

# Alcohol, Trauma and Impaired Driving

4th edition, 2009



# ALCOHOL, TRAUMA AND IMPAIRED DRIVING

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# INTRODUCTION

This report has grown out of MADD Canada's ongoing public education, research and policy initiatives. Many of these projects require that statistical information on impaired driving and other impairment-related trauma be summarized and documented. This information must be current and comprehensive, in order to ensure that MADD Canada's initiatives are based on the best available evidence.

The report's primary purpose is to provide a fully-referenced compendium of information on alcohol and drug consumption patterns, impaired driving and other related trauma. We reported the data as it appeared in the original source. Readers must exercise care because the various sources on a particular issue, even within in a single jurisdiction, often used slightly different age, BAC, consumption, timeframe, and other criteria in reporting the data. As well, the sources often used similar, but not identical, definitions of key terms. When a source defined a technical term, such as 'binge drinking' or 'heavy drinking,' we included the author's definition. Given that various sources were used, it is not surprising that the data on a specific issue were not entirely consistent. Nevertheless, clear and consistent patterns typically emerged.

Our intended audience includes MADD Canada staff and volunteers, media, policymakers, researchers, and members of the public. We expect the document to be used most frequently as a reference tool by individuals who have a specific concern. Consequently, each entry and section was written to stand alone. For example, a person interested in Canadian pedestrian fatalities should be able to find all of the information they require in one section, without having to search elsewhere in the document. Similarly, terms are defined when used and each entry is fully footnoted without short forms. One unavoidable consequence of attempting to provide the reader with 'one-stop shopping' is a certain amount of duplication.

In keeping with MADD Canada's mandate, we made a conscious decision to focus on trauma in this report. In our view, this approach also addresses a gap in the existing Canadian research. Thus, the report does not include information on the illnesses or other long-term adverse consequences of alcohol and drug use. These issues are extensively covered in the medical literature.

This edition of the report is broader in scope than its predecessors. For example, we have significantly expanded the Canadian data on alcohol consumption and youth trauma, added more provincial and territorial information, and increased the coverage of enforcement-related issues. We have presented more of the information in chart form and placed the charts closer to the relevant sections. The report also contains new information on Canada's performance in meeting the federal road safety targets set out in *Road Safety Vision, 2010*. While we have focused on Canada, information has been included on the United States, the United Kingdom (considered separately from Europe), Australia, New Zealand, and other developed democracies. Although the international data must be used with caution, they provide a perspective on Canada's impairment-related problems.

For ease of reference, the titles of some studies, charts and tables have been shortened. In order to highlight particular issues, segments of some charts and tables have been shaded. The sources are presented in chronological order by the year to which the data refer, not by publication date. The earliest data appear first, in order to highlight any trends.

We have used the following generally accepted measures for standard drinks:

Canada	13.46 grams (.6000 Imperial fluid ounces) of pure alcohol.
United States	12.60 grams (.5400 American fluid ounces) of pure alcohol.
Australia	10.00 grams (.4456 Imperial fluid ounces) of pure alcohol.
United Kingdom	8.00 grams (.3565 Imperial fluid ounces) of pure alcohol.

We have relied on the most current and authoritative sources. Preference has been given to review articles and articles from leading journals, as well as government studies and those from well-respected organizations, such as the National Highway Traffic Safety Administration and the Centre for Addiction and Mental Health. In addition, a handful of sources were included because they contained information that struck the authors as being particularly interesting.

It should be noted that we did not conduct a systematic review of the research literature, apply defined inclusion criteria, or undertake a critical assessment of the limitations and methodology of the research. Attempting to do so would have significantly lengthened the document and made it less user-friendly. Moreover, the document was not intended to critically analyze the data, but rather identify the available resources.

This edition is being jointly published by MADD Canada, the Centre for Addiction and Mental Health and the Canadian Centre on Substance Abuse. We would like to thank these latter two organizations for their participation in this project.

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# PART I: GENERAL INFORMATION

## SELECTED FACTS

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### CANADA

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#### NATIONAL

- For every litre increase in per capita alcohol consumption between 1950 and 1998, there was an increase in accident mortality 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.**

- It was estimated that 8,103 Canadians died in 2002 due to alcohol consumption (p. 2), accounting for 6.15% of total mortality among those under the age of 70 (p. 93).
- Motor vehicle crashes, liver cirrhosis, suicides, oesophageal cancer, and arrhythmias were the leading causes of alcohol-related deaths (p. 43).
- In 2002, alcohol accounted for more than \$14.6 billion in costs (p. 3) or \$463 per capita (p. 76). Alcohol represented 36.6% of the total costs of substance abuse (p. 3).

**J. Rehm *et al.*, *The Costs of Substance Abuse in Canada 2002* (Ottawa: Canadian Centre on Substance Abuse, 2006).**

- Maternal alcohol consumption plays a role in miscarriages, low birth weights, and still-born and premature births. More than 2,700 children are born each year with Fetal Alcohol Spectrum Disorder, the leading cause of preventable birth defects and developmental delay.

**Ministry of Health, *Fetal Alcohol Spectrum Disorder (FASD): A Framework for Action* (Ottawa: Public Health Agency of Canada, 2003); and Statistics Canada, *Births and Birth Rate, by Provinces and Territories (number of births)* (Ottawa: Statistics Canada, 2005).**

- Alcohol or drug use was associated with 69% of assaults, 66% of thefts, 58% of murders, 56% of break and enters and robberies, 45% of sexual assaults, and 22% of frauds among federal prisoners (p. 3).

**Canadian Centre on Substance Abuse (CCSA), *Substance Abuse in Corrections FAQs* (Ottawa: CCSA, 2004).**

- Almost 65% of 15-19 year old and 76% of 20-24 year old current drinkers in 2004/05 reported binge drinking (5 or more drinks on one occasion) at least once in the past 12 months. Almost 50% of the 15-19 year old and 60% of the 20-24 year old binge drinkers reported doing so at least 12 times in the past 12 months.

**Statistics Canada, *CANSIM Table 105-0431: Frequency of drinking in the past 12 months, by age group and sex...peer groups, every two years, 2005* (Ottawa: Statistics Canada, 2005).**

- In 2006, alcohol and/or drugs were involved in 1,278 traffic fatalities, 75,374 injuries and 163,893 property-damage-only crashes (p. 10). The total financial and social costs of these losses were estimated to be as high as \$12.8 billion (p. 12).

**G. Mercer, *Estimating the Presence of Alcohol and Drug Impairment in Traffic Crashes and their Costs to Canadians: 1999 to 2006* (Vancouver: Applied Research and Evaluation Services, 2009).**

- About 21% of those aged 15-24 reported driving under the influence of alcohol and 40% reported driving under the influence of cannabis in the previous 12 months (p. 95).
- About 33% of youth reported having been a passenger within the past 12 months in a vehicle driven by someone under the influence of alcohol, and 39.6% reported having been a passenger in a vehicle driven by someone under the influence of cannabis (p. 95).

**J. Flight et al., *Canadian Addiction Survey: Substance Use by Canadian Youth* (Ottawa: Health Canada, 2007).**

- Among fatally-injured pedestrians who were tested in 2006, 50% of 16-19 year olds, 75.8% of 20-25 year olds, and 71.4% of 26-35 year olds had been drinking.
- In 2006, 52.2% of fatally-injured snowmobile operators had been drinking and, of these, 83.3% had BACs above .08% (p. 25).
- Among drivers killed in 2006, 38.2% of 16-19 year olds and 45.4% of 20-25 year olds had been drinking (p. 17). About 33% of the 16-19 year old and 38% of the 20-25 year old fatally-injured drivers had BACs  $\geq$  .08%.

**Traffic Injury Research Foundation (TIRF), *The Alcohol-Crash Problem in Canada: 2006* (Ottawa: TIRF, 2009).**

- Survey, charge and conviction data in 2006 indicated that, on average, an individual would have to drive impaired once a week for almost 3.25 years before being charged and for just over 6 years before being convicted of impaired driving. Another national study indicates that the preceding charge and conviction rates may be significantly overstated.

**Statistics Canada, *CANSIM Table 252-0014, Adult and Youth charged...annual (number)* (Ottawa: Statistics Canada, 2008); Statistics Canada, *CANSIM Table 252-0046, Adult criminal...annual* (Ottawa: Statistics Canada, 2008); Traffic Injury Research Foundation (TIRF), *The Road Safety Monitor 2006: Drinking and Driving* (Ottawa: TIRF, 2006) at 7; and D. Beirness & C. Davis, "Driving after Drinking in Canada: Findings from the Canadian Addiction Survey" (2007) 98(6) *Canadian Journal of Public Health* 476 at 477.**

- The Canadian Council of Motor Transport Administrators' Road Safety Vision 2010 project called for 40% reductions in the percentage of alcohol-related traffic fatalities and serious injuries. However, an independent mid-term evaluation reported that no province or territory was on track to meet the alcohol-related traffic fatality target (p. ES-1).

**M. Johnson & E. Howard, *Road Safety Vision 2010: Mid-Term Review, Final Report* (Burnaby: Canadian Traffic Safety Institute, 2007).**

- Alcohol use was one of the 4 strongest predictors of college women getting raped. Seventy-four percent of perpetrators and 55% of victims had been drinking prior to the incident (p. 6).

**R. Parker & J. Brown, "Drinking Alcohol, Drug Use, and Sexual Violence on Campus" [unpublished, archived at the Centre for Addiction and Mental Health].**

## PROVINCES & TERRITORIES

- In the Northwest Territories, 22% of suicide victims 24 years of age or younger and 50% of suicide victims aged 25 years and older were intoxicated at time of death (p. 6).

**S. Issacs *et al.*, “Suicide in the Northwest Territories: A Descriptive Review” (2000) 19(1) Chronic Diseases in Canada. Online: <[http://www.phac-aspc.gc.ca/publicat/cdic-mcc/19-4/c\\_e.html](http://www.phac-aspc.gc.ca/publicat/cdic-mcc/19-4/c_e.html)>.**

- Alcohol was involved in 39% of preventable water-related deaths in Ontario from 1997 to 2001. Coroners cite alcohol as the second most frequent factor in preventable water-related deaths.

**Lifesaving Society, *The Drowning Report: A Profile of Drownings and Water-Related Deaths in Ontario, 2004 edition* (Toronto: Lifesaving Society, 2004) at 22. Online: <<http://www.lifesaving.society.com/PDF/98DrowningReport2004Edition.pdf>>.**

- A Quebec study of drivers fatally injured between April, 1999 and December, 2002 found that, of those tested, 21.7% were positive for alcohol alone, 11.7% were positive for alcohol and drugs, and 13% were positive for drugs alone. Among the alcohol-positive drivers, 85% had BACs above .08%.

**J. Bouchard & M. Brault, “Link Between Driving Records and the Presence of Drugs and/or Alcohol in Fatally Injured Drivers” in P. Williams & A. Clayton, eds., *Proceedings of the 17th International Conference on Alcohol, Drugs and Traffic Safety, 2004* (Glasgow: International Council on Alcohol, Drugs and Traffic Safety, 2004). Online: <<http://www.icadts.org/T2004/pdfs/O28.pdf>>.**

- In Saskatchewan, the percentage of deceased drivers who tested positive for drugs rose from 5.7% in 2000 to 38.3% in 2002. In Manitoba, the percentage of deceased drivers who tested positive for drugs was 23.5% in 2000 and 28.8% in 2002. The comparable figures for Nova Scotia were 15.8% in 2000 and 20.5% in 2002.

**D. Mayhew *et al.*, *Drugs Among Fatally Injured Drivers: 2000-2002* (Ottawa: Traffic Injury Research Foundation, 2004) at 5.**

- In 2006, alcohol caused more than twice as many deaths in British Columbia as all major illicit drugs combined (p. 14).

**P. Kendall, *Public Health Approach to Alcohol Policy: An Updated Report from the Provincial Health Officer* (British Columbia: Ministry of Healthy Living and Sport, 2008). Online: <<http://www.health.gov.bc.ca/library/publications/year/2008/alcoholpolicyreview.pdf>>.**

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## UNITED STATES

- 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% to 40% of patients.

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

- Conservatively estimated, underage drinkers accounted for 19.7% of the alcohol consumed in the United States in 1999. Adult excessive drinking (more than 2 drinks per day) accounted for an additional 30.4% of total alcohol consumption (p. 993).

**S. Foster *et al.*, “Alcohol Consumption and Expenditures for Underage Drinking and Adult Excessive Drinking” (2003) 289(8) *Journal of the American Medical Association* 989.**

- From 2001 to 2005, an average of 95,695 Americans died annually due to alcohol consumption. Alcohol-involved traffic crashes were the most frequently cited cause, accounting for 14.4% of the fatalities.

