
- Up to 1,000 young people per week suffer serious facial injuries as a result of drunken assaults - 18,000 young people are scarred for life each year.
- In England and Wales, approximately 70% of crime audits published in 1998 and 1999 identified alcohol as an issue, particularly in relation to public disorder.
- A recent survey of police murder investigations from 3 police force areas in England and Wales found that in 52% of all adult male-on-male homicides analysed, either the victim or the offender had been drinking, often to excess.

IAS Fact Sheet, *Alcohol and Crime*, Institute of Alcohol Studies (May 2003), online:
<http://www.ias.org.uk/factsheets/alcoholandcrime.pdf>.

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 has been 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 1998/99, 8,661 people were admitted to hospital from alcohol-caused assaults (4.6 per 10,000 persons). An additional 62,534 serious alcohol-related assaults were reported to the police and still more were unreported.
- Of these hospital admissions, 74% were male and two-thirds involved 15 to 34 years olds. 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 1995/96 to 1998/99. Although the Northern Territory and Western Australia showed some evidence of increases in recent years.

S. Matthews *et al.*, *National Alcohol Indicators Bulletin No. 5: Trends in Alcohol-Related Violence in Australia, 1991/92-1999/00* (Perth: National Drug Research Institute, 2002).

ALCOHOL AND SUICIDE

CANADA

- About 27% of all male suicides and 17% of all female suicides were attributed to alcohol in 1992. **E. Single *et al.*, “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 at 1670.**
- 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 deaths among those under 19, 34 of the 489 deaths between 1996 and 2000 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> at 3 and 11.**

ONTARIO

- Suicides (excluding poisonings) accounted for 24% (752) of all injury deaths in 1998/99. 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

- 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.
 - 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 consumption on the suicide rate of women is similar to its effect on men.
 - It was suggested that alcohol consumption does not play a significant role in suicide 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.**
- 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 *et al.*, “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 9th leading cause of death in the United States, and the 3rd 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.
- People who drink are twice as likely, and people whose drinking results in trouble at work are six times as likely, as others to commit suicide in the home.
- A recent study found that states in which more spirits are sold per capita have higher suicide rates and concluded that a 10% increase in spirits sales would result in a 1.4% increase in a state's suicide rate.
- One study suggests that alcohol may be a factor in “impulsive” or “spontaneous” as opposed to planned suicides. Alcohol was found to be involved more frequently in suicides in which the victim left no suicide note, had not made a prior suicide attempt, and had no long-standing physical or mental condition to which the suicide could be related.

Alcohol-Related Injury and Violence (ARIV) 1998, *Alcohol and Suicide: Literature Re-view*, online: <<http://www.tf.org/tf/alcohol/ariv/reviews/revsuic5.html>>.

- In 2000, 12-17 year olds who used alcohol were approximately 2.25 times more as likely to be “at risk” for suicide than those who did not.

U.S. Department of Health and Human Services, *National Household Survey on Drug Abuse Report: Substance Use and the Risk of Suicide Among Youths* (July 2002), online: <www.samhsa.gov/oas/2k2/suicide/suicide.htm>.

UNITED KINGDOM

- About 65% of suicide attempts in the United Kingdom are linked to heavy drinking.
- Alcoweb, *Alcohol, Health Statistics* (1996), online: <www.alcoveb.com/english/gen_info/alcohol_health_society/statistic.statistic.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 *et al.*, “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>.

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 TRAUMA

ALCOHOL AND PEDESTRIANS

CANADA

- Of the 295 fatally injured pedestrians who were tested in 1997, 45% had been drinking.
- The majority of the alcohol-positive pedestrian fatalities had BACs over 0.08%, and the average BAC was 0.210%.

Transport Canada, Transport Canada Fact Sheet #RS2001-01 (February 2001), online: <www.tc.gc.ca/radsafety/STATS/Pedestrians/En/ped_rs2001-01_e.htm>.

- In 2000, of the 420 fatally injured pedestrians, 245 (58.3%) were tested for alcohol. Among those, 37.6% had positive BACs (p. 27).
- Among the fatally injured pedestrians aged 26 to 35, 76.5% had a positive BAC and 67.6% had BACs over 0.15% (p. 27).
- Males account for 82.6% of the fatally injured pedestrians who had been drinking, and 83.1% of the fatally injured pedestrians with BACs over 0.08% (p. 29).

D.R. Mayhew, S.W. Brown & H.M. Simpson, *The Alcohol-Crash Problem in Canada: 2000* (Ottawa: Traffic Injury Research Foundation, 2002), online: <http://www.tc.gc.ca/roadsafety/tp/tp11759/2000/en/pdf/tp11759_2000e.pdf>.

BRITISH COLUMBIA

- Among non-child pedestrian casualties, coroners' data indicated that 30% of fatally injured pedestrians had BACs greater than 0.08%, and 24% had BACs greater than 0.15%.
- Impaired pedestrian fatalities are more likely to take place in business, commercial and rural areas, and less likely in residential areas. At the time of the collision, 36% of impaired pedestrians were crossing a street with no signal or crosswalk, compared to 26.4% of non-impaired pedestrians.

R.J. Wilson & M.R. Fang, "Alcohol and Drug Impaired Pedestrians Killed or Injured in Motor Vehicle Collisions" in H. Laurell and F. Schlyter eds., *Proceedings of the 15th International Conference on Alcohol, Drugs and Traffic Safety, 2000 – T'2000* (Stockholm: International Council on Alcohol, Drugs and Traffic Safety, 2000), online: <www.vv.se/traf_sak/t2000/finalpaper.htm>.

UNITED STATES

- In 2002, 4,808 pedestrians were killed in traffic crashes in the United States, a decrease from the 4,901 killed in 2001. On average, a pedestrian is killed in a traffic crash every 109 minutes (p. 1).
- There were 71,000 pedestrians injured in traffic crashes in 2002. On average, a pedestrian is injured in a traffic crash every 7 minutes (p. 1).
- Males accounted for 68% of the pedestrian fatalities and 59% of the injuries (p. 1).
- In 2002, almost one-fourth (23%) of the 5 to 9 year olds killed in traffic crashes were pedestrians (p. 2).
- Alcohol involvement - either for the driver or for the pedestrian - was reported in 46% of the traffic crashes that resulted in pedestrian fatalities. Of the pedestrians involved 38% had positive BACs and 34% had BACs of 0.08% or greater. Of drivers involved, 17% had positive BACs and 13% had BACs of 0.08% or greater. In 5% of the crashes, both the driver and the pedestrian were intoxicated (p. 4).

National Highway Traffic Safety Administration (NHTSA), *Traffic Safety Facts 2002, Pedestrians*, US Department of Transportation, online: <<http://www-nrd.nhtsa.dot.gov/pdf/nrd30/ncsa/tsf2002/2002pedestrians.pdf>>.

- In 2001, 53% of pedestrians aged 16 and older who were killed in night-time motor vehicle crashes had BACs of 0.08% or greater.

Insurance Institute For Highway Safety, “Fatality Facts: Pedestrians” (November, 2002), online: <www.hwysafety.org/safety_facts/fatality_facts/peds.htm>.

UNITED KINGDOM

- A study of injured pedestrians in Cardiff found that 46% of those tested had positive BACs, and 32% had BACs over 0.15%.
- In 1997, over one-third (37%) of fatally-injured adult (over 15 years old) pedestrians had BACs over 0.08%, compared to 28% in 1982-83.

A.B. Clayton, M.A. Colgan & R.J. Tunbridge, “The Role of the Drinking Pedestrian in Traffic Accidents” in H. Laurell and F. Schlyter eds., *Proceedings of the 15th Inter-national Conference on Alcohol, Drugs and Traffic Safety, 2000 – T’2000* (Stockholm: International Council on Alcohol, Drugs and Traffic Safety, 2000), online: <http://www.vv.se/traf_sak/t2000/finalpaper.htm>.

- In 2000, 47% of fatally injured pedestrians aged 16 and over had positive BACs. 33% had BACs above 0.08%, 33% had BACs above 0.15%, and 22% had BACs above 0.20%.

IAS Fact Sheet, *Drinking and Driving*, Institute of Alcohol Studies (March 2003), online: <<http://www.ias.org.uk/factsheets/alcoholdd.pdf>> at 4.

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 0.16%. The proportion of alcohol-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 at 173 and 174.

ALCOHOL AND CYCLISTS

CANADA

- Over the 13-year period from 1987 to 1999, 24.7% of fatally injured cyclists in Canada were found to have positive BACs and 81.5% of those had BACs of 0.08% or greater (p. 3-4).
- Among 36-55 year olds, 31.9% of fatally injured cyclists during the same time period had positive BACs (p. 5).

D.J. Beirness, “Alcohol Involvement in Recreational Vehicle Operator Fatalities in Canada” in D. Mayhew and C. Dussault eds., *Proceedings of the 16th International Conference on Alcohol, Drugs and Traffic Safety* (Montreal: Société de l’assurance automobile du Québec, 2002), online:

<www.vv.se/traf_sak/t2000/finalpaper.htm>.