**Center for Disease Control and Prevention (CDC), *Alcohol Contributable Deaths Report, Average for United States 2001-2005* (Atlanta: CDC, 2006).**

- Interviews conducted in 2001/02, which were followed-up in 2004/05, found that the younger individuals were when they started drinking (not counting sips and tastes), the greater the likelihood that they had, within this period, experienced alcohol dependence/abuse, drank 5 drinks or more per occasion at least weekly, driven under the influence of alcohol, and placed themselves in situations after drinking in which they could be hurt.

**R. Hingson & W. Zha, “Age of drinking onset, alcohol use disorders, frequent heavy drinking, and unintentionally injuring oneself and others after drinking” (2009) 123(6) *Pediatrics* 1477.**

- In 2007, 15.5 million Americans abused or were dependent on alcohol, 3.7 million abused or were dependent on illicit drugs, and 3.2 million abused or were dependent on both. An estimated 22.3 million Americans, or 9% of the total population aged 12 or older, were classified as abusing or being dependent upon alcohol and/or drugs.

**Department of Health and Human Services, *Results from the 2007 National Survey on Drug Use and Health: National Findings* (Rockville: Substance Abuse and Mental Health Services Administration, 2008) at 6. Online: <[http://oas.samhsa.gov/nsduh/2k7 nsduh/2k7Results.pdf](http://oas.samhsa.gov/nsduh/2k7/nsduh/2k7Results.pdf)>.**

## UNITED KINGDOM

- A 2002 government report indicated that alcohol or drugs were detected in 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.

**Institute of Alcohol Studies (IAS), *Drinking and Driving* (St. Ives: IAS, 2009). Online: <[http://www.ias.org.uk/resources/factsheets/drink\\_driving.pdf](http://www.ias.org.uk/resources/factsheets/drink_driving.pdf)>.**

- In 2003, 22% of males and 25% of females aged 15-16 years old reported being drunk at least 3 times in the previous 30 days. Forty-two percent of males and 35% of females reported having been drunk by the age of 13 (p. 7).

**Institute of Alcohol Studies (IAS), *Adolescents and Alcohol* (St. Ives: IAS, 2009). Online: <<http://www.ias.org.uk/resouces/factsheets/adolescents.pdf>>.**

- In 2007, alcohol was directly related to 6,541 deaths in England, up 19% from 2001 (p. 64).

- Almost 25% of adults reported drinking at hazardous levels (scoring 8 or more on the 10-item Alcohol Use Disorder Identification Test (AUDIT)) (pp. 59-60).  
**The NHS Information Centre (NHSIC), *Statistics on Alcohol: England, 2009* (London: NHSIC, 2009). Online: <<http://www.ic.nhs.uk/pubs/alcohol09>>.**

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## EUROPE

- Adults in the EU (aged 18 or older) reported getting drunk an average of 5 times and binge drinking (5 or more drinks on a single occasion) an average of 17 times per year. This is equivalent to 40 million EU citizens getting drunk monthly and 100 million (33%) binge drinking at least once per month (p. 3).
- More than 40% of all murders in Europe are attributable to alcohol (p. 220), as is approximately 16% of child abuse and neglect (p. 6).

**P. Anderson & B. Baumberg, *Alcohol in Europe, A Public Health Perspective: A Report for the European Commission* (London: Institute of Alcohol Studies, 2006). Online: <[http://ec.europa.eu/health-eu/news\\_alcoholineurope\\_en.htm](http://ec.europa.eu/health-eu/news_alcoholineurope_en.htm)>.**

- From 1990 to 2001, alcohol was a cause in more than 50% of deaths among Russian males aged 15-54 years (p. 2211).
- The 3 leading causes of alcohol-associated deaths among all Russian males were accidents and violence, alcohol poisoning, and heart disease (p. 2201).

**D. Zaridze *et al.*, “Alcohol and cause-specific mortality in Russia: a retrospective case-control study of 48,557 adult deaths” (2009) 373 *The Lancet* 2201.**

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## AUSTRALIA

(Note that 1 Australian standard drink is equivalent to .743 of a Canadian standard drink.)

- Between 1992 and 2001, more than 31,000 Australians died due to risky consumption (more than 6 standard drinks in a day for men and 4 for women) or high-risk consumption (more than 28 standard drinks per week for men and 14 for women). The main causes were road trauma, cancer and liver cirrhosis.
- It was estimated that 1 Australian teenager died and more than 60 were hospitalized each week due to alcohol consumption.
- About 33% of all self-inflicted injuries and suicides are linked to alcohol.

**National Health and Medical Research Council (NHMRC), *Australian Guidelines to Reduce Health Risks from Drinking Alcohol* (Canberra: NHMRC, 2009) at 26-28.**

- Between 1998 and 2002, 70% of fatally-injured male pedestrians aged 15-54 had BACs above .05%, and 58% had BACs above .15%.

**Australian Transport Safety Bureau (ATSB), *Monograph 14: Male Pedestrian Fatalities* (Canberra: ATSB, 2003).**

- In 2007, almost 24% of 16-17 year old males and 27.3% of 16-17 year old females drank at risky levels (5 or more drinks for females and 7 or more drinks for males in one sitting) on a monthly basis. The percentage for 18-19 year old males is 44% and for females is 46% (p. 108).

**Australian Institute of Health and Welfare (AIHW), 2007 National Drug Strategy Household Survey (Canberra: AIHW, 2008). Online: <<http://www.aihw.gov.au/publications/phe/ndshs07-df/ndshs07-df.pdf>>.**

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## **NEW ZEALAND**

- Between 2001 and 2003, the combination of alcohol and speed contributed to 19% of fatal crashes. Alcohol alone contributed to an additional 12% of fatal crashes, and speed alone contributed to 16%. Therefore, alcohol and/or speed were factors in 47% of all fatal crashes.

**Land Transport Safety Authority, *Drinking and Driving Statistics* (Wellington: Land Transport Safety Authority, 2005).**

- For every 100 alcohol or drug-impaired drivers and motorcyclists killed, 54 passengers and 42 sober road users died as well (p. 3).
- A 15-19 year old driver with a .08% BAC is 86.6 times more likely to be in a fatal crash than a 30 year old driver with a .00% BAC. The relative risk for a 20-29 year old driver with a .08% BAC is 50.2 (p. 1).

**Ministry of Transport, *Alcohol/Drugs: Crash Statistics for the Year Ended 31 December 2007* (Wellington: Ministry of Transport, 2008).**

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## **GLOBAL**

- Alcohol is one of the largest avoidable risk factors worldwide, accounting for 4% of total global mortality, and 4% to 5% of disability-adjusted life years (p. 2223). More than 33% of the alcohol-attributable burden of disease occurred in 15 to 29 year olds (p. 2229).
- Injuries, cardiovascular disease and liver cirrhosis were among the most frequent causes of alcohol-related deaths (p. 2228).

**J. Rehm *et al.*, “Global burden of disease and injury and economic cost attributable to alcohol use and alcohol-use disorders” (2009) 373 *The Lancet* 2223.**

- A 2009 World Health Organization report recommended that all countries enact a .02% BAC limit for all young and novice drivers, and a .05% or lower BAC limit for the general driving population (p. 22).

**World Health Organization (WHO), *Global Status Report on Road Safety: Time For Action* (Geneva: WHO, 2009)**

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# CONSUMPTION PATTERNS

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## CANADA

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### NATIONAL

- Alcohol is the most commonly used psychoactive substance in Canada (p. 22).
- The 2004 *Canadian Addiction Survey* found that nearly 80% of Canadians aged 15 years or older had consumed alcohol in the past 12 months (p. 20). The rates of past-year drinking increased with an individual's level of education and income (p. 22).
- Forty-four percent of current drinkers reported drinking once a week and nearly 10% drank four or more times per week (p. 20).
- One in four drinkers reported heavy drinking (5 or more drinks per occasion) at least once per month and 6.2% engaged in heavy drinking at least once a week (p. 20).
- The rate of past-year drinking was higher among males (82%) than females (77%). Males were also more likely to drink at least once a week and exceed the low-risk consumption guidelines (*i.e.* no more than 14 drinks per week for males, and 9 drinks per week for females, or more than 2 drinks per day) (p. 20).
- Heavy drinking and drinking in excess of the low-risk consumption guidelines was more common among 18-24 year olds than older Canadians (p. 20).
- About 16% of past-year drinkers reported that their usual consumption pattern was to have 5 or more drinks in a sitting. This was more common among males than females (23.2% vs. 8.8%) and was particularly high among 15-24 year olds, peaking at 42.5% among 18-19 year olds (p. 23).

**Canadian Centre on Substance Abuse (CCSA), *Canadian Addiction Survey: Detailed Report* (Ottawa: CCSA, 2005).**

- The *Canadian Campus Survey*, conducted in the spring of 2004, included responses from 6,282 undergraduate students in 40 universities across Canada.
- A significant majority of the respondents (64%) were women.
- Responses were based on experience over “the past 12 months” (March/April, 2003 to March/April, 2004), the “past month” (March, 2004 to April, 2004), and “since the beginning of the school year” (September, 2003 to April, 2004).
- Only 17.3% of respondents lived on campus, 40.4% lived off campus without family and 41.1% lived off campus with family.
- Approximately 86% of students reported using alcohol within the past 12 months and 77% reported using within the past 30 days.
- During the past month period, students who consumed alcohol reported drinking an average of 1.3 times and 6.4 drinks per week. Males reported drinking significantly more frequently than women (1.7 times vs. 1 time per week) and more heavily (8.9 vs. 4.5 drinks per week).
- Forty-one percent of past month drinkers reported consuming 5 or more drinks on a single occasion at least twice in this period (49.9% of males and 34.2% of females). Moreover, 17.3% of past month drinkers reported consuming 8 or more drinks on a single occasion at least twice (25.9% of males and 10.6% of females).
- College students were most likely to drink on weekends (75% of the time) and at off-campus locations (86% of the time).

- Students living on campus or off campus without family drank more often and more heavily than students living off campus with family.
- Thirty-two percent of the students (37.6% of males and 27.5% of females) reported hazardous drinking as measured by scoring 8 or more on the 10-item Alcohol Use Disorder Identification Test (AUDIT).
- Almost 44% of students reported at least one indicator of harmful drinking, such as feeling guilty, experiencing memory loss or an injury, or having other concerns about their drinking.
- Almost 32% reported at least one indicator of dependent drinking, such as being unable to stop, failing to perform everyday activities or needing a drink first thing in the morning.
- The most commonly reported harms experienced by students since the beginning of the school year were having a hangover (53.4%), memory loss (25.4%), regretting their actions (24.5%), and missing classes due to a hangover (18.8%).
- The hazardous alcohol-related behaviours included having unplanned sexual relations (14.1%), driving a car after drinking too much (7.4%), having unsafe sex (6.0%), and drinking while driving (3.8%).
- The commonly reported harms resulting from other students' drinking were study or sleep disruptions (32.9%), serious arguments or quarrels (17.3%), being assaulted (10%), and being sexually harassed (9.8%).

**E. Adlaf et al., *Canadian Campus Survey, 2004, Executive Summary* (Toronto: Centre for Addiction and Mental Health, 2005) at 1-8.**

- Among Canadians aged 12 and older who reported drinking in 2004/05, 47.3% admitted binge drinking at least once in the past 12 months (5 or more drinks on one occasion).
- Almost 65% of 15-19 year old current drinkers reported binge drinking at least once in the past 12 months. Among current binge drinkers, 48.3% reported doing so at least 12 times in the past 12 months.
- Twenty to twenty-four year old current drinkers had the highest rate (75.9%) of binge drinking. Among these binge drinkers, 59% reported doing so at least 12 times in the past 12 months.

**Statistics Canada, *CANSIM Table 105-0431, Frequency of drinking in the past 12 months, by age group and sex...peer groups, every two years, 2005* (Ottawa: Statistics Canada, 2005).**

- Per capita alcohol consumption in Canada increased by more than 11% from 1996/97 to 2005/06 (7.2 to 8.0 litres) (p. 3).

**Centre for Addictions Research of BC (CARBC), *Alcohol Consumption in British Columbia and Canada: A Case for Liquor Taxes that Reduce Harm* (Victoria: CARBC, 2007).**

## ATLANTIC PROVINCES

- In 2007, approximately 51% of students in grades-7, 9, 10, and 12 reported drinking in the previous year, and 29% reported drinking at least once a month in the past 12 months (p. 21).
- Approximately 27% of students reported heavy episodic drinking (5 or more drinks in one sitting) at least once in the preceding month (p. 21).
- Heavy episodic drinking rates were lowest among grade-7 students (about 4%) and highest among grade-12 students (50%) (p. 21).

**C. Poulin & D. Elliot, *Student Drug Use Survey in the Atlantic Provinces 2007: Atlantic Technical Report* (Halifax: Dalhousie University, 2007). Online: <[http://www.gov.pe.ca/photos/original/do\\_h\\_sds\\_tech.pdf](http://www.gov.pe.ca/photos/original/do_h_sds_tech.pdf)>.**

## ALBERTA

- In 2005, 63.4% of Alberta high school students reported drinking at least once in the past 12 months (p. 5), which is second only to Quebec students (69%) (p. 17).
- Overall, 31.3% of students reported binge drinking (5 or more drinks on at least one occasion) at least once in the preceding year (p. 14). Males (32.8%) and females (30.0%) reported similar rates of binge drinking (p. 18).
- Heavy drinking increased significantly with grade: binge drinking rates were lowest among grade-7 students (3%) and highest among grade-12 students (47.5%) (p. 18).
- One-third of all high school students reported drinking at hazardous levels, as measured by scoring 8 or more on the 10-item Alcohol Use Disorder Identification Test (AUDIT) (p. 18). Hazardous drinking increased significantly with grade, ranging from 5.9% of grade-7 students to almost 40% of grade-12 students (p. 5).

**Alberta Alcohol and Drug Abuse Commission (AADAC), *The Alberta Youth Experience Survey (TAYES) 2005: Summary Report* (Edmonton: AADAC, 2006). Online: <[http://www.aadac.com/documents/TAYES05\\_summary\\_report.pdf](http://www.aadac.com/documents/TAYES05_summary_report.pdf)>.**

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## BRITISH COLUMBIA

- There were approximately 1,986 alcohol-related deaths in British Columbia in 2006 (p. 16).
- In 2007, annual per capita alcohol consumption in British Columbia was 8.4 litres, a 12% increase from 1998. Other research indicates that per capita consumption may be as high as 8.82 litres (p. 5).
- More than 44% of those aged 15 and older reported drinking at least once a week in 2004, the third highest provincial rate (p. 11).
- More than 90% of consumption among 15-24 year old males and 85% of consumption among similarly aged females exceeded the Centre for Addiction and Mental Health's low-risk drinking guidelines (no more than 2 drinks per day, and up to 14 drinks per week for men and 9 for women) (p. 8).
- Almost 30% of males and 14% of females reported regularly drinking in ways that increased the risk of acute and chronic alcohol-related harm (p. 8).
- Forty percent of those aged 12 and older reported binge drinking at least occasionally (5 or more standard drinks on a single occasion for males and 4 or more for females) (p. 8).
- In 2004, 17% of current drinkers aged 15 or older reported hazardous drinking at least once in the preceding 12 months, as measured by scoring 8 or more on the 10-item Alcohol Use Disorder Identification Test (AUDIT) (p. 9).
- Almost 27% of undergraduate students in British Columbia are considered hazardous drinkers (p. 9).
- In 2003, 20% of high school students reported binge drinking on at least 3 occasions in the preceding month (p. 10).

**P. Kendall, *Public Health Approach to Alcohol Policy: An Updated Report from the Provincial Health Officer* (British Columbia: Ministry of Healthy Living and Sport, 2008). Online: <<http://www.health.gov.bc.ca/library/publications/year/2008/alcoholpolicyreview.pdf>>.**

- In 2008, 29% of British Columbia high school students reported that they had consumed an alcoholic drink at least once by the age of 13. This percentage rose to 78% by age 17 (p. 33).
- Twenty-six percent of high school students reported drinking in the week preceding the survey (p. 34).

- Forty-four percent of current high school drinkers reported binge drinking (5 or more drinks within a couple of hours) at least once in the past month. This percentage has changed little since 1998. Males and females were equally likely to binge drink (p. 34).

**A. Smith *et al.*, *A Picture of Health: Highlights from the 2008 British Columbia Adolescent Health Survey* (Vancouver: McCreary Centre Society, 2009).**

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## MANITOBA

- In 2004, 58.8% of all high school students reported drinking in the past 12 months (p. 14). Moreover, 33.8% reported drinking at least once a month (p. 15).
- Almost 25% of high school students reported binge drinking (5 or more drinks in one sitting) at least once a month in the past 12 months (p. 17).
- Fifteen percent of students reported drinking hazardously (8 or more drinks in one sitting) at least once a month in the past 12 months (p. 17).
- Almost 9.5% of grade-12 students had signs of alcohol dependence (12% of males and 7% of females) (p. 19). Alcohol dependence was defined as scoring above 20 on a modified Alcohol Use Disorder Identification Test (AUDIT).

**D. Patton, T. Mackay & B. Broszeit, *Alcohol and Other Drug Use by Manitoba Students* (Winnipeg: Addictions Foundation of Manitoba, 2005). Online: <<http://www.afm.mb.ca/pdf/Alcohol%20and%20other%20drug%20use%20by%20Manitoba%20students%202005%20report.pdf>>.**

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## ONTARIO

- In 1994/95, unrecorded consumption was estimated to account for between 8.6% and 28.2% of total Ontario alcohol consumption.

**S. McDonald, S. Wells & N. Giesbrecht, “Unrecorded alcohol consumption in Ontario, Canada: estimation procedures and research implications” (1999) 18 Drug Alcohol Review 21 at 25.**

- In 2007, more than 61% of all high school students reported drinking in the past 12 months (p. 45) and nearly 10% reported drinking weekly (p. 50).
- More than 26% of students reported binge drinking (5 or more drinks on a single occasion) at least once in the month prior to the survey. Almost 10% of students reported binge drinking 2 or 3 times, and 5.2% of students reported doing so 4 or more times in the 4 weeks prior to the survey (p. 57).
- Binge drinking rates were lowest among grade-7 students (4.4%) and highest among grade-12 students (48%) (p. 57).
- Almost 12% of all drivers in grades 10 to 12 had driven within an hour of consuming 2 or more drinks during the past 12 months (14.1% of males and 8.8% of females) (p. 198).
- One and a half percent of students reported having been in an alcohol or drug treatment program in 2007, more than double the 2005 reported rate (.7%) (p. 208).
- More than 18% of students reported hazardous drinking, as measured by scoring 8 or more on the 10-item Alcohol Use Disorder Identification Test (AUDIT). Males and females were equally likely to report hazardous drinking (p. 70).
- More than 8% of Ontario students reported both hazardous drinking and elevated psychological distress (*e.g.* symptoms of anxiety or depression) (p. 208).

E. Adlaf & A. Paglia-Boak, *Drug Use Among Ontario Students 1977-2007: Detailed OSDUHS Findings* (Toronto: Centre For Addiction and Mental Health, 2007). Online: <[http://www.camh.net/Research/Areas\\_of\\_research/Population\\_Life\\_Course\\_Studies/OSDUS/OSDUHS2007\\_DrugDetailed\\_final.pdf](http://www.camh.net/Research/Areas_of_research/Population_Life_Course_Studies/OSDUS/OSDUHS2007_DrugDetailed_final.pdf)>.

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## UNITED STATES

- Binge drinkers (5 or more drinks per occasion) constituted 23% of the adult population in 2002, but consumed 76% of the alcohol (p. 2).
- Young binge drinkers accounted for the vast majority of the alcohol consumed by their age group. Binge drinkers were responsible for 91% of the alcohol consumed by 12-14 year olds, and 96% of the alcohol consumed by 18-20 year olds (p. 3).
- In 2002, underage drinkers consumed about 11% of the alcohol purchased in the United States (p. 3).
- Americans are subject to \$4 billion worth of alcohol marketing each year. Price promotions, such as happy hours and drinking games, often target young drinkers and promote binge drinking (p. 3).

**Pacific Institute for Research and Evaluation, *Drinking in America: Myths, Realities, and Prevention Policy* (Washington D.C.: US Department of Justice, Office of Juvenile Justice and Delinquency Prevention, 2002).**

- Alcohol was a major contributing factor in the three leading causes of teen death – accidents, homicides and suicides (p. ii).
- The financial costs of underage drinking approached \$53 billion in accidents, drownings, burns, violent crimes, suicide attempts, fetal alcohol syndrome, alcohol poisonings, and emergency medical care (p. ii).
- High school students who use alcohol are 5 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 report that they deliberately tried to hurt or kill themselves, or thought about hurting or killing themselves. A heavy drinker is defined as a person who reports binge drinking at least 5 times in the past 30 days (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).
- The reported rates of current alcohol use (males 40.2% vs. females 41%) and binge drinking (males 21.7% vs. females 20.2%) are very similar among male and female grade-9 students (p. 3).

**The National Center on Addiction and Substance Abuse (CASA), *Teen Tipplers: America's Underage Drinking Epidemic* (New York: CASA, 2003).**

- In 2003/04, beer accounted for 67.1% of binge drinks consumed, liquor for 21.9% and wine for 10.9% (p. 188).
- Beer accounted for most of the alcohol consumed by those at the highest risk of causing or suffering alcohol-related harm, including: people aged 18-20 (67% of drinks were beer); those

with 3 or more binge episodes per month (70.7%); those drinking 8 or more drinks per binge episode (69.9%); binge drinking in public places (64.4%); and those who drove during or within 2 hours of binge drinking (67.1%) (p. 190).

- More than 75% of binge drinkers were male, 54.6% were 35 years of age or younger, and 59.4% had attended some college (p. 189).

**T. Naimi *et al.*, “What Do Binge Drinkers Drink? Implications for Alcohol Control Policy” (2007) 33(3) American Journal of Preventive Medicine 188.**

- In a national survey, 51.1% of Americans (126.8 million people) over the age of 12 reported consuming alcohol in 2007 (p. 31).
- An estimated 23.3% reported binge drinking (5 or more drinks on at least one occasion in the past 30 days). Moreover, 6.9% reported being heavy drinkers (5 or more drinks per occasion at least 5 times in the past 30 days) (p. 31).
- Almost 42% of 18-25 year olds reported binge drinking. Among this age group, 14.7% of respondents also reported heavy drinking (p. 32).
- Almost 8% of 14-15 year olds, 19.4% of 16-17 year olds, and 35.7% of 18-20 year olds reported binge drinking at least once in the previous year (p. 32).
- The survey estimates that 12.7% of those 12 and over drove under the influence of alcohol at least once in 2007 (31.4 million people) (p. 36).
- About 18% of 18-20 year olds and 25.8% of 21-25 year olds reported driving under the influence of alcohol at least once in 2007 (p. 36).
- Twenty-eight percent of 12-20 year olds reported drinking in the month before the survey (10.7 million people). Moreover, 18.6% of this age group reported binge drinking in the month before the survey (7.2 million people) (p. 38).

**Department of Health and Human Services, *Results from the 2007 National Survey on Drug Use and Health: National Findings* (Rockville: Substance Abuse and Mental Health Services Administration, 2008).**

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## UNITED KINGDOM

(Note that 1 U.K. standard drink is equivalent to .594 of a Canadian standard drink.)

- Average weekly alcohol consumption among English 11-15 year old students who drank increased 115% from 1990 (5.3 units) to 2006 (11.4 units) (p. 9).
- In 2003, 22% of males and 25% of females aged 15-16 years old reported being drunk at least 3 times in the previous 30 days (p. 7).
- Forty-two percent of males and 35% of females reported having been drunk by the age of 13 (p. 7).
- A survey conducted in 2000/01 found that more than 5% of 14-15 year olds and almost 10% of 15-16 year olds reported exceeding the recommended maximum drinking limits for adults (21 drinks per week for men and 14 drinks per week for women). Among 18-24 year olds, approximately 42% of males and 22% of females reported exceeding the limits (p. 15).

**Institute of Alcohol Studies (IAS), *Adolescents and Alcohol* (St. Ives: IAS, 2009). Online: <<http://www.ias.org.uk/resouces/factsheets/adolescents.pdf>>.**

- Average per capita alcohol consumption among those over the age of 14 was 11.2 litres in 2007, compared to 5.07 litres in 1956 (pp. 3-4).

- In 2006, men reported drinking an average of 18.9 units of alcohol per week and women reported drinking an average of 9.2 units (p. 10).
- In 2005, 69.7% (£28.3 billion) of total household expenditure on alcohol (£40.6 billion) was spent on licensed premises (p. 8).

**Institute of Alcohol Studies (IAS), *Drinking in Great Britain* (St. Ives, 2008). Online: <<http://www.ias.org.uk/resources/factsheets/drinkinggb.pdf>>.**

- In a 2007 English study, 13% of men and 7% of women aged 16 and older reported drinking daily in the previous week (p. 12).
- Among 16-24 year olds, 32% of men reported drinking more than 8 units of alcohol on a single occasion and 25% of women reported drinking more than 6 units of alcohol on a single occasion at least once during the previous week (pp. 12-13).
- Almost 25% of adults (33% of males and 16% of females) reported drinking at hazardous levels (scoring 8 or more on the 10-item Alcohol Use Disorder Identification Test (AUDIT)) (pp. 59-60).
- In 2008, alcohol was 75% more affordable than it was in 1980 (p. 15).

**The NHS Information Centre (NHSIC), *Statistics on Alcohol: England, 2009* (London: NHSIC, 2009). Online: <<http://www.ic.nhs.uk/pubs/alcohol09>>.**

## AUSTRALIA

(Note that 1 Australian unit of alcohol is equivalent to .743 of a Canadian standard drink.)