- In 2000, 37.5% of fatally injured bicyclists had been drinking prior to their accidents. Among those who had been drinking, 55.6% had BACs over 0.08% (p. 24).

D.R. Mayhew, S.W. Brown & H.M. Simpson, *The Alcohol-Crash Problem in Canada: 2000*

(Ottawa: Traffic Injury Research Foundation, 2002), online: <http://www.tc.gc.ca/roadsafety/tp/tp11759/2000/en/pdf/tp11759_2000e.pdf>.

ONTARIO

- Of the 428 hospitalizations due to cycling from 1995/96 to 1999/00, 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 2002, 662 cyclists were killed, a decrease from 732 in 2001. An additional 48,000 were injured in traffic crashes (p. 1).
- Cyclists accounted for 12% of all non-motorist traffic fatalities in 2002 (p. 1).
- Males accounted for 90% of all cyclist fatalities and 75% of all injuries (p. 3).
- In 37% of the fatal crashes, either the driver or the cyclist had a positive BAC. In 31% of the crashes either the driver or the cyclist had a BAC of 0.08% or more (p. 2).
- 27% of the cyclists killed had a positive BAC and 24% were intoxicated (p. 2).

National Highway Traffic Safety Administration (NHTSA), *Traffic Safety Facts, 2002, Pedalcyclists*, US Department of Transportation, online: <<http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/ncsa/tsf2001/2001pedal.pdf>>.

- In 2001, 82% of fatally-injured bicyclists reportedly were not wearing helmets and 24% had BACs of 0.08% or greater.

Insurance Institute For Highway Safety, *Fatality Facts: Bicycles*, (November, 2002), online: <www.hwysafety.org/safety_facts/fatality_facts/bikes.htm>.

UNITED KINGDOM

- In 2000, 22% of all fatally-injured cyclists aged 16 and over had positive BACs. 14% had BACs over 0.08% and 8% of cyclists had BACs over 0.20%.

IAS Fact Sheet, *Drinking and Driving*, Institute of Alcohol Studies (March 2003), online: <<http://www.ias.org.uk/factsheets/alcoholdd.pdf>> at 4.

ALCOHOL AND SNOWMOBILING

CANADA

- Between 1987 and 1999, there were 743 deaths in snowmobile accidents in Canada (p. 3).
- Among those fatally injured, 71.2% had positive BACs, 17.9% had BACs between 0.081% and 0.15%, and 38.8% had BACs of 0.15% or greater (p. 4).
- Fatally injured snowmobile drivers are 2.47 times more likely to have been drinking than not drinking (p. 3).

D.J. Beirness, “Alcohol Involvement in Recreational Vehicle Operator Fatalities in Canada” in D. Mayhew and C. Dussault eds., *Proceedings of the 16th International Conference on Alcohol, Drugs and Traffic Safety* (Montreal: Société de l’assurance automobile du Québec, 2002), online: <www.vv.se/traf_sak/t2000/finalpaper.htm>.

- In 2000, 62% of the 50 fatally-injured snowmobile drivers had positive BACs. Of these, 83.9% had BACs over the legal limit (p. 24).

D.R. Mayhew, S.W. Brown & H.M. Simpson, *The Alcohol-Crash Problem in Canada: 2000* (Ottawa: Traffic Injury Research Foundation, 2002), online: <http://www.tc.gc.ca/roadsafety/tp/tp11759/2000/en/pdf/tp11759_2000e.pdf>.

ONTARIO

- Of the 264 hospitalizations due to snowmobiling injuries from 1995/96 to 1999/00, 65% (171) were tested for alcohol. Of these, 29% (49) had BACs over the legal limit.

APOLNET-L, *Sports & Recreational Injuries in Ontario*, online: <<http://www.web.ca/~apolnet/apolnet-l/msg00172.html>>.

- 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. Alcohol was involved in 73% of these fatalities, and in 91% of the incidents, the victim was not wearing a personal floatation device or a flotation suit.

Lifesaving Society, *The Drowning Report: A profile of drownings and water-related deaths in Ontario 2000 edition* (Ottawa: Lifesaving Society, 2000), online: <<http://www.lifesavingsociety.com/PDF/98DrowningRpt00.pdf>> at 14.

- During the 2000/01 snowmobile season, 36 people died in snowmobiling fatalities within OPP jurisdiction.

J.H. McDonnell, C. Hughes & L. Lee-Davidson, “Ontario Provincial Police Specialized Patrols: Trails and Waterways Enforcement, Snowmobile All-Terrain Vehicle Vessel Enforcement (S.A.V.E.) Teams” in D. Mayhew and C. Dussault eds., *Proceedings of the 16th International Conference on Alcohol, Drugs and Traffic Safety* (Montreal: Société de l’assurance automobile du Québec, 2002), online: <[http://www.saaq.gouv.qc.ca/t2002/actes/pdf/\(00a\).pdf](http://www.saaq.gouv.qc.ca/t2002/actes/pdf/(00a).pdf)>.

UNITED STATES

- 15 of 37 people killed in snowmobile accidents in Maine between 1990/91 and 1995/96 had BACs above the legal limit.
- During the same period, 1355 snowmobile incidents were investigated and alcohol was determined to be a contributing factor in 13%. However, alcohol use was not specifically investigated in all cases.

Center For Disease Control, *Injuries and Deaths Associated with Use of Snowmobiles – Maine, 1991-1996*, (January 1997), online: <www.cdc.gov/mmwr/preview/mmwrhtml/00045549.htm>.

ALCOHOL AND ALL-TERRAIN VEHICLES (ATV)

CANADA

- From 1987 to 1999, 255 people died in Canada from ATV accidents. Of these, 55.7% had positive BACs, 13.3% had BACs between 0.081% and 0.015%, and 31.4% had BACs above 0.015% (p. 4).
- 26 to 35 year olds were more likely than any other age group to have positive BACs at the time of death (73.2%) (p. 5).

D.J. Beirness, "Alcohol Involvement in Recreational Vehicle Operator Fatalities in Canada" in D. Mayhew and C. Dussault eds., *Proceedings of the 16th International Conference on Alcohol, Drugs and Traffic Safety* (Montreal: Société de l'assurance automobile du Québec, 2002), online:

<www.vv.se/traf_sak/t2000/finalpaper.htm>.

- The Canadian Institute for Health Information reports that the number of people hospitalized due to ATV injuries has climbed almost 50% from 1996/97 to 2000/01.
- 2535 people were hospitalized due to ATV accidents in 2000/01.
- ATV injuries are now the third most common cause of severe sports and recreation injuries, after cycling and snowmobiling.
- Of the 92 ATV-related severe injury admissions in 2001/02 where the BAC was recorded, 26% involved prior consumption of alcohol.

Canadian Institute For Health Information, *ATV Injuries Resulting in Hospitalization on the Rise*, (February 2003), online: <http://secure.cihi.ca/cihiweb/disPage.jsp?cw_page=media_05feb2003_e#fall>.

ONTARIO

- Of the 110 hospitalizations due to ATV injuries from 1995/96 to 1999/00, 54% (59) were tested for alcohol. Of these, 31% (18) had BACs in excess of 0.08%.

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.

Transport Canada, *Canada's Road Safety Targets to 2010*, online: <http://www.tc.gc.ca/roadsafety/tp/tp13736/pdf/CRS_Target.pdf> at 12.

- Alcohol-related deaths among motorcycle drivers represent 8.1% of all the people killed in alcohol-related crashes in Canada during 2000 (p. 21).
- In 2000, 49 motorcycle drivers died in alcohol-related crashes in Canada (p. 21).
- Of the fatally injured motorcycle drivers who were tested, 34.5% were positive for alcohol, 10.5% had BACs below 0.08% and the remaining 24% had BACs of 0.08% or greater (p. 23).

D.R. Mayhew, S.W. Brown & H.M. Simpson, *The Alcohol-Crash Problem in Canada: 2000* (Ottawa: Traffic Injury Research Foundation, 2002), online: <http://www.tc.gc.ca/roadsafety/tp/tp11759/2000/en/pdf/tp11759_2000e.pdf>.

UNITED STATES

- In 2002, 3,244 motorcyclists were killed in the United States, a 1% increase from 2001. An additional 65,000 motorcyclists were injured in 2002, a 7% increase from 2001 (p. 1).
- Motorcyclists are about 26 times more likely to be killed and 5 times more likely to be injured in a traffic crash per mile travelled than passenger car occupants (p. 2).
- 38% of the motorcyclists involved in fatal crashes were speeding and 25% did not have a valid licence. Compared to passenger car drivers in fatal collisions, motorcyclists were approximately twice as likely to have been speeding and driving without a valid licence.
- In 2002, 40% of fatally injured motorcyclists had positive BACs and 32% had BACs of 0.08% or higher (p. 4).
- In 2002, the rates of driving with BACs of 0.08% or greater in fatal crashes were 231% for motorcycles, 23% for light trucks, 22% for passenger cars and 2% for large trucks (p. 4).
- The intoxication rate was highest for fatally injured motorcyclists between 40 and 44 years of age (47%), followed by 35 to 39 year olds (42%), and 30 to 34 year olds (39%) (p. 4).
- Motorcycle operators killed in crashes at night were more than 3 times as likely to be intoxicated as those killed during the day (44% v. 14%) (p. 5).
- The reported rate of helmet use for intoxicated motorcycle operators killed in traffic crashes was 40%, compared with 60% for sober riders (p. 5).