- In a 1998 survey, people who regularly exceeded the low-risk drinking guidelines for long-term harm accounted for 39% of total alcohol consumption ( $\leq 28$  drinks for men and 14 drinks for women per week) (p. 2-3).
- About 9% of male and female drinkers are at a medium to high risk of long-term health problems, such as liver damage (p. 3).
- Fifty-one percent of alcohol consumption occurs in situations of medium or high risk of acute harm, such as traffic crashes, falls or violence (medium risk entails consuming 7 or 8 drinks per occasion for males, and 5 to 6 drinks for females. High risk entails consuming 9 or more drinks per occasion for males, and 7 or more drinks for females) (p. 3).

**P. Heale *et al.*, *National Alcohol Indicators Bulletin No. 3: Patterns of Alcohol Consumption in Australia, 1998* (Perth: National Drug Research Institute, Curtin University, 2000).**

- Adult (aged 15 and older) per capita alcohol consumption was almost 10 litres in 2007 (p. 1)
- In 2007, almost 10% of Australians aged 14 and older drank at levels considered to be risky or high risk for both short and long-term harm (7 or more drinks per day for men and 5 for women) (p. 1).
- Those living in remote areas are more likely to drink at risky or high-risk levels than those living in other areas (p. 1).
- Drinking at risky levels accounts for 80% of the alcohol consumed by 14-24 year olds (p. 1).
- Forty percent of 14-19 year olds reported consuming alcohol at a medium or high-risk of acute harm in 2007 (medium risk entails consuming 7 or 8 drinks per occasion for males, and 5 to 6 drinks for females. High risk entails consuming 9 or more drinks per occasion for males, and 7 or more drinks for females) (p. 1)

Australian Medical Association (AMA), *Alcohol Use and Harms in Australia, 2009* (Kingston: AMA, 2009).

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## NEW ZEALAND

- A national survey estimated that 87.1% of New Zealanders drank in 2005/06 (p. 31).
  - Among those aged 18 and older: almost 10% were considered hazardous drinkers (20-40 grams of alcohol per day for women and 40-50 grams for men); and 8.7% were considered high-risk drinkers (more than 40 grams of alcohol per day for women and more than 60 grams for men) (p. 31).
- A. Slack et al., *Costs of Harmful Alcohol and Other Drug Use: Final Report* (Wellington: Business and Economic Research Limited, 2009).**
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## EUROPE

- Adults (18 years of age or older) in the EU drink an average of 11 litres of pure alcohol each year (p. 2).
  - They reported getting drunk an average of 5 times and binge drinking (5 or more drinks on a single occasion) an average of 17 times per year. This is equivalent to 40 million EU citizens getting drunk monthly and 100 million (33%) binge drinking at least once per month (p. 3).
  - An estimated 23 million Europeans (5% of men, 1% of women) are dependent on alcohol (p. 3).
- P. Anderson & B. Baumberg, *Alcohol in Europe, A Public Health Perspective: A Report for the European Commission* (London: Institute of Alcohol Studies, 2006). Online: <[http://ec.europa.eu/health-eu/news\\_alcoholineurope\\_en.htm](http://ec.europa.eu/health-eu/news_alcoholineurope_en.htm)>.**
- In a 2007 study of 35 European countries, 82% of 15-16 year old students reported drinking at least once in the previous 12 months, and 61% reported drinking at least once in the previous 30 days.
  - Almost 40% of students reported having been intoxicated to the point of staggering, having slurred speech or throwing up in the previous 12 months. Eighteen percent reported being intoxicated to that level at least once in the preceding 30 days.
  - Forty-three percent of students reported heavy episodic drinking (5 or more drinks per occasion) in the past 30 days (47% of males and 39% of females).
  - Heavy episodic drinking among female students increased almost 20% from 2003 to 2007.
- B. Hibell et al., *The 2007 ESPAD Report: Substance use among students in 35 countries, Summary* (Stockholm: The Swedish Council for Information on Alcohol and Other Drugs, 2009) at 11.**
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# ALCOHOL CONSUMPTION CHARTS

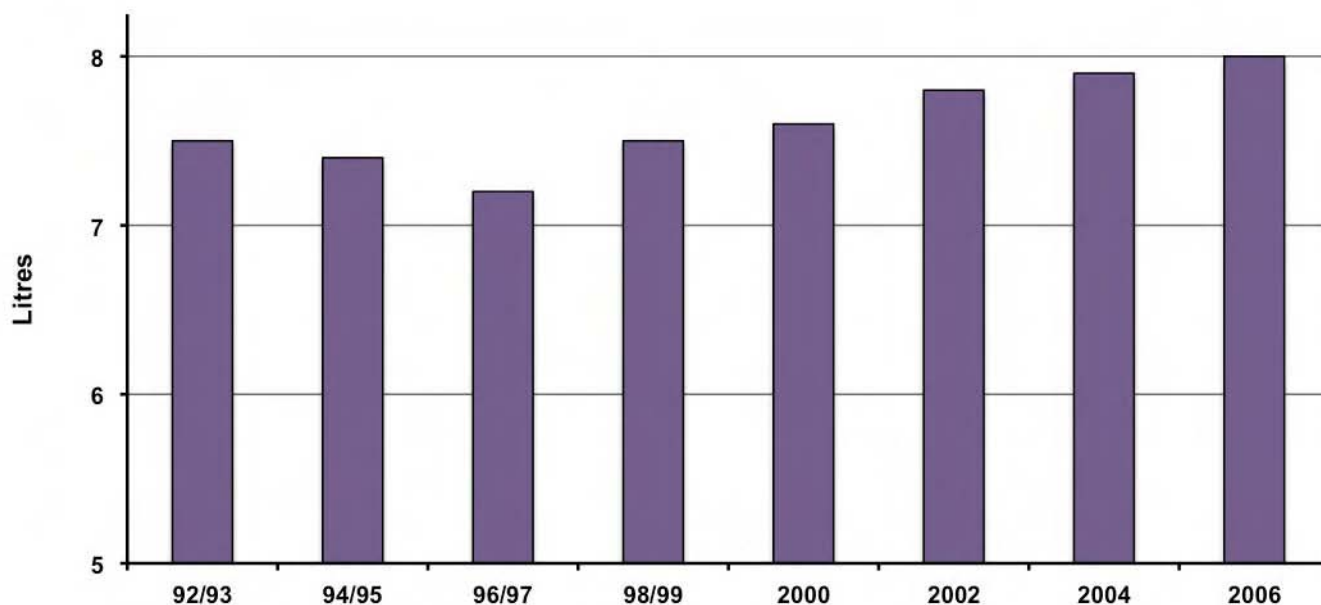
**NATIONAL PER CAPITA ALCOHOL CONSUMPTION, IN LITRES, 2005\***

Luxembourg**	15.5	Germany	10.0
Ireland	13.5	Finland	10.0
Hungary	13.0	Australia	9.8
France	12.7	Netherlands**	9.7
Denmark	12.7	New Zealand	9.4
Czech Republic	12.0	Greece**	9.0
Spain**	11.7	United States	8.4
Portugal**	11.4	Italy**	8.1
United Kingdom	11.3	Canada	8.0
Austria**	11.1	Iceland	7.1
Belgium**	10.7	Sweden	6.6
Switzerland	10.1	Norway	6.4

\* Population aged 15 years and older.      \*\* 2003 data.

**Source: Organization for Economic Co-operation and Development (OECD),  
OECD Health Data 2008 (Paris: OECD, 2009).**

**ALCOHOL CONSUMPTION\* PER CAPITA:\*\* CANADA, 1992-2006**

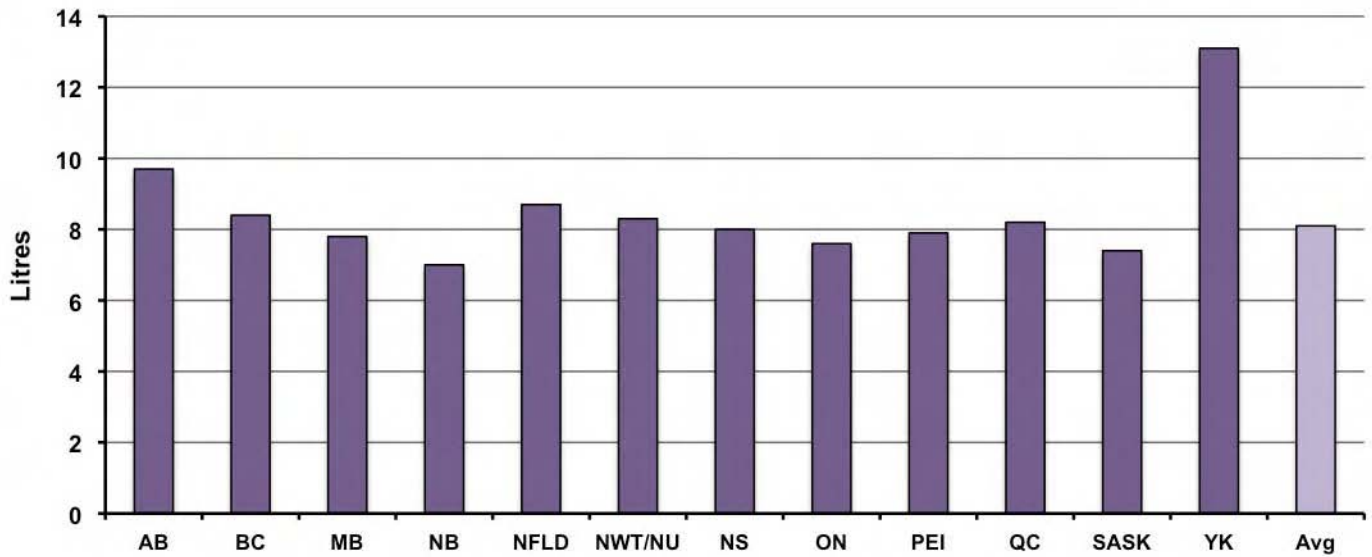


\* Not including alcohol brought across the border, or home or assisted beer & wine production.

\*\* Population aged 15 years and older.

**Sources: Statistics Canada, *The Control and Sale...March 31, 2007* (Ottawa: Statistics Canada, 2008) at 30; Statistics Canada, *The Control and Sale...March 31, 2004* (Ottawa: Statistics Canada, 2005) at 33; Statistics Canada, *The Control and Sale...March 31, 2002* (Ottawa: Statistics Canada, 2003) at 33; and Statistics Canada, *The Control and Sale...March 31, 1997* (Ottawa: Statistics Canada, 1998) at 31.**

**ALCOHOL CONSUMPTION\* PER CAPITA:\*\* PROVINCES AND TERRITORIES, 2007**

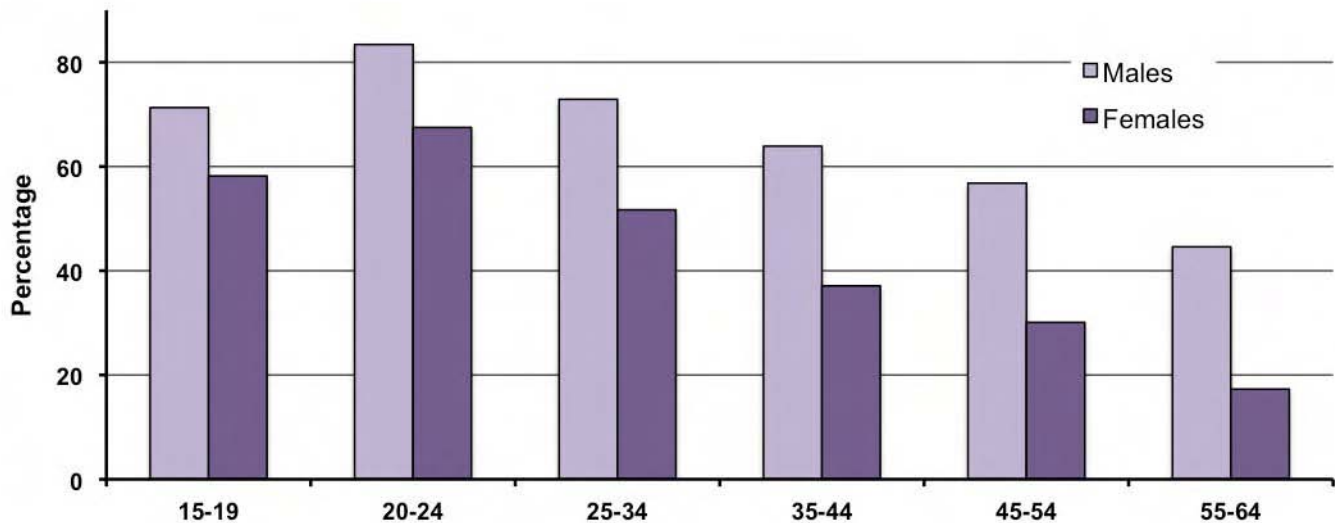


\* Not including alcohol brought across the border, or home or assisted beer and wine production.

\*\* Population aged 15 years and older.

Source: Statistics Canada, *The Control and Sale of Alcoholic Beverages in Canada*  
 Fiscal year ended March 31, 2007 (Ottawa: Statistics Canada, 2008) at 30.

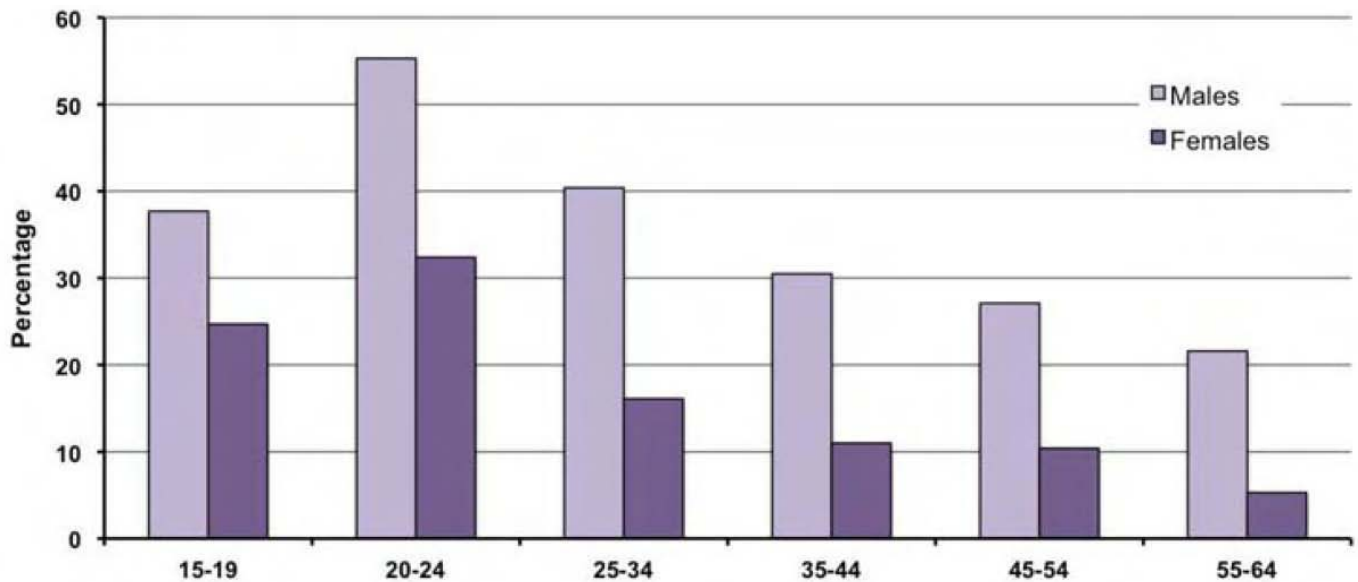
**BINGE DRINKING\* AMONG CURRENT DRINKERS AT LEAST ONCE IN THE PAST 12 MONTHS, BY AGE: CANADA, 2005**



\* 5 or more drinks on a single occasion.

Source: Statistics Canada, *CANSIM Table 105-0431, Frequency of Drinking in the past 12 months... 2005* (Ottawa: Statistics Canada, 2005).

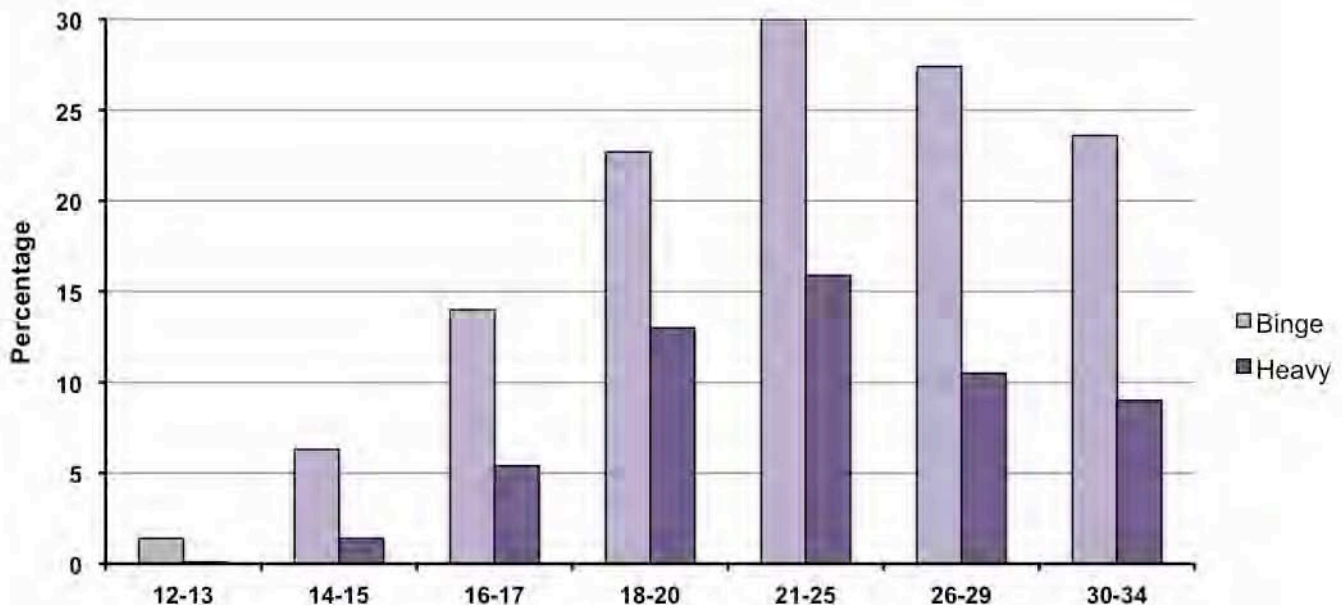
**BINGE DRINKING\* 12 OR MORE TIMES IN THE PAST 12 MONTHS AMONG  
CURRENT DRINKERS, BY AGE: CANADA, 2005**



\* 5 or more drinks on a single occasion.

Source: Statistics Canada, *CANSIM Table 105-0431, Frequency of Drinking in the past 12 months...2005* (Ottawa: Statistics Canada, 2005).

**BINGE\* AND HEAVY DRINKING\*\* AMONG CURRENT DRINKERS IN THE PAST  
MONTH, BY AGE: UNITED STATES, 2007**

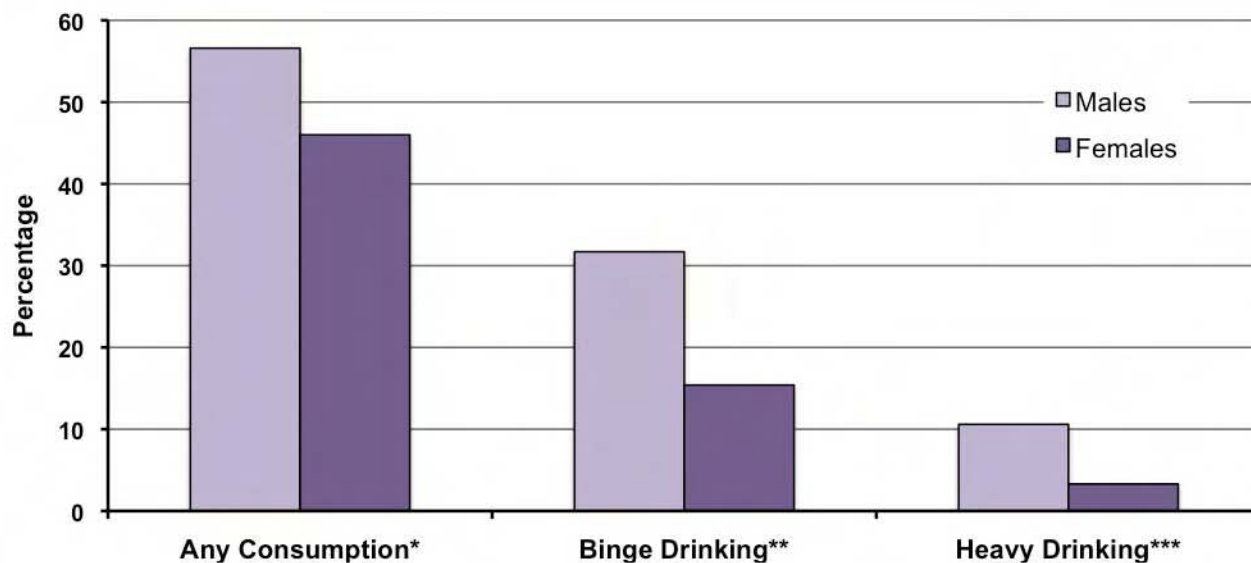


\* 5 or more drinks on a single occasion (4.7 Canadian standard drinks).

\*\* 5 or more drinks on at least 5 occasions.

Source: Office of Applied Studies, *2007 National Survey on Drug Use & Health* (Washington D.C.: US Department of Health and Human Services, 2008) at 269.

**ALCOHOL USE AMONG PERSONS 12 OR OLDER IN THE  
PAST MONTH, BY GENDER: UNITED STATES, 2007**



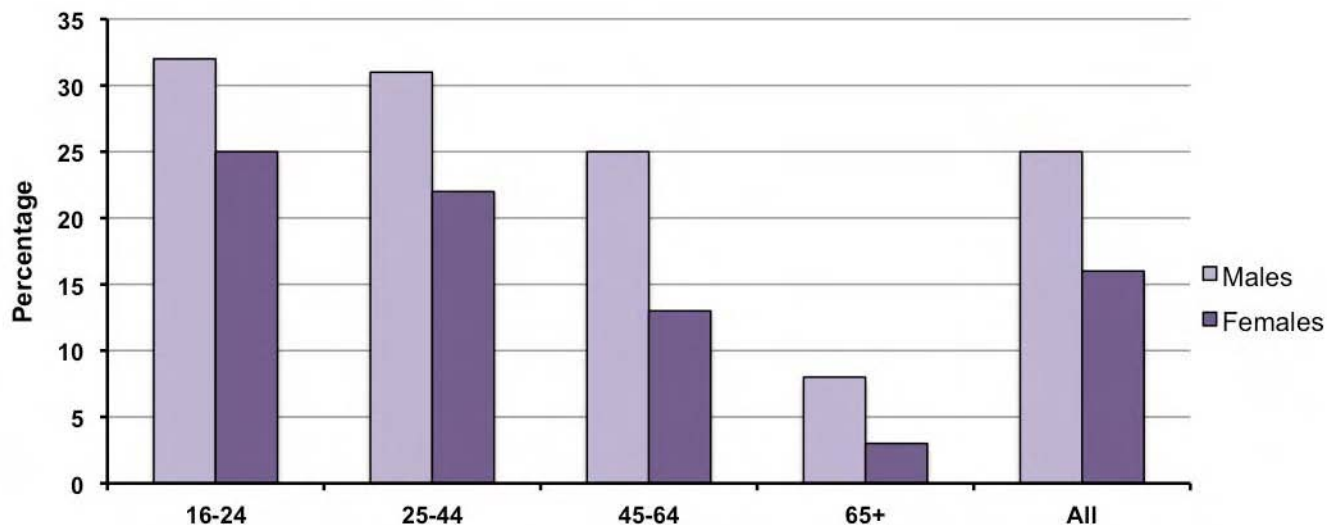
\* 1 or more drinks in the past 30 days.

\*\* 5 or more drinks on a single occasion (4.7 Canadian standard drinks).

\*\*\* 5 or more binge drinking occasions in the past 30 days.

Source: Office of Applied Studies, *2007 National Survey on Drug Use & Health* (Washington D.C.: US Department of Health and Human Services, 2008) at 31 and Table G.15.

**BINGE DRINKING\* AMONG CURRENT DRINKERS, BY AGE:  
ENGLAND, 2007**



\* 8 or more drinks for men, and 6 or more drinks for women on a single day (4.8 and 3.6 Canadian standard drinks).

Source: The NHS Information Centre (NHSIC), *Statistics on Alcohol: England, 2009* (London: NHSIC, 2009) at 25-26.

# COSTS OF ALCOHOL USE

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## CANADA

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### NATIONAL

#### **Total Economic Costs**

- In 2002, alcohol accounted for more than \$14.5 billion in costs, or \$463 per capita. This represents 36.6% of the total costs of substance abuse (p. 8).
- The largest economic costs of alcohol were: \$7.1 billion for lost productivity due to illness and premature death, \$3.3 billion in direct health care costs and \$3.1 billion in law enforcement costs (p. 9).

#### **Law Enforcement**

- In 2002, 30.4% of all recorded criminal offences were attributable to alcohol (761,638 incidents) (p. 57). Total policing, court and correction costs attributable to alcohol were \$1.9 billion, \$513 million and \$660 million, respectively (pp. 57-58).

#### **Fire Damage**

- In 2000, total fire damage to property was \$1.19 billion. The loss attributable to alcohol-related fires was \$156.5 million (p. 60).