National Highway Traffic Safety Administration (NHTSA), *Traffic Safety Facts 2002, Motorcycles*, US Department of Transportation, online: <<http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/nrsa/tsf2001/2001mcycle.pdf>>.

- In 2001, 17% of fatally injured motorcyclists had BACs of 0.15% or higher.
- In 2001, 70% of fatally injured motorcyclists with BACs over the legal limit had their accident between midnight and 3:00 a.m.

Insurance Institute for Highway Safety, *Fatality Facts: Motorcycles* (Virginia: November, 2002), online: <www.hwysafety.org/safety_facts/fatality_facts/alcohol.htm>.

UNITED KINGDOM

- In 2000, 24% of fatally-injured motorcycle riders aged 16 and over had positive BACs. 10% of riders had BAC's above 0.08%, 5% had BACs over 0.15%, and 4% had BACs over 0.20% (p. 15).

IAS Fact Sheet, *Drinking and Driving* (St. Ives: Institute of Alcohol Studies, 2003), online: <<http://www.ias.org.uk/factsheets/alcoholdd.pdf>>.

ALCOHOL, DRUGS AND YOUTH

CANADA

- 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% (p. 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 (p. vi).
- Young drivers are the least likely of any age group to drink and drive or to have alcohol levels in excess of 0.08% (p. vii).
- 40% of the teenage drivers who were killed had been drinking. 75% of the drinking drivers had BACs over 0.08% and 44% had BACs above 0.15% (p. 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) (p. vii).
- Males account for 87% of the fatally injured and 89% of the seriously injured young drinking drivers (p. vii).
- A large percentage of young drinking drivers die or are seriously injured in crashes on the weekend (55% and 49.8% respectively) (p. vii).
- The vast majority of young drinking drivers die or are seriously injured in crashes at night (74% and 86%, respectively) (p. 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 (p. vii).

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

- In 2000, the percentage of alcohol-related and crash deaths was 39.2% of 16-19 year olds, and 41.4% for 20-25 year olds.

D.R. Mayhew, S.W. Brown & H.M. Simpson, *The Alcohol-Crash Problem in Canada: 2000* (Ottawa: Traffic Injury Research Foundation, 2002), online: <http://www.tc.gc.ca/roadsafety/tp/tp11759/2000/en/pdf/tp11759_2000e.pdf> at 14.

- 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 fatalities for 20-24 year-old drivers (21.1), more than 7 times the fatalities for 25-34 year-old drivers (6.0), more than 12 times the fatalities for 35-44 year-old drivers (3.6), and 14 times the fatalities for 45-54 year-old drivers (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.

- By far the majority of those who report driving after marijuana or other illegal drug use are under 30 years of age, and most are male (p. 15).

D.J. Beirness, H.M. Simpson & K. Desmond, *The Road Safety Monitor 2002: Drugs and Driving*, online: <http://www.trafficinjuryresearch.com/whatNew/newsItemPDFs/RSM_02_Drugs_and_Driving.pdf>.

BRITISH COLUMBIA

- Alcohol was present in about 40% of the motor vehicle fatalities among those under 19 years of age.

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> at 10.

NOVA SCOTIA

- In the 2002 Nova Scotia Student Drug Use Survey, about 26% of the licensed students reported driving within an hour of using cannabis.

Nova Scotia Department of Health: Addiction Services, *Nova Scotia Student Drug Use 2002 Highlights Report*, online: <http://www.gov.ns.ca/heal/downloads/2002_NSDrug_Highlights.pdf>.

ONTARIO

- The percentage of licensed high school drivers who reported driving within an hour of consuming two or more drinks remained stable between 1999 and 2001 (15.6% vs. 15.0%).
- About one-third (31.9%) of students in grades 7 to 13 reported being a passenger during the past year in a vehicle driven by someone who had been drinking.

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> at vi.

- The 2001 Ontario Student Drug Use Survey found that among grade 10-13 students who had a driver's licence, 15.1% reported driving within an hour of consuming 2 or more drinks, and 19.7% reported driving within an hour of using cannabis.

E.M. Adlaf, R.E. Mann & A. Paglia, *Drinking, cannabis use and driving among Ontario students*, online: <<http://www.cmaj.ca/cgi/content/full/168/5/565?maxtoshow=? eaf>>.

- A survey of 4,670 individuals found that 18-19 year olds (9.3%) were more likely to report driving within an hour of smoking cannabis than 20-24 year olds (5.0%), and 25-34 year olds (2.1%) (p. 261).
- Among cannabis users who had a valid driver's licence, 18-19 year olds (40.8%) were more likely to report driving within an hour of smoking cannabis than 20-24 year olds (21.5%), and 25-34 year olds (17.2%) (p. 262).

G.W. Walsh & R.E. Mann, "On the High Road: Driving Under the Influence of Cannabis in Ontario" (1999) 90 C.J.P.H. 260.

QUEBEC

- A recent Quebec study found that 24.3% of 16-19 year-old drivers and 22.4% of 20-24 year-old drivers who provided samples (urine and/or saliva) in a nighttime roadside survey tested positive for cannabis.

C. Dussault *et al.*, "The Contribution of Alcohol and Other Drugs Among Fatally Injured Drivers in Quebec: Some Preliminary Results" in D. Mayhew & C. Dussault, eds., *Proceedings of the 16th International Conference of Alcohol, Drugs and Traffic Safety* (Montreal: Société de l'assurance automobile du Québec, 2002), CD-ROM.

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 limits 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 increased by 1%.

R. Hingson, T. Heeren & M. Winter, "Lower Legal Blood Alcohol Limits For Young Drivers" (1994) 109(6) Public Health Reports 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.
- When driving with 2 or more passengers, a young driver is at 4 to 5 times the risk of a fatal crash than when 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.

- In a survey of 129,560 students in 26 states during the 1995/96 school year, 20% of grade 12 students reported smoking marijuana in the car.

National Highway Traffic Safety Administration (NHTSA), *Drug Impaired Driving*, U.S. Department of Transportation, online: <http://www.nhtsa.dot.gov/people/outreach/safe_sobr/15qp/web/iddrug.html>.

- In 2002, motor vehicle crashes were the leading cause of death among 15 to 20 year olds, claiming 8,278 lives. This constitutes a 12% increase from 1992 (p. 1).
- In 2002, 3,827 drivers aged 15 to 20 (young drivers) were killed and a 324,000 were injured in crashes (p. 1).
- In 2002, 24% of young drivers killed were intoxicated (p. 4).
- The estimated economic cost of police-reported crashes among young drivers was \$40.8 billion (p. 2).
- Alcohol involvement increase with injury severity. In 2002, 2% of young drivers in property damage crashes had been drinking, 4% of those involved in personal injury crashes had been drinking, and 23% of those involved in fatal crashes had been drinking (p. 4).
- In 2002, 27% of the young male drivers involved in fatal crashes had been drinking, compared with 11% of young female drivers (p. 4).
- The percentage of young drivers in fatal crashes who were intoxicated fell by 7% between 1992 and 2002 (p. 4).
- In 2002, of the young drivers who had been drinking and were killed in crashes, 79% were unrestrained (p. 4).

National Highway Traffic Safety Administration (NHTSA), *Traffic Safety Facts 2002, Young Drivers*, U.S. Department of Transportation, online: <<http://www-nrd.nhtsa.dot.gov/pdf-30/NCSA/TSF2001/2001youngdr.pdf>>.

EUROPE

- In 1999, more than 57,000 deaths among 15 to 29 year olds in Europe were attributable to alcohol. 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. The leading causes were 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> at 2 and 7.