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

- In 2000, total motor vehicle property damage claims were \$3.94 billion. An estimated loss of \$756.9 million was attributable to alcohol and \$67 million was attributable to illegal drugs (p. 60).

**J. Rehm et al., *The Costs of Substance Abuse in Canada 2002* (Ottawa: Canadian Centre on Substance Abuse, 2006).**

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### BRITISH COLUMBIA

- In 2002, the direct social costs of alcohol abuse, which include public expenditures on substance-related health care and enforcement, were about \$919 million. The indirect social costs, associated mainly with lost productivity in the workplace, were about \$1.3 billion (p. 26).
- The total cost of alcohol abuse per capita was \$536 (p. 26).
- The cost of alcohol-attributed crimes, alcohol-attributed charges, and alcohol-attributed prison sentences were \$197 million, \$68 million and \$94 million, respectively (p. 21).

**P. Kendall, *Public Health Approach to Alcohol Policy: An Updated Report from the Provincial Health Officer* (British Columbia: Ministry of Healthy Living and Sport, 2008). Online: <<http://www.health.gov.bc.ca/library/publications/year/2008/alcoholpolicyreview.pdf>>.**

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### ONTARIO

- In 2002, alcohol accounted for more than \$5.3 billion in costs, or \$441 per capita in Ontario. This represented 37.2% of the total costs of substance abuse (p. 10).

**J. Rehm et al., *The Costs of Substance Abuse in Canada 2002: Highlights* (Ottawa: Canadian Centre on Substance Abuse, 2006).**

- In 2004, motor vehicle collisions in Ontario were estimated to have generated \$17.9 billion in social costs (p. 3).
  - Approximately 62% of those costs arose from fatalities, 22% from injuries, 10% from property damage, and 4% from traffic delays or out-of-pocket expenses (p. 3).
  - Drinking and driving collisions alone cost \$3.1 billion (p. 4).
  - Fatal collisions generate an average of \$15.7 million each in social costs (p. 4). In 2004, each fatal collision generated an average of 1.11 fatalities, 0.44 major injuries, and 2.14 minor injuries (p. 21).
- K. Vodden *et al.*, *Analysis and Estimation of the Social Costs of Motor Vehicle Collisions in Ontario* (Ottawa: Ministry of Transport, 2007).**

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## UNITED STATES

- In 2000, drivers with BACs  $\geq .10\%$  were involved in an estimated 2,058,400 crashes that killed 12,892 and injured 448,630 people.
- Drivers with BACs between .080% and .099% were involved in an estimated 35,410 crashes that killed 1,097 and injured 20,150 people.
- Drivers with positive BACs below .08% were involved in an estimated 69,400 crashes that killed 2,664 and injured 43,730 people.
- Alcohol was a factor in 26% of the total crash costs. Alcohol-related crashes cost the American public an estimated \$114.3 billion in 2000 (\$51.1 billion in monetary costs and an estimated \$63.2 billion in quality of life losses).
- People other than the drinking driver were required to bear \$71.6 billion in costs due to alcohol-related crashes.
- 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 average cost per injured survivor of an alcohol-related crash was \$99,000 (\$49,000 in monetary costs and \$50,000 in quality of life losses).
- Crash costs averaged \$5.80 for every mile driven by a driver with a BAC  $\geq .10\%$ , and \$2.50 for every mile driven by a driver with a BAC between .080% and .099%. The crash cost per mile of a driver with a BAC of zero was \$0.10.
- Alcohol-related crashes accounted for an estimated 18% of the \$103 billion in US auto insurance payments. Reducing alcohol-related crashes by 10% would save \$1.8 billion in insurance payments and loss adjustment expenses.

**National Highway Traffic Safety Administration (NHTSA), *Impaired Driving in the United States* (Washington, D.C.: NHTSA, 2001). Online: <<http://www.nhtsa.dot.gov/people/injury/alcoholimpaird-drivingusa/US.pdf>>.**

- Drivers and non-occupants with BACs of  $\geq .10\%$  accounted for 75% of all alcohol-involved crash costs (p. 2).
- The impact of alcohol involvement increased 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).

**L. Blincoe *et al.*, *The Economic Impact of Motor Vehicle Crashes: 2000* (Washington, D.C.: National Highway Traffic Safety Administration, 2001).**

- Underage drinking accounted for at least 16% of American alcohol sales in 2001 (p. 519).
- Underage drinking alone led to 3,170 deaths and 2.6 million injuries (p. 524).
- The estimated societal costs of underage drinking were \$61.9 billion (p. 524).

- This included \$5.4 billion in medical costs, \$14.9 billion in work loss and other resource costs, and \$41.6 billion in lost quality of life (p. 524).
- Alcohol-attributable traffic crashes and violence costs accounted for \$13.7 billion and \$34.7 billion respectively (p. 524).

**T. Miller *et al.*, “Societal Costs of Underage Drinking” (2006) 67(4) *Journal of Studies on Alcohol and Drugs* 519.**

- The cost to society of alcohol use and abuse are estimated to be \$184.6 billion annually. Approximately 30% (\$53 billion) is due to underage drinking in alcohol-related traffic crashes, violent crimes, burns, drownings, suicide attempts, alcohol poisonings, fetal alcohol syndrome and treatment for alcohol abuse (p. 994).

**S. Foster *et al.*, “Alcohol Consumption and Expenditures for Underage Drinking and Adult Excessive Drinking” (2003) 289(8) *Journal of the American Medical Association* 989.**

- Each year, about 130,000 American women expose their fetuses to high levels of alcohol and thus put them at risk for Fetal Alcohol Syndrome (FAS) and Fetal Alcohol Effects (FAE) (p. 42).
- An Alaskan study estimated that the lifetime cost of FAS is \$2.9 million per child (p. 46).
- Five major studies on FAS estimated the total societal costs at between \$2.3 and \$6 billion, with a median cost of \$3.6 billion per year (p. 44).
- These estimates do not include indirect costs resulting from FAS, such as law enforcement costs. Sixty percent of individuals with FAS or FAE have been in trouble with authorities, charged with a crime, or convicted of a crime (p. 48).

**C. Lupton, L. Burd & R. Harwood, “Costs of Fetal Alcohol Spectrum Disorders” (2004) 127C(1) *American Journal of Medical Genetics Part C: Seminars in Medical Genetics* 42.**

## UNITED KINGDOM

- The annual societal cost of alcohol misuse in England was estimated to have been £55.1 billion.
- The cost to individuals and families/households was estimated to have been £21 billion.
- The cost to public healthcare services and other public services was estimated to have been £2.8 billion and £2.1 billion respectively.
- Absenteeism was estimated to have cost employers £7.3 billion.
- The human costs (Disability Adjusted Life Years) were estimated to have been £21.9 billion.

**British Medical Association Board of Science (BMA), *Alcohol Misuse: Tackling the UK Epidemic* (London: BMA, 2008) at 45.**

## EUROPE

- In 2003, the intangible costs of alcohol use (pain, suffering and lives lost) due to criminal, social and health harms were estimated to be €270 billion. Other methods of assessment produced estimates of between €150 and €760 billion (p. 2).

**P. Anderson & B. Baumberg, *Alcohol in Europe, A Public Health Perspective: A Report for the European Commission* (London: Institute of Alcohol Studies, 2006). Online: <[http://ec.europa.eu/health-eu/news\\_alcoholineurope\\_en.htm](http://ec.europa.eu/health-eu/news_alcoholineurope_en.htm)>.**

## AUSTRALIA

- In 2004/05, alcohol misuse cost Australian society \$15.3 billion.
- The most significant costs accrued from traffic crashes (\$2.2 billion), health care (\$2 billion), crime (\$1.4 billion), lost labour (\$3.5 billion) and loss of life (\$4.1 billion).
- Illicit drug use cost Australian society nearly \$8.2 billion.
- The combined costs of alcohol, illicit drug and tobacco use exceeded \$55 billion.

**D. Collins & H. Lapsley, *The Costs of Tobacco, Alcohol, and Illicit Drug Abuse to Australian Society in 2004/05 - National Drug Strategy Monograph Series No. 66* (Canberra: Department of Health and Ageing, 2008).**

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## NEW ZEALAND

- In 2005/06, the social costs of alcohol and illicit drug use in New Zealand were nearly \$4.8 and \$1.4 billion respectively (p. 56).
- The largest resource drains were lost output (\$1.95 billion) and crime (\$1.11 billion) (p. 57).
- The total social cost of road crashes related to alcohol was \$700 million (p. 63).
- Based on the estimated number of harmful alcohol users (513,000), drug users (27,000) and joint alcohol and drug users (127,000), the cost of alcohol and drug use was approximately \$10,300 per user (p. 3).

**A. Slack *et al.*, *Costs of Harmful Alcohol and Other Drug Use* (Wellington: Business and Economic Research Limited, 2009).**

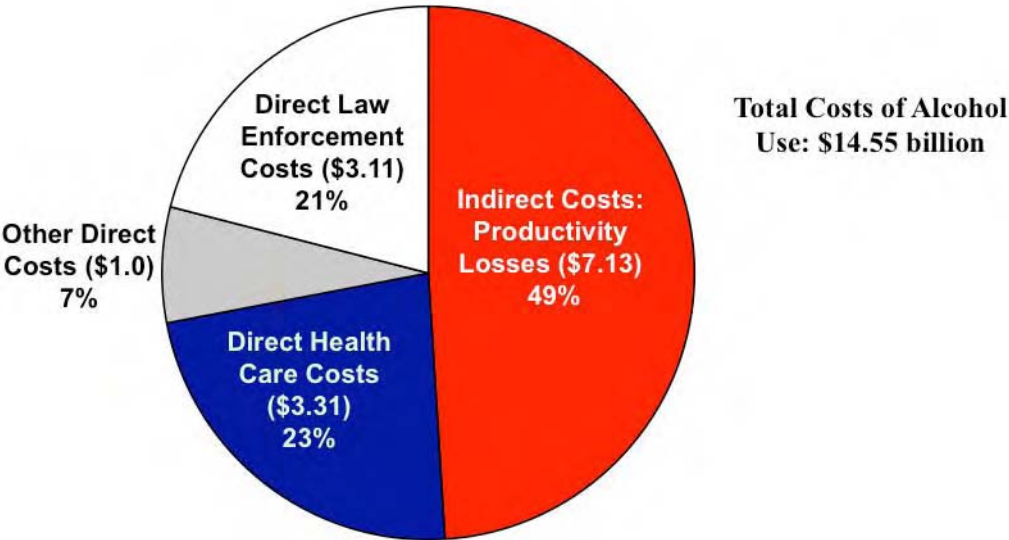
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# ALCOHOL COST CHARTS

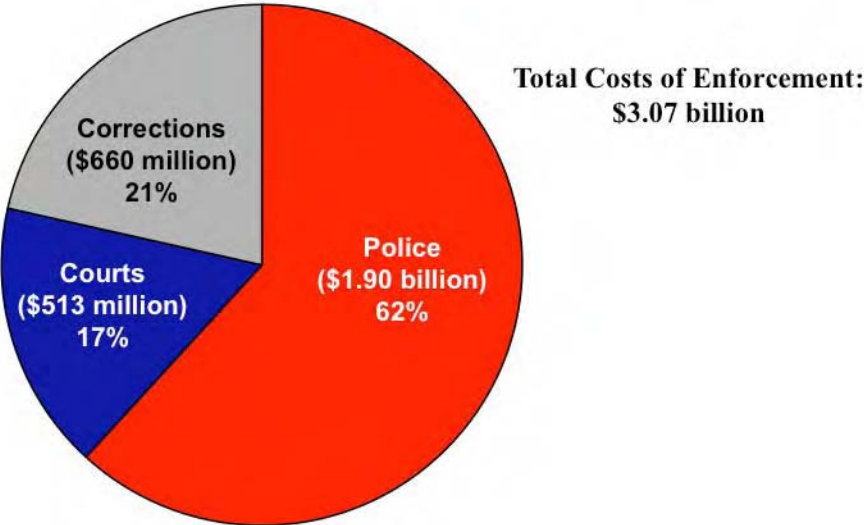
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**COST OF ALCOHOL USE, IN BILLIONS: CANADA, 2002**



Source: J. Rehm *et al.*, *The Costs of Substance Abuse in Canada 2002* (Ottawa: Canadian Centre on Substance Abuse, 2006) at 57-58.

**DIRECT LAW ENFORCEMENT COSTS FOR SUBSTANCE ABUSE: CANADA, 2002**



Source: J. Rehm *et al.*, *The Costs of Substance Abuse in Canada 2002* (Ottawa: Canadian Centre on Substance Abuse, 2006) at 57-58.