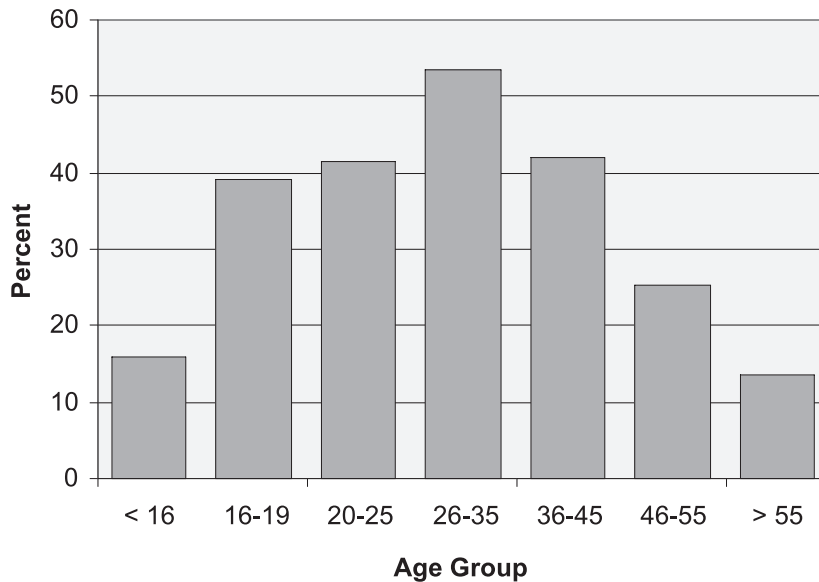
ALCOHOL AND YOUTH CHARTS

**RELATIVE RISK OF A 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

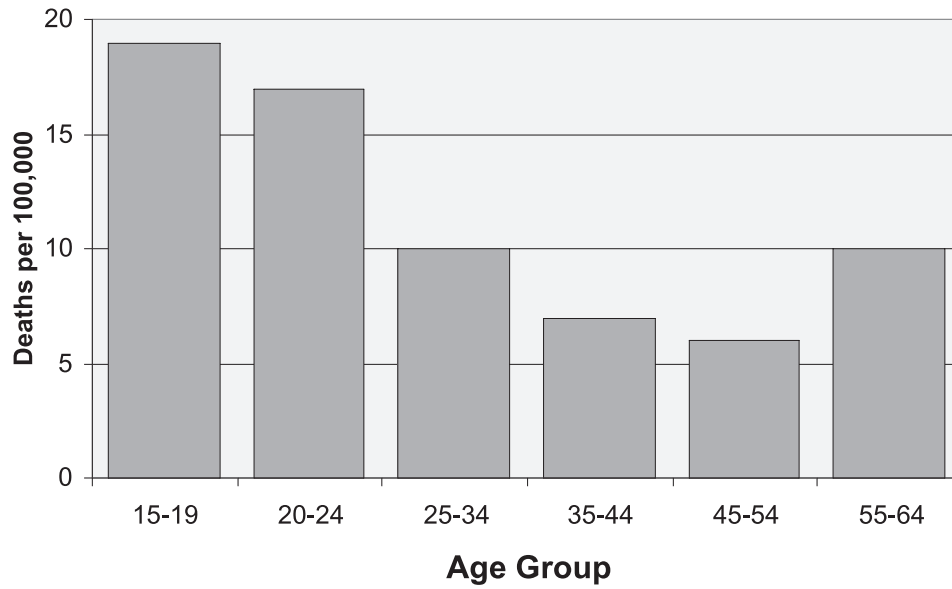
Source: P.L. Zador, S.A. Krawchuk & R.B. Voas, "Alcohol-Related Relative Risk of Driver Fatalities and Driver Involvement in Fatal Crashes in Relation to Driver Age and Gender: An Update Using 1996 Data" (2000) 61 Journal of Studies in Alcohol, 387-95.

**PERCENT OF ALCOHOL-RELATED CRASH DEATHS BY AGE:
CANADA, 2000**

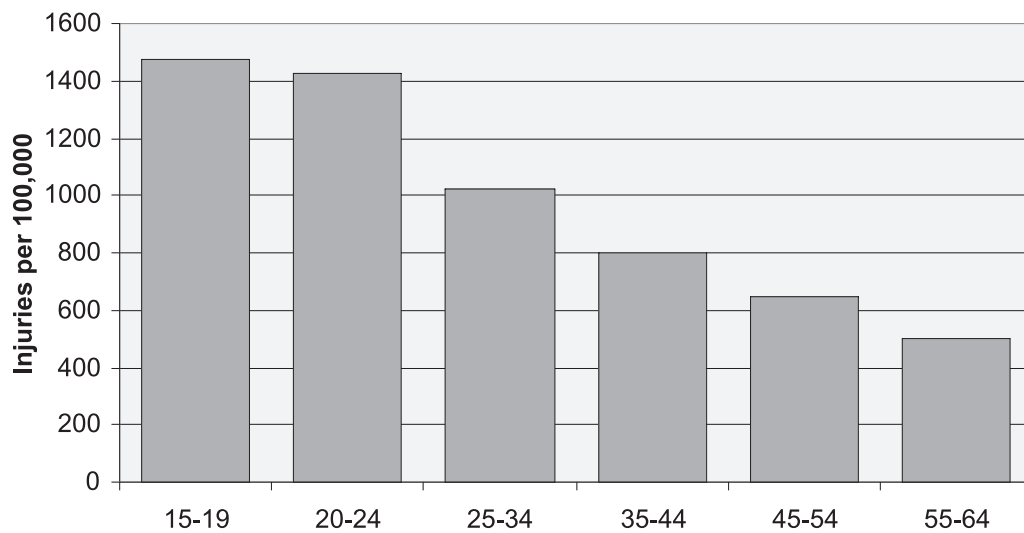


Source: D.R. Mayhew, S.W. Brown & H.M. Simpson, "The Alcohol-Crash Problem in Canada: 2000" (Ottawa: Traffic Injury Research Foundation - December 2002) at 15.

**MOTOR VEHICLE DEATH RATES BY AGE PER 100,000:
CANADA, 1997**

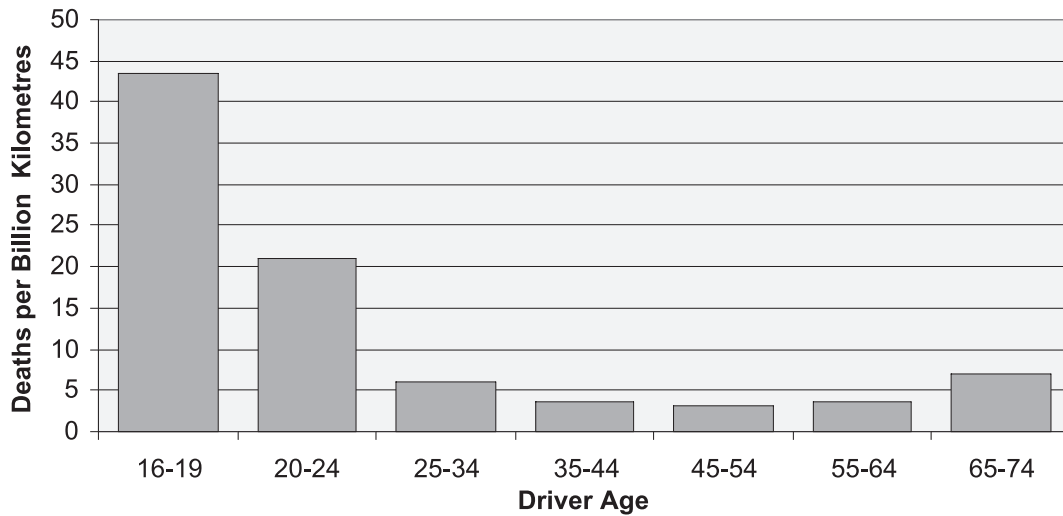


**MOTOR VEHICLE INJURY RATES BY AGE PER 100,000:
CANADA, 1997**



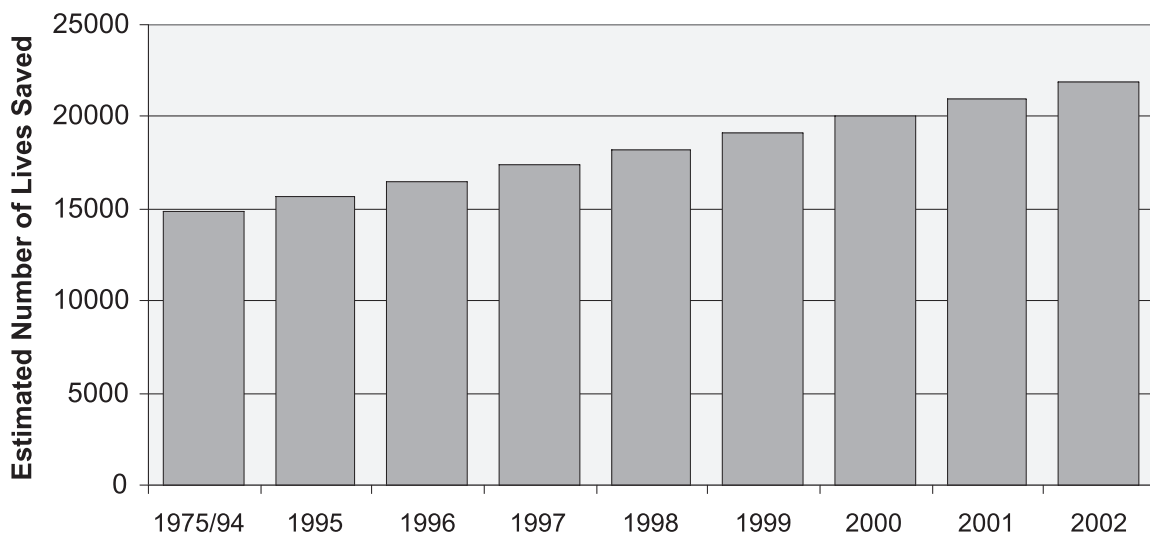
Source: D.R. Mayhew & H.M. Simpson, *Youth and Road Crashes: Reducing the Risks from Inexperience, Immaturity and Alcohol* (Ottawa: Traffic Injury Research Foundation, 1999) at 6.

**RISKS OF DEATH PER BILLION KILOMETRES TRAVELLED BY AGE:
CANADA, 2000**



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

CUMULATIVE ESTIMATE OF LIVES SAVED BY MINIMUM DRINKING AGE LAWS, 1975/02



Source: National Highway Traffic Safety Administration (NHTSA), *Traffic Safety Facts 2002, Alcohol*, U.S. Department of Transportation, online: <http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/ncsa/tsf2001/2001alcohol.pdf>.

PART IV: GENERAL TRAFFIC TRAUMA

CANADIAN IMPAIRED DRIVING FACTS

ALCOHOL

- 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.

E. Vingilis *et al.*, “Psychosocial Characteristics of Alcohol-Involved and Nonalcohol-Involved Seriously Injured Drivers” (1994) 26(2) Accident Analysis and Prevention 195 at 198-199.

- In 1996, 41.6% of fatally injured drivers had some alcohol in their blood – 34.9% were over 0.08%, and 25.6% were over 0.15%. Between 1987 and 1996, the percentage of 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.

- 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, online: <<http://www.tc.gc.ca/roadsafety/tp/tp3322/1999/er/page12-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.

Canadian Council of Motor Transport Administrators, Road Safety Vision 2001 – The 2000 Update (Ottawa: Minister of Public Works and Government Services, 2002) at 10, online: <<http://www.tc.gc.ca/roadsafety/vision/2000/menu.htm>>.

- In Canada, 3,162 people died in crashes during 2000, down from 3,315 in 1999 (p. 5).
- Of the fatally injured automobile drivers who were tested in 2000, 35.6% had positive BACs (up from 30% in 1999). Of these drivers, 4.1% of these drivers had BACs below 0.05%, 2.2% had BACs from 0.05% to 0.08%, 8.2% had BACs from 0.081% to 0.15%, and 21.1% had BACs over 0.15% (p. 18).
- Of the fatally injured motorcycle drivers who were tested, 34.5% had positive BACs. 7.7% had BACs below 0.05%, 2.8% had BACs from 0.05% to 0.08%, 9.9% had BACs from 0.081% to 0.15%, and 14.1% had BACs over 0.15% (p. 17).
- 87.5% of fatally injured drivers in alcohol-related crashes were males (p. 20).
- 37.5% of fatally injured bicyclists had been drinking prior to the collision. However, among those who had been drinking, 55.6% had BACs over the legal limit (p. 24).
- Among fatally injured snowmobile drivers, 62% had a positive BAC and 83.9% of those had BACs over 0.08% (p. 24).

D.R. Mayhew, S.W. Brown & H.M. Simpson, The Alcohol-Crash Problem in Canada: 2000 (Ottawa: Traffic Injury Research Foundation, 2002), online: <http://www.tc.gc.ca/roadsafety/tp/tp11759/2000/en/pdf/tp11759_2000e.pdf>.

- It was estimated that there were 1,038 fatalities, over 70,000 injuries and almost 195,000 property damage crashes in 1999 involving impaired drivers in Canada.

M. Marshall & B. Mercer, *Estimating the Presence of Alcohol and Drug Impairment in Traffic Crashes and Their Costs to Canadians: A Discussion Paper* (Toronto: MADD Canada, 2002) at 23.

- Young drivers are at the greatest risk of being killed per kilometre 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 fatalities for 20-24 year-old drivers (21.1), more than 7 times the fatalities for 25-34 year-old drivers (6.0), more than 12 times the fatalities for 35-44 year-old drivers (3.6), and 14 times the fatalities for 45-54 year-old drivers (3.1).

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

- A recent study in the Moncton area found that the number of suspended drivers stopped at four checkpoints was 57% of the expected total, if all suspended drivers had continued to drive as much as they did prior to the suspension. In other words, the suspensions only reduced the incidence of driving among suspended drivers by 43% (p. 441).
- Suspended drivers make up only 3.5% of the total drivers in New Brunswick, but are involved in 8% of the fatal crashes (p. 439).
- Suspended drivers tend to drive most often between midnight and 6:00 a.m. (p. 441).
- The average number of kilometres driven per week prior to the suspension was 333 for first offenders and 337 for repeat offenders. The average number of self-reported kilometres driven per week during the suspension was 44 for first offenders and 75 for repeat offenders (p. 443).
- Only 32% of drivers suspended for a first offence and 35% of suspended drivers for a repeat offence admit driving during the suspension period (p. 445).
- 90% of suspended drivers stopped in the Moncton study produced an apparently valid driving permit, even though they were required to surrender their permits when suspended (p. 439).

J.E.L. Malenfant, R.V. Houten & B. Jonah, "A study to measure the incidence of driving under suspension in the Greater Moncton Area," (2002) 34 *Accident Analysis and Prevention* 439.

DRUGS

CANADA

- In a 2002 survey, 17.7% of drivers reported driving within 2 hours of using a prescribed medication, over-the-counter remedy or marijuana or other illicit drug, within the past 12 months. When applied to the entire population, the results suggest that an estimated 3.7 million Canadian drove after taking some medication or drug that could potentially affect their ability to drive safely.
- The most common drugs used were over-the-counter medications (15.9%), prescription drugs (2.3%), and marijuana (1.5%) or other illegal drugs (0.9%).
- Young males were most likely to report using marijuana and other illegal drugs.
- While 86% of the drivers were aware that a conviction for impaired driving results in a criminal record, 66% erroneously believed that the penalties for drug-impaired driving were less severe than those for alcohol-impaired driving. In fact, the penalties are identical.
- Over 80% of drivers agreed with requiring drivers suspected of being under the influence of drugs to participate in physical coordination testing for drug impairment. However, only about 70% of drivers agreed that all drivers involved in a serious collision or suspected of drug impairment should be required to provide a blood sample.

D.J. Beirness, H.M. Simpson & K. Desmond, *The Road Safety Monitor 2002: Drugs and Driving*, online: <http://www.trafficinjuryresearch.com/whatNew/newsItemPDFs/RSM_02_Drugs_and_Driving.pdf>.

- It was estimated that in 1999, drug use alone, or in combination with alcohol, resulted in over 465 crash deaths, over 31,500 crash injuries, and an additional 87,600 property damage crashes (p. 23).
- The real dollar cost of crashes involving drug impairment in 1999 was estimated to be \$726 million. (Real dollar costs include: medical and rehabilitation costs; property damages; court and police costs; and crash and death benefits) (p. 30).
- The estimated loss of future income from such crashes was estimated to exceed \$1.1 billion (p. 30).

M. Marshall & B. Mercer, *Estimating the Presence of Alcohol and Drug Impairment in Traffic Crashes and their Costs to Canadians: A Discussion Paper* (Vancouver: Applied Research and Evaluation Services, July 2002).

BRITISH COLUMBIA

- A study of blood samples taken on autopsy from 227 fatally injured British Columbia drivers found that 31% were positive for only alcohol, 9% were positive for only drugs, and 11% were positive for both alcohol and drugs. The most commonly found drugs were alcohol (48%), cannabis (13%), diazepam (5%), and cocaine (4%).

G.W. Mercer & W.K. Jeffery, "Alcohol, Drugs and Impairment in Fatal Traffic Accidents in British Columbia" (1995) 27 *Accid. Anal. and Prev.* 335.

ONTARIO

- In 1996 and 1997 surveys, the percentage of people who reported driving within an hour of cannabis use in the past 12 months was 1.9% among the entire population (0.8% females v. 3.0% males), but 9.3% among 18-19 year olds, 5.0% among 20-24 year olds, 2.1% among 25-34 year olds, and 1.6% among 35-44 year olds (p. 261).
- Among cannabis users, the percentage who reported driving within an hour of cannabis use was 22.8% (13.4% female and 28.2% male). The percentage of users who reported such conduct was 40.8% for 18-19 year olds, 21.5% for 20-24 year olds, 17.2% for 25-34 year olds, 21.7% for 35-44 year olds, and 31.8% for 45-65 year olds (p. 262).
- Almost half (47%) of those who reported driving within an hour of cannabis use also reported driving within an hour of having two or more drinks (p. 263).

G.W. Walsh & R.E. Mann, "On the High Road: Driving Under the Influence of Cannabis in Ontario" (1999) 90 *C.J.P.H.* 260.

- In a 2002 survey among licensed adult drivers, 2.9% reported driving within an hour of using cannabis during the year prior to the survey. Based on these results, it was estimated that over 200,000 Ontario drivers (1 in 34) drove within an hour of using cannabis within the past year.
- The 2002 survey showed a slight increase in driving following cannabis use over the 1996 and 1997 surveys.

Centre for Addiction and Mental Health, *Cannabis Use and Driving among Ontario Adults*. CAMH Population Studies eBulletin, May/June 2003. No. 20. (Toronto: Centre for Addiction and Mental Health, 2003).