**ESTIMATED COST OF ALCOHOL AND DRUG-IMPAIRED  
DRIVING CRASHES, IN MILLIONS: CANADA, 2006**

	<b>Fatal</b>	<b>Personal Injury</b>	<b>Property Damage Only</b>	<b>Total</b>
<b>Number of Crashes</b>	1,065	51,522	163,893	216,480
<b>Real Dollar Costs*</b>	\$353	\$1,536	\$306	\$2,195
<b>Deferred Future Income**</b>	\$1,239	\$1,448	\$1,408	\$4,095
<b>Willingness to Pay***</b>	\$9,406	\$1,955	\$1,408	\$12,769

\* Includes vehicle repairs, medical costs and insurance payouts.

\*\* Includes real dollar costs, lost days of work, reduced employment opportunities, and reduced life span.

\*\*\* Refers to what society would be willing to pay to avoid the crash.

**Source: G. Mercer, *Estimating the Presence of Alcohol and Drug Impairment in Traffic Crashes and their Costs to Canadians 1999 to 2006* (Vancouver: Applied Research and Evaluation Series, 2009) at 9-11.**

**COST OF ALCOHOL USE: CANADIAN PROVINCES AND TERRITORIES, 2002**

<b>PROVINCE/ TERRITORY</b>	<b>Total alcohol costs in millions (per capita)</b>	<b>Alcohol costs as % of all substance abuse</b>	<b>Total costs of substance abuse* in millions (per capita)</b>
<b>ALBERTA</b>	\$1,640.6 (\$527)	37.3%	\$4,402.6 (\$1,414)
<b>B.C.</b>	\$2,219.0 (\$536)	36.6%	\$6,058.1 (\$1,463)
<b>MANITOBA</b>	\$518.4 (\$450)	35.4%	\$1,464.6 (\$1,273)
<b>NEW BRUNSWICK</b>	\$451.7 (\$597)	38.1%	\$1,184.1 (\$1,565)
<b>NEWFOUNDLAND</b>	\$246.5 (\$464)	33.5%	\$737.0 (\$1,386)
<b>N.W.T.</b>	\$39.5 (\$954)	49.3%	\$80.1 (\$1,934)
<b>NOVA SCOTIA</b>	\$418.9 (\$443)	33.7%	\$1,244.6 (\$1,317)
<b>NUNAVUT</b>	\$27.6 (\$961)	44.0%	\$62.7 (\$2,184)
<b>ONTARIO</b>	\$5,318.4 (\$441)	37.2%	\$14,299.1 (\$1,185)
<b>P.E.I.</b>	\$53.9 (\$385)	33.2%	\$162.5 (\$1,162)
<b>SASKATCHEWAN</b>	\$508.7 (\$503)	36.9%	\$1,376.9 (\$1,361)
<b>QUEBEC</b>	\$3,098.8 (\$416)	35.7%	\$8,689.2 (\$1,166)
<b>YUKON</b>	\$20.6 (\$687)	47.4%	\$43.4 (\$1,449)

\* Substance abuse includes alcohol, illicit drugs and tobacco.

**Source: J. Rehm et al., *The Cost of Substance Abuse in Canada 2002: Highlights* (Ottawa: Canadian Centre on Substance Abuse, 2006) at 10-11.**

# PART II: ALCOHOL AND TRAUMA

## ALCOHOL, DROWNING AND BOATING

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### CANADA

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#### NATIONAL

- Drowning is the third leading cause of unintentional death for Canadians under 60 years of age, exceeded only by motor vehicle crashes and poisoning.
  - In 2001, there were 431 drownings in Canada. Canadian water-related deaths had decreased in each of the preceding 5 years.
  - Between 1992 and 2001, alcohol was involved in 44% of preventable water-related deaths involving victims aged 18-49.
  - From 1992 to 2001, alcohol was involved in 37% of boating deaths, 42% of recreational power-boating deaths, 47% of drownings involving canoers, and 54% of snowmobile-related drownings.
- Lifesaving Society, *National Drowning Trends Report 1992-2001* (Ottawa: Lifesaving Society, 2005) at 1. Online: <<http://www.lifesaving.ca/content/english/pdf/NationalDrowningTrendsEnglish1992-2001.pdf>>.**
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#### BRITISH COLUMBIA

- Alcohol was present in one-third of drownings among those under 19 years of age.
- J. Greschner & W. Mitic, "Alcohol's Role in the Deaths of BC Children and Youth" (2002) 93(3) *Canadian Journal of Public Health* 173 at 174.**
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#### ONTARIO

- Fifty percent of adult male and 24% of adult female water-related deaths from 1997 to 2001 involved alcohol.
  - Alcohol was involved in 75% of the fatal water-related incidents after dark.
  - From 1997 to 2001, the average BAC in fatal alcohol-related incidents was .177%. The average BACs for boating and snowmobile drowning victims were .152% and .130%, respectively.
  - From 1997 to 2001, 24% of all Ontario drowning victims, 25% of drowning victims in boating incidents, and 33% of drowning victims in snowmobiling incidents had BACs above .08%.
  - Coroners cite alcohol as the second most frequent factor in preventable water-related deaths.
- Lifesaving Society, *The Drowning Report: A Profile of Drownings and Water-Related Deaths in Ontario, 2004 edition* (Toronto: Lifesaving Society, 2004) at 22. Online: <<http://www.lifesaving.society.com/PDF/98DrowningReport2004Edition.pdf>>.**
- Between 2000 and 2004, alcohol was involved in 40% of all boating deaths and 45% of deaths where the victim fell overboard (p. 14).
  - Among 13-17 year olds, 24% of boating and drowning fatalities involved alcohol (p. 21).

- Alcohol was involved in 43% of water-related fatalities among men aged 18-34 (p. 22) and 48% of fatalities among men aged 35-49 (p. 25).

**Lifesaving Society, *The Drowning Report: A Profile of Ontario Drowning and Water-Related Injuries, 1987-2004, 2008 Edition* (Toronto: Lifesaving Society, 2008). Online: <<http://www.lifesavingsociety.com/PDF/98ONDrowningReport2008EdFinal.pdf>>.**

## QUEBEC

- Between 1961 and 2004, 47% of those with diving-related spinal cord injuries reported drinking at the time of injury.

**P. Barss *et al.*, “Risk Factors and Prevention for Spinal Cord Injuries from Diving in Swimming Pools and Natural Sites in Quebec, Canada: A 44-Year Study” (2008) 40 *Alcohol Analysis and Prevention* 787 at 790.**

## UNITED STATES

- In 1998, 800 Americans died in recreational boating incidents. Data from four states with high testing rates indicated that 51% of the people involved in boating fatalities had BACs of at least .04%, and 30% had BACs above .10% (p. 2,974).
- A 2001 study found that boaters with BACs between .01% and .05% were 2.8 times more likely to die, and boaters with BACs greater than .10% were 12 times more likely to die than boaters with zero BACs (p. 2,978).

**G. Smith *et al.*, “Drinking and Recreational Boating Fatalities: A Population-Based Case-Control Study” (2001) 286(23) *Journal of the American Medical Association* 2,974.**

- In 2003, the U.S. Coast Guard received 5,438 reports of recreational boating accidents, resulting in 703 fatalities and 3,888 injuries (p. 5).
- Alcohol was involved in 630 boating accidents, up from 602 in the previous year (p. 36).
- Alcohol was involved in 31% of all boating fatalities in 2003, down 8% from 2002 (p. 6).

**United States Coast Guard, *Boating Statistics: 2003* (Washington, D.C.: US Department of Homeland Security, 2003). Online: <[http://www.uscgboating.org/statistics/Boating\\_Statistics\\_2003.pdf](http://www.uscgboating.org/statistics/Boating_Statistics_2003.pdf)>.**

- In 2005, there were 4,292 unintentional drowning deaths in the United States, including 710 boating-related deaths.
- Studies indicated that alcohol use was involved in up to 50% of adolescent and adult deaths associated with water recreation and about 20% of reported boating fatalities.

**Centre for Disease Control and Prevention (CDC), *Water-Related Injuries: Fact Sheet* (Atlanta: CDC, 2008). Online: <<http://www.cdc.gov/HomeandRecreationalSafety/Water-Safety/waterinjuries-factsheet.htm>>.**

## UNITED KINGDOM

- The Royal Life Saving Society has identified alcohol as the most common risk factor in drowning deaths (p. 3).
- In 1998, there were 79 alcohol-related drownings in the UK, representing 15% of total drownings. Males accounted for 90% of these alcohol-related drownings (p. 3).

**Alcohol Concern, *Factsheet 9: Alcohol and Accidents* (London: Alcohol Concern, 2001). Online: <[http://www.alcoholconcern.org.uk/files/20030819\\_152850\\_Alcohol%20and%20Accidents.pdf](http://www.alcoholconcern.org.uk/files/20030819_152850_Alcohol%20and%20Accidents.pdf)>.**

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## AUSTRALIA

- Alcohol was the initial contributing factor in 16% of fatal boating incidents between 1992 and 1998 (p. 692).
- Forty percent of tested vessel operators involved in fatal accidents had positive BACs (p. 693).
- Forty-two percent of those killed in boating mishaps had positive BACs and 26% had BACs above .05% (p. 693).

**P. O'Connor & N. O'Connor, "Causes and prevention of boating fatalities" (2005) 37 Accident Analysis and Prevention 689.**

- There were 371 drowning deaths in Australia in 2000 (p. 175).
- In 2000/01, alcohol contributed to 19% of fatal drowning incidents in which there was a valid BAC measure. Twelve percent of the fatal drowning incidents involved BACs  $\geq$  .10% (p. 178).

**T. Driscoll, J. Harrison & M. Steenkamp, "Alcohol and drowning in Australia" (2004) 11 Injury Control and Safety Promotion 175.**

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## EUROPE

- Alcohol plays a very significant role in drownings in northern Europe, particularly among males. This is consistent with studies on Finnish males, which found that 63% of drowning 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.**

- In Norway, the median BAC of impaired boating suspects from 2002 to 2004 was 1.76 g/kg, which is higher than the median BAC of suspected impaired drivers.
- The median BAC was significantly higher for men (1.78 g/kg) than women (1.39 g/kg).

**H. Khiabani, M. Opdal & J. Morland, "Blood Alcohol Concentrations in Apprehended Drivers of Cars and Boats Suspected to Be Impaired by the Police" (2008) 9 Traffic Injury Prevention 31 at 33.**

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# ALCOHOL AND FALLS

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## CANADA

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### NATIONAL

- While accidental falls accounted for only 6% (408) of alcohol-related deaths in 1992, they accounted for 20% of hospitalizations and 27% of hospital days. 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.**

- In 2002, falls accounted for 5% (215) of net alcohol-attributed deaths (total alcohol-attributed deaths minus deaths prevented by alcohol consumption).

**J. Rehm *et al.*, *The Costs of Substance Abuse in Canada 2002* (Ottawa: Canadian Centre on Substance Abuse, 2006) at Table I-A-1.**

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### ONTARIO

- In 2000/01, falls accounted for 16% of the alcohol-related major injury hospitalizations in 11 lead Ontario trauma hospitals.
- Of the 203 people hospitalized for falls in 2000/01 who were tested for alcohol, 34% had positive BACs and 27% had BACs  $\geq$  .08%.

**Canadian Institute for Health Information (CIHI), *Ontario Trauma Registry Bulletin July 2002: Alcohol-Related Major Injury Hospitalizations in Ontario, 2000/2001* (Ottawa: CIHI, 2002) at 8-10.**

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## UNITED STATES

- In 1990, falls were the second leading cause of accidental death in the United States, accounting for more than 12,000 fatalities. Falls also accounted for 60% of accidental injuries.
- A review of the relevant studies indicates that an average of 28% of the people killed and 30% of those injured in falls had been drinking.
- A review of other studies indicated that alcoholics are 3 to 16 times more likely to suffer a fatal fall than other members of the public.

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

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## UNITED KINGDOM

- A 1998 survey of emergency departments found that a quarter of facial injuries were linked to alcohol consumption, with the most common causes being falls (40%) and assaults (25%) (p. 8).

**Institute of Alcohol Studies (IAS), *Alcohol and Crime* (St. Ives: IAS, 2005).**

- A Northern Ireland study of falls from a standing height occurring in 2000/01 found that 48% of those who had consumed alcohol sustained head injuries, compared to only 9% of those who had abstained.
- Among those with BACs above .25%, 90% sustained a significant head injury.

**J. Johnston & S. McGovern, “Alcohol Related Falls: An Interesting Pattern of Injuries” (2004) 21 *Emergency Medicine Journal* 185 at 185.**

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## EUROPE

- An early Finnish emergency room study found that the risk of a fall was 3 times greater for people with BACs between .10% and .15%, and 60 times greater for people with BACs  $\geq$  .16%, than for those with a BAC  $\leq$  .05%.

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

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## NEW ZEALAND

- Falls accounted for 209 or 6.5% of the total number of alcohol-caused deaths from 2001 to 2005.