QUEBEC

- A study of fatally injured Quebec drivers from April 1999 until November 2001 indicated that 22.6% were positive for only alcohol, 17.8% were positive for only drugs, and 12.4% were positive for both. The most common drugs, other than alcohol, were cannabis (19.5%), benzodiazepines (8.5%), cocaine (6.8%), and opiates (1.4%).

- Cocaine use was associated with almost five times (4.9) the risk of being fatally injured, while benzodiazepines and cannabis use were associated with 2.5 and 2.2 times the risk of death respectively.
- Roadside testing in 1999 and 2000 indicated that 5.1% of drivers tested positive for alcohol (8.7% positive at night) and 11.8% tested positive for drugs. The most common drugs other than alcohol were cannabis (11.8%), cocaine (6.7%), opiates (3.6%), PCP (1.2%), and benzodiazepines (1.1%).

C. Dussault *et al.*, “The Contribution of Alcohol and Other Drugs Among Fatally Injured Drivers in Quebec: Some Preliminary Results” in D. Mayhew & C. Dussault, eds., *Proceedings of the 16th International Conference of Alcohol, Drugs and Traffic Safety* (Montreal: Société de l’assurance automobile du Québec, 2002), CD-ROM.

AMERICAN IMPAIRED DRIVING FACTS

ALCOHOL

- 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 at 138.

- 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.

National Highway Traffic Safety Administration (NHTSA), *Traffic Tech Technology Transfer Series*, Issue: February 2001 Number: 242, US Department of Transportation.

- In 2000, drivers with BACs of 0.10% or greater were involved in over 2 million crashes, which killed 12,892 and injured 448,630.
- Drivers with positive BACS below 0.08% were involved in an estimated 69,400 crashes that killed 2,664 and injured 43,730.

National Highway and Traffic Safety Administration (NHTSA), *Impaired Driving in the United States*, online: <www.nhtsa.dot.gov/people/injury/alcohol/impaired_driving_pg2/us.htm>.

- Traffic fatalities in alcohol-related crashes rose slightly from 2001 to 2002. The 17,419 alcohol-related fatalities in 2002 represent a 5% reduction from 1991, but an increase from the historical lows of 1999 (p. 1).
- In 2002, alcohol was involved in 41% of fatal crashes and in 6% of all crashes (p. 1)
- An estimated 258,000 persons were injured in crashes where police reported that alcohol was present (p. 1).
- Approximately 1.4 million drivers were arrested in 2001 for driving under the influence of alcohol or narcotics. This is an arrest rate of 1 for every 130 licenced drivers in the United States (2001 data not yet available) (p. 1). The comparable rate in Canada for 1999 was 1 in every 287 licensed drivers in 1999.
- In 2002, 35% of all traffic fatalities occurred in crashes in which at least one driver or non-occupant had a BAC of 0.08% or greater (p. 2).
- The rate of alcohol involvement in fatal crashes is more than 3 times as high at night as during the day (63% vs. 19%) (p. 2).
- The highest intoxication rates in fatal crashes were recorded by drivers aged 21-24 (33%), followed by those aged 25-34 (28 %) and 35-44 (26%) (p. 3).
- Intoxication rates for drivers in fatal crashes were highest for motorcycle operators (31%) and lowest for drivers of large trucks (2%). The intoxication rates for drivers of light trucks and passenger cars were 23% and 22% respectively (p. 3).

National Highway Traffic Safety Administration (NHTSA), *Traffic Safety Facts 2002, Alcohol*, US Department of Transportation, online: <<http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/ncsa/tsf2001/2001alcohol.pdf>>.

- In 2002, 42% of the intoxicated drivers involved in fatal crashes were speeding, compared with only 15% of the sober drivers in fatal crashes (p. 2).
- In 2002, 27% of speeding drivers under 21 years old involved in fatal crashes were intoxicated. In contrast, only 12% of the nonspeeding drivers under age 21 involved in fatal crashes were intoxicated (p. 2).
- Among drivers aged 21 to 24 years who were involved in fatal crashes, 51% of speeding drivers were intoxicated, compared with only 24% of nonspeeding drivers (p. 2).
- Between midnight and 3 am, 77% of speeding drivers involved in fatal crashes had been drinking (p. 3).
- In 2002, 22% of speeding drivers involved in fatal crashes had an invalid licence at the time of the crash, compared with 10% of non speeding drivers (p. 5).

National Highway Traffic Safety Administration (NHTSA), *Traffic Safety Facts 2002, Alcohol*, US Department of Transportation, online: <<http://www-nrd.nhtsa.dot.gov/pdf/nrd-30/NCSA/TSF2002/2002spdfacts.pdf>>.

- A 1997 study in California found that, during the times examined, 8.8% of the drivers had a suspended or revoked licence and that 3.3% had no record of a licence. Thus, over 12% of the drivers were driving illegally (p. 22).
- Relative to the amount of driving they did, suspended and revoked drivers were 3.7 times more likely to be in a fatal crash than licensed drivers, and unlicensed drivers were over-represented in fatal crashes by a factor of 4.9 to 1 (p. 22).

D.J. DeYoung, R.C. Peck & C.J. Helander, “Estimating the Exposure and Fatal Crash Rates of Suspended/Revoked or Unlicensed Drivers in California” (1997) 29 *Accident Analysis and Prevention* 17.

- A 2003 study found that 20% of all fatal crashes in the United States between 1993 and 1999 involved at least one driver who was suspended or did not otherwise have a valid licence.

R.A. Scopatz *et al.*, *Unlicensed To Kill, The Sequel* (Washington: AAA Foundation for Traffic Safety, 2003) at 55.

- It is estimated that 75% of drivers with suspended or revoked licences continue to drive (p. III-1).
- While less than 30% of fatally-injured drivers with valid licences were judged to be alcohol-positive by the police, almost 50% of fatally-injured unlicensed drivers, 55% of fatally-injured cancelled and suspended drivers, and almost 75% of fatally-injured drivers with revoked licences were judged to be alcohol positive (p. III-4).

T. Neuman *et al.*, *Guidance for Implementation of the AASHTO Strategic Highway Safety Plan* (Washington: Transportation Research Board, 2003).

DRUGS

- In 2002, an estimated 11.0 million persons reported driving under the influence of an illicit drug during the past year. This corresponds to 4.7% of the population aged 12 or older. Driving under the influence of drugs was reported by 10% or more of each age from 17 to 25, with 21 year olds reporting the highest rate (18.0%). Only 3% of those aged 26 or older, reported such conduct.
- Of the over 35 million persons aged 12 or older who reported using illicit drugs in the past year, 31% had driven under the influence of illegal drugs.
- Males aged 12 or older (6%) were twice as likely as females (3%) to report driving under the influence of illegal drugs.
- Unemployed adults aged 26 to 49 were more likely to report driving under the influence of illegal drugs in the past year than full or part-time workers in the same age group.

Office of Applied Studies, *Results from the 2002 National Survey on Drug Use and Health: National findings (DHHS Publication No. SMA 03-3836, NHSDA Series H-22)* (Rockville, MD: Substance Abuse and Mental Health Services Administration, 2003), online: <<http://www.samhsa.gov/oas/2k3/DrugDriving/DrugDriving.htm>>.

UNITED KINGDOM IMPAIRED DRIVING FACTS

ALCOHOL

- Alcohol is a contributory factor in 60% of fatal car accidents involving young men between 10 p.m. and 4 a.m. 30% of pedestrians killed in road accidents have BACs above 0.08% – the legal limit for driving.

IAS Fact Sheet, *Alcohol as a Medical and Social Problem - 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 alcohol-related deaths and injuries on the roads (p. 1).
- However, the number of casualties (deaths and serious injuries) increased by 10% in 2000, to the highest level in 10 years (p. 1).
- In 2000, there were 18,000 drink-drive deaths and serious injuries. More than 13% of road deaths occurred when someone was driving over the legal limit (p. 1).
- In recent years, there have been an average of 450 - 580 deaths and over 16,000 injuries involving illegal BACs. About half the casualties were among people other than the drinking drivers themselves (p. 1).
- On average, there are 200 to 300 road deaths each year associated with BACs below the 0.08% limit (p. 3).
- The highest rates of drink-drive accidents per 100,000 licence holders occur among young men up to 34 years of age, particularly in the 20-24 age group (p. 3).
- In 2000, there were 68 drink-drive accidents per 100,000 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 100,000 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 100,000 licence holders and 6 drink-drive accidents per 100 million miles driven (p. 5).

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

DRUGS

- A 2002 government report indicated that alcohol or drugs were detected in almost half (48.8%) of fatally injured road users. Alcohol alone was detected in 24.7% of the deaths, medicinal or illicit drugs alone were found in 17.2% of the deaths, and both alcohol and drugs were found in 6.8% of the deaths.
- While there has been a small drop in alcohol-related deaths in the last 10 years, drug-related traffic deaths have increased almost threefold.
- A higher incidence of illicit drugs were found in men, and a higher incidence of medicinal drugs were found in women.

The Institute of Alcohol Studies, *Time to call time on the government's drink-drive strategy*, online: <<http://www.ias.org.uk/alert/02issue1/drivingstrategy.htm>>.

- It is estimated that 800,000 individuals drive every year under the influence of cannabis and 280,000 drive under the influence of speed (methamphetamines). The number of drivers on ecstasy, heroin and cocaine are also increasing.

YouthNet UK, *Driving under the Influence*, online: <http://www.thesite.org/info/legal/driving/driving_under_the_influence.html>.

AUSTRALIAN IMPAIRED DRIVING FACTS

ALCOHOL

- 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 total costs 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 *et al.*, *Trends in Alcohol-Related Road Injury in Australia, 1990-1997* (Perth: National Drug Research Institute, 2000), online: <<http://www.curtin.edu.au/curtin/centre/ndri/pdfs/naip002.pdf>> at 1.

DRUGS

- Drugs were present in 27% of Australian drivers killed in 1995 and 1996, which is a 5% increase from 1990-1993. This increase is primarily attributable to the raise in the prevalence of cannabis.

P. Swann, "The Real Risk Of Being Killed When Driving Whilst Impaired By Cannabis" in H. Laurell and F. Schlyter eds., *Proceedings of the 15th International Conference on Alcohol, Drugs and Traffic Safety, 2000 – T'2000* (Stockholm: Inter-national Council on Alcohol, Drugs and Traffic Safety, 2000), online: <www.vv.se/traf_sak/t2000/finalpaper.htm>.

- Blood samples from crash victims taken to a major Melbourne trauma hospital tested positive for cannabis in 36% of the cases, benzodiazepines in 14%, amphetamines in 12%, opioids in 10%, and cocaine in 2%.

J. Gerostamoulos *et al.*, *Drug Prevalence in Road Trauma Victims in Victoria*, online: <[http://www.saaq.gov.qc.ca/t2002/actes/pdf/\(17a\).pdf](http://www.saaq.gov.qc.ca/t2002/actes/pdf/(17a).pdf)>.

NEW ZEALAND IMPAIRED DRIVING FACTS

- In 2000, alcohol was a contributing factor in crashes that resulted in 115 deaths, 467 serious injuries and 1,260 minor injuries.
- The total social cost of the drink-driving crashes was approximately \$620 million, which was nearly one-quarter of the costs for all injury crashes.
- From 1998-2000, alcohol was a factor in 13% of minor injury crashes, 20% of serious injury crashes and 25% of fatal crashes.
- 20% of drink-drivers in fatal crashes were disqualified and/or never licensed.
- Alcohol was a factor in only 11% of fatal crashes involving female drivers, compared to 18% of such crashes involving males.
- From 1998-2000, alcohol was a factor in 29% of traffic crash deaths for 15-19 year olds, 43% of crash deaths for 20-24 year olds, and 40% of crash deaths for 25-29 year olds.
- Young drivers tend to be over-represented in all types of crashes. From 1998 to 2000, drivers aged 15-19 made up just 6% of licensed drivers, but accounted for 14% of drivers involved in minor and serious injury crashes and 11% of drivers involved in fatal crashes.
- Drivers aged 20-24 made up approximately 9% of licensed car drivers, but accounted for 15% of drivers involved in minor and serious crashes, and 14% of drivers involved in fatal crashes.

Land Transport Safety Authority, *Crash Facts: Alcohol* (Wellington, New Zealand: Land Transport Safety Authority, 2001), online: <www.ltsa.govt.nz/publications/docs/crashfacts-alcohol-2001.pdf>.

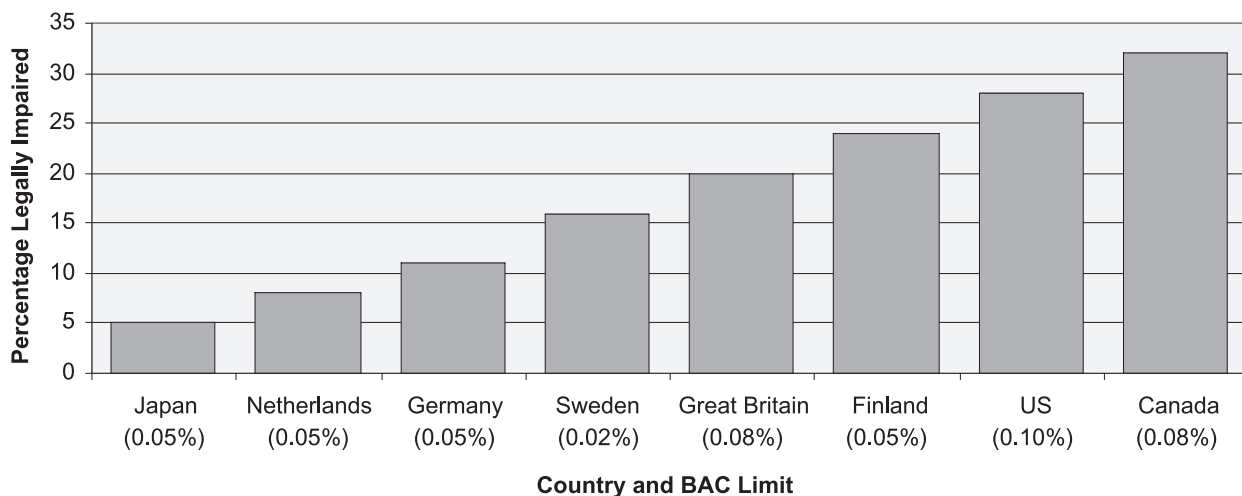
IMPAIRED DRIVING CHARTS

TRAFFIC FATALITIES BY ROAD USER TYPE: SELECTED OECD COUNTRIES, 1998

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

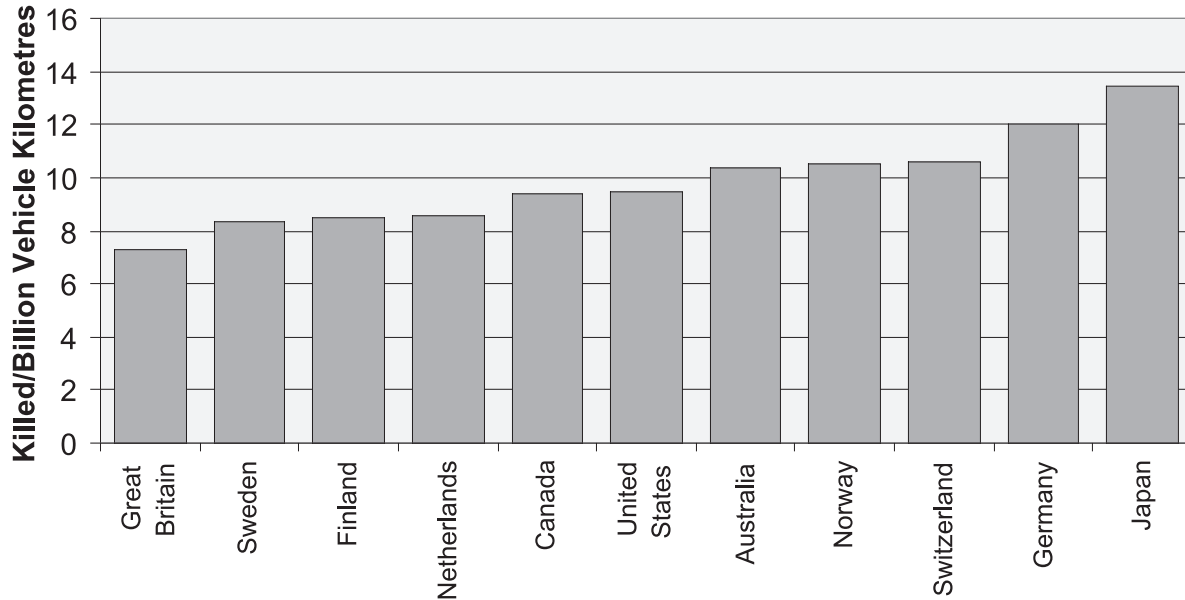
Source: Transport Canada, *Canada's Road Safety Targets to 2010*
(Ottawa: Minister of Public Works and Government Services, 2001) at 3.

LEGAL IMPAIRMENT AMONG FATALLY INJURED DRIVERS: SELECTED OECD COUNTRIES, 1997/98



*At the time of the report, the criminal BAC limit was 0.08% in 15 American states and 0.10% in 33 states.

Source: Transport Canada, *Canada's Road Safety Targets to 2010*,
online: <http://www.tc.gc.ca/roadsafety/tp/tp13736/pdf/CRS_Target.pdf> at 12.

ROAD USERS KILLED PER BILLION KILOMETRES TRAVELLED: SELECTED OECD COUNTRIES, 2000

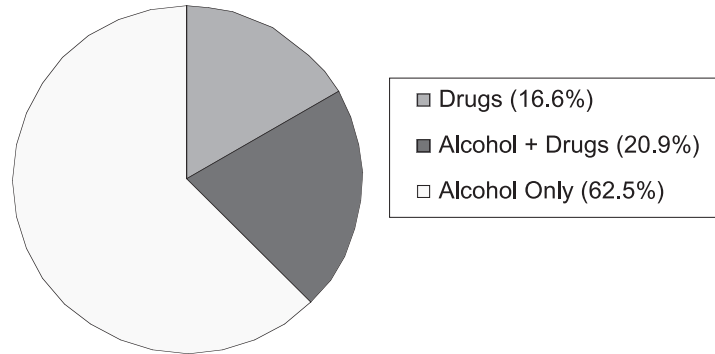
Source: Canadian Council of Motor Transport Administrators, *Road Safety Vision 2010, 2001 Update* (Ottawa, Minister of Public Works and Government Services, 2002) at 7.

**BACs OF ALCOHOL-POSITIVE FATALLY INJURED DRIVERS:
CANADA, 1990/00**

Year	Total No. of Drivers Tested	The 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%)
2000	513	91 (18%)	118 (23%)	304 (59%)

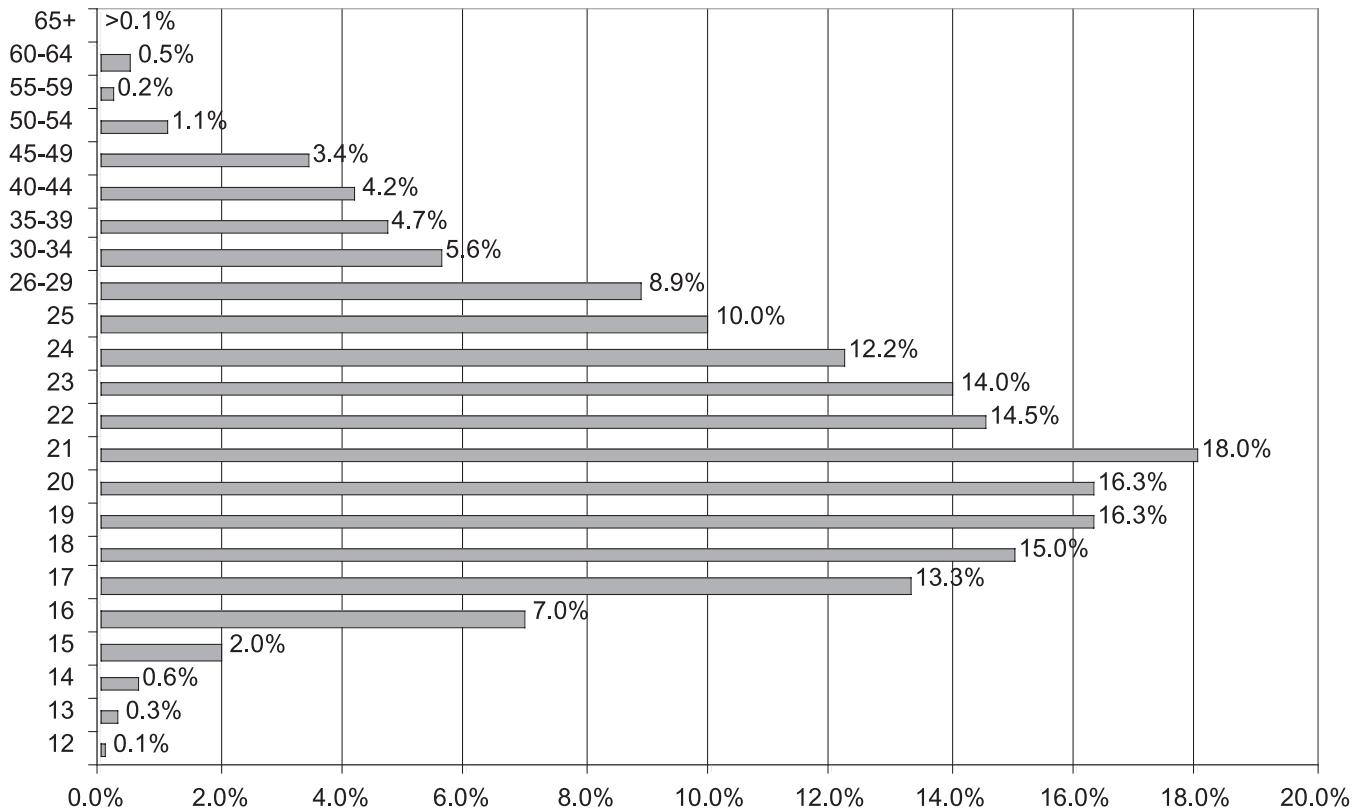
Source: Data provided by Transport Canada and the Traffic Injury Research Foundation.

PERCENTAGE OF FATAL CRASHES BY TYPE OF IMPAIRMENT: CANADA, 1999



Source: M. Marshall & B. Mercer, *Estimating the Presence of Alcohol and Drug Impairment in Traffic Crashes and their Costs to Canadians: A Discussion Paper* (Vancouver: Applied Research and Evaluation Services, July 2002) at 23.

AMERICANS REPORTING DRIVING UNDER THE INFLUENCE OF ILLEGAL DRUGS IN THE PAST YEAR, 2002



Source: Office of Applied Studies, *Results from the 2002 National Survey on Drug Use and Health: National findings* (DHHS Publication No. SMA 03-3836, NHSDA Series H-22) (Rockville, MD: Substance Abuse and Mental Health Services Administration, 2003), online: <[http:// www.samhsa.gov/oas/2k3/Drug Driving/DrugDriving.htm](http://www.samhsa.gov/oas/2k3/DrugDriving/DrugDriving.htm)>.

BACs FOR MALES IN RELATION TO TIME, WEIGHT AND STANDARD CANADIAN DRINKS*

	2 hours			3 hours			4 hours		
	170 lbs	185 lbs	200 lbs	170 lbs	185 lbs	200 lbs	170 lbs	185 lbs	200 lbs
2 standard drinks	0.0158%	0.0146%	0.0112%	0.0035%	0.0000%	0.0000%	0.0000%	0.0000%	0.0000%
3 standard drinks	0.0428%	0.0369%	0.0319%	0.0278%	0.0219%	0.0169%	0.0128%	0.0069%	0.0019%
4 standard drinks	0.0671%	0.0592%	0.0525%	0.0521%	0.0442%	0.0375%	0.0371%	0.0292%	0.0225%
5 standard drinks	0.0913%	0.0815%	0.0731%	0.0763%	0.0665%	0.0581%	0.0613%	0.0515%	0.0431%
6 standard drinks	0.1156%	0.1038%	0.0937%	0.1006%	0.0888%	0.0787%	0.0856%	0.0738%	0.0637%
7 standard drinks	0.1398%	0.1261%	0.1144%	0.1248%	0.1111%	0.0994%	0.1098%	0.0961%	0.0844%
8 standard drinks	0.1641%	0.1484%	0.1350%	0.1491%	0.1334%	0.1200%	0.1341%	0.1184%	0.1050%

BACs FOR FEMALES IN RELATION TO TIME, WEIGHT AND STANDARD CANADIAN DRINKS

	2 hours			3 hours			4 hours		
	120 lbs	130 lbs	140 lbs	120 lbs	130 lbs	140 lbs	120 lbs	130 lbs	140 lbs
2 standard drinks	0.0514%	0.0451%	0.0398%	0.0364%	0.0301%	0.0248%	0.0214%	0.0151%	0.0098%
3 standard drinks	0.0921%	0.0827%	0.0746%	0.0771%	0.0677%	0.0596%	0.0621%	0.0527%	0.0446%
4 standard drinks	0.1328%	0.1202%	0.1095%	0.1178%	0.1052%	0.0945%	0.1028%	0.0902%	0.0795%
5 standard drinks	0.1734%	0.1578%	0.1095%	0.1584%	0.1428%	0.1294%	0.1434%	0.1278%	0.1144%
6 standard drinks	0.2141%	0.1953%	0.1444%	0.1991%	0.1803%	0.1643%	0.1841%	0.1653%	0.1493%
7 standard drinks	0.2548%	0.2329%	0.1793%	0.2398%	0.2179%	0.1991%	0.2248%	0.2029%	0.1841%

* The charts are based on Canadian standard drinks (13.46 grams of alcohol), and an average metabolism rate for a moderate drinker of a 0.015% decrease in BAC per hour. 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 300-4.

Source: R. Solomon & E. Chamberlain, "Calculating BACs for Dummies: The Real-World Significance of Canada's 0.08% Criminal BAC Limit for Driving" (2003) 8(2) Canadian Criminal Law Review at 79-80.

**ANNUAL CHARGES AND DISPOSITIONS IN PROVINCIAL AND TERRITORIAL COURTS: CUMULATIVE AVERAGES,
1994/98**

	No. of Charges	Dispositions				
		Stay/ withdrawal	Acquittals	Guilty	Transferred*	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%

* Transferred to a superior court.

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

Source: E. Chamberlain & R. Solomon, *Rating the Provinces: The 2000 Report* (Toronto: MADD Canada, 2000).

ANNUAL CONVICTIONS AND SENTENCES IN CANADA: CUMULATIVE AVERAGES, 1994/98

	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.

Source: E. Chamberlain & R. Solomon, *Rating the Provinces: The 2000 Report*
(Toronto: MADD Canada, 2000).



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