**Business and Economic Research Limited (BERL), *Cost of Harmful Alcohol and Other Drug Use* (Wellington: BERL, 2009) at 134.**

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# ALCOHOL AND FIRES

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## CANADA

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### NATIONAL

- In 2002, of the 4,258 net alcohol-attributed deaths (total alcohol-attributed deaths minus deaths prevented by alcohol consumption), 71 or about 2% resulted from fire (Table I-A-1). (This estimate of alcohol-related fire deaths is considerably lower than comparable American and United Kingdom estimates.)
- In 2000, total fire damage to property was \$1.19 billion, of which \$156.5 million or 13.15% was attributable to alcohol (p. 60).

**J. Rehm *et al.*, *The Cost of Substance Abuse in Canada 2002* (Toronto: Canadian Centre on Substance Abuse and Centre for Addiction and Mental Health, 2006).**

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### ONTARIO

- Between 1995 and 2001, 901 Ontarians died from fire-related injuries, and 175 of the victims (19%) were impaired by alcohol (p. 2).
- Nearly 70% of the alcohol-related fire victims were between the ages of 25 and 54. Those over 74 years of age accounted for the largest number of fire deaths, but only 3% of these victims were impaired by alcohol (p. 4).
- Men accounted for 78% of the 175 alcohol-related fire deaths (p. 4).
- None of the 101 fire victims under 15 years of age were impaired. However, some of these young victims died in multiple fatality fires in which an adult was impaired (p. 4).

**US Fire Administration (USFA)/National Fire Data Center, “Case Study: Contribution of Alcohol to Fire Fatalities in Ontario” (2003) 3(5) Topical Fire Research Series. Online: <<http://www.usfa.fema.gov/downloads/pdf/tfrs/v3i5.pdf>>.**

- In 2004, fires resulted in 761 injuries, more than 400 hospitalizations and 97 deaths. Preventable residential fires accounted for 77% of the deaths.
- Drug or alcohol impairment was involved in 29% of all the fire deaths.
- Lit smoking materials were the largest single source of ignition in the preventable residential fire deaths.

**Smartrisk, “Fire-Related Injuries” (October, 2005) 2(8) Ontario Injury Compass.**

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## UNITED STATES

- A review of studies on alcohol-related fires indicated that 33% to 61% of burn fatalities, and 22% to 27% of non-fatal burn injuries, involved alcohol.
- Studies indicate that alcoholics are 10 to 26 times more likely to die in fires than other members of the public.

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

- Alcohol has been implicated in more than half of fatal residential fires. Among the adult victims who were tested for alcohol, 53% had BACs above .10%. In this study, of the 190 fatalities, 124 victims were male and 78 victims were home alone.
- Those most likely to die were children under 5 years of age, those 64 years of age or older, individuals who were physically or cognitively disabled, and those who were impaired by alcohol or other drugs.
- Fourteen of the 48 deaths among those under 18 years of age occurred in situations in which there was no adult supervision.
- Seven young victims died in fires in which one or more of the surviving adults had been judged to be impaired by alcohol or other drugs.

**S. Marshall *et al.*, “Fatal Residential Fires: Who dies and who survives?” (1998) 279 *Journal of the American Medical Association* 1633 at 1634.**

- Fires and burns are the fourth leading cause of accidental death in the United States, accounting for at least 5,000 deaths and 1.4 million injuries a year.
- 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* (2001). Online: <<http://www.healthlink.mcw.edu/article/1008273330.html>>.**

- From 1996 to 2002, 36% of Minnesota’s fire fatalities had positive BACs. Sixteen percent had BACs below .10%, 34% had BACs between .10% and .199%, 8% had BACs between .20% and .299%, and 42% had BACs above .30%.
- Smoking accounted for 26% of the fire deaths, and 62% of these victims were impaired at time of death.
- More than 33% of automobile and “heating fire” fatalities were under the influence of alcohol at time of death. Nearly 30% of cooking and electrical fire fatalities were alcohol impaired.

**US Fire Administration (USFA)/National Fire Data Center, “Case Study: Contribution of Alcohol to Fire Fatalities in Minnesota” (2003) 3(4) *Topical Fire Research Series*. Online: <[www.usfa.dhs.gov/downloads/pdf/tfrs/v3i4.pdf](http://www.usfa.dhs.gov/downloads/pdf/tfrs/v3i4.pdf)>.**

## UNITED KINGDOM

- A British study found alcohol to be a contributing factor in 39% of fire deaths (p. 1).
- A 1994 study found that 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 (p. 3).

**Alcohol Concern, *Factsheet 9: Alcohol and Accidents* (London: Alcohol Concern, 2001).**

- The Greater Manchester Fire Service reported that in 2007/08, 43% of those killed in fires had consumed alcohol.
- The London Fire Brigade reported that in 2008, alcohol was a factor in 31% of fatal accidental home fires.
- More than 33% of fatal residential fires in London occurred on Friday or Saturday nights.

**Institute of Alcohol Studies (IAS), *Alcohol and Accidents – IAS Factsheet* (St. Ives: IAS, 2009) at 6. Online: <<http://www.ias.org.uk/resources/factsheets/accidents.pdf>>.**

# ALCOHOL AND THE WORKPLACE

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## CANADA

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### NATIONAL

- Twenty-two percent 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” a problem by 35% of enterprises), impaired performance (36%), 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 alcohol or other drug use (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).

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

- In 2002, the equivalent of 245,749 work days were lost due to alcohol. Of these, 92.6% (227,650 days) were due to alcohol-related short-term disability and 7.4% were due to permanent disability (18,099 days) (p. 12).
- Total productivity losses due to alcohol were estimated to have cost \$6.2 billion.

**C. Smythe & R. Caverson, *Alcohol, other drugs & related harms in Ontario – a scan of the environment* (Toronto: Ontario Health, Education and Enforcement Partnership, 2009). Online: <[http://www.apolnet.ca/thelaw/policies/AOD\\_scan.pdf](http://www.apolnet.ca/thelaw/policies/AOD_scan.pdf)>.**

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### ALBERTA

- A 2002 survey found that 11% of Alberta workers reported using alcohol at work in the past 12 months (*i.e.* 184,118 workers).
- Eighty-one percent of Alberta employees reported consuming alcohol in the 12 months prior to the survey.
- The industries reporting the highest prevalence of alcohol use were utilities, forestry/mining, public administration, and finance/insurance/real estate.

**Alberta Alcohol and Drug Abuse Commission (AADAC), *Alcohol Use and the Alberta Workplace 1992-2002* (Edmonton: AADAC, 2003).**

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## UNITED STATES

- A 1989 study found that up to 40% of industrial fatalities and 47% of injuries could be linked to alcohol consumption and alcoholism.

- Among employed adults, the highest rates of heavy drinking (5 or more drinks, on 5 or more occasions in the past month) and current illicit drug use were reported by 18-25 year old white males, who had less than a high school education.
- The highest rates of heavy drinking and current illicit drug use were reported by: food preparation workers, waiters, waitresses, and bartenders (19%); construction workers (14%); service occupations (13%); and transportation and material moving workers (10%).
- A 1995 U.S. Department of Health and Human Services report indicated that current heavy drinkers (8%) were more likely to have changed employers 3 or more times in the past year than those who were not heavy drinkers (4.4%).
- This study also reported that current heavy drinkers (11.3%) were more likely to have skipped one or more work days in the past month, than those who were not heavy drinkers (5.1%).

**Working Partners for an Alcohol and Drug Free Workplace, *Small Business Workplace Kit, Facts and Figures*. Online: <<http://www.dol.gov/asp/programs/drugs/workingpartners/stats/wi.asp>>.**

- 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.

**National Institute on Alcohol Abuse and Alcoholism (NIAAA), *Alcohol Alert: Alcohol and the Workplace* (Bethesda: NIAAA, 1999).**

- In a 1997 national survey, 6.6% of Americans employed in full-time jobs reported heavy drinking (5 or more drinks per occasion, on 5 or more days in the past 30 days). In addition, 4.9% of part-time employees and 10.4% of unemployed workers reported heavy drinking.
- The highest rate of heavy drinking occurred among unemployed 26-34 year olds (12.2%).
- Sixty percent of alcohol-related work performance problems could be attributed to employees who were not alcohol-dependent, but who occasionally drank too much on a work night or drank during a weekday lunch.
- Twenty-one percent of workers reported being injured, put in danger, having to re-do work or cover for a co-worker, or needing to work harder due to another worker’s drinking.
- Shortfalls in productivity and employment among individuals with substance problems cost the American economy \$80.9 billion in 1992. Alcohol accounted for \$66.7 billion and drugs accounted for \$14.2 billion of these costs.
- Absenteeism among alcoholics or problem drinkers is 3.8 to 8.3 times greater than normal.
- Drug-using employees take 3 times as many sick benefits as other workers and are 5 times more likely to file a worker’s compensation claim.

**National Council on Alcoholism and Drug Dependence (NCADD), *Alcohol and Other Drugs in the Workplace* (New York: NCADD, 1999).**

- A 2002/03 survey indicated that workplace alcohol use and impairment directly affected an estimated 15% of the US workforce (19.2 million workers) at least once in the preceding 12 months (p. 151).
- An estimated 1.83% of workers (2.3 million) drank before work, 7.06% (8.9 million) drank during the workday (p. 149), 1.68% (2.1 million) worked under the influence of alcohol, and 9.23% (11.6 million) worked with a hangover at least once in the preceding 12 months (p. 151).

**M. Frone, “Prevalence and Distribution of Alcohol Use and Impairment in the Workplace: A U.S. National Survey” (2006) 67(1) *Journal of Studies on Alcohol* 147.**

## UNITED KINGDOM

(Note that 1 U.K. standard drink is equivalent to .594 of a Canadian standard drink.)

- A 2001 study found that 60% of employers reported alcohol misuse problems and 27% reported drug use problems.
- It was estimated that up to 25% of workplace accidents were alcohol related.
- An employee may be at work, but underperform due to alcohol or drug use at lunchtime or during breaks, or due to recovering from the previous night's drinking or drug use.

**National Treatment Agency for Substance Misuse (NTA), *Drugs and Alcohol in the Workplace* (London: NTA, 2004) at 3. Online: <[http://www.nta.nhs.uk/publications/documents/nta\\_drugs\\_and\\_alcohol\\_in\\_the\\_workplace\\_2004\\_ddsp3.pdf](http://www.nta.nhs.uk/publications/documents/nta_drugs_and_alcohol_in_the_workplace_2004_ddsp3.pdf)>.**

- Having 7 or more units of alcohol per week for women or 14 or more units per week for men raised the likelihood of absence from work by 20% (p. 4).
- Drinking reduces productivity through increased absenteeism, inability to work and premature deaths among economically active people. These factors account for a total alcohol-related output loss to the UK economy of up to £6.4 billion per year (p. 4).
- In 2001, alcohol-related sickness accounted for between 10.56 to 26.4 million working days lost or 6-15% of total absenteeism (p. 5).
- Alcohol-related absenteeism was estimated to cost the UK economy between £1.2 and £1.8 billion in 2001 (p. 5).

**Institute of Alcohol Studies (IAS), *Alcohol and the Workplace – IAS Factsheet* (St Ives: IAS, 2008). Online: <<http://www.ias.org.uk/resources/factsheets/workplace.pdf>>.**

# ALCOHOL AND SPORTS

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## CANADA

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### ONTARIO

- Three hundred and ten people were hospitalized in Ontario for a major sports/recreational injury in 1999/00. Of the 116 patients who were tested for alcohol, 21% had BACs over .08%.
- There were 428 hospitalizations due to cycling injuries from 1995/96 to 1999/00. Of the 134 patients who were tested for alcohol, 26% had BACs over .08%.

***APOLNET-L, Sports & Recreational Injuries in Ontario.***

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## UNITED STATES

- Alcohol was reported to be a contributing factor in 31 of 126 sports-related spinal cord injuries in Oklahoma among persons over 4 years of age.
- Diving was the leading cause of sports-related spinal cord injury from 1988 to 1994, accounting for 53 of the 142 cases. Males accounted for 91% of the diving-related spinal cord injuries. Alcohol was involved in 52% of these injuries among males.

***Injury Update: A Report to Oklahoma Injury Surveillance Participants, Sports-Related Spinal Cord Injuries, Oklahoma, 1988-1994 (1996).***

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# ALCOHOL AND VIOLENCE

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## CANADA

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### NATIONAL

- A 2002 study found that 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 of their current sentence. Twenty-four percent were under the influence of alcohol alone, 16% were under the influence of drugs alone, and an additional 14% were under the influence of both (p. 55).
- In total, 33% of federal inmates committed their most serious crime under at least the partial influence of drugs, and 38% committed their most serious crime under at least the partial influence of alcohol (p. 55).
- 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, 7% reported being under the influence of only illicit drugs, and 21% reported being under the influence of both alcohol and illicit drugs (p. 7).
- Federal inmates who reported not using either drugs or alcohol during a six-month period of 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 (p. 7).

**K. Pernanen *et al.*, *Proportions of Crimes Associated with Alcohol and Other Drugs in Canada* (Ottawa: Canadian Centre on Substance Abuse, 2002).**

- About 51% of prisoners in federal correctional institutions had an alcohol problem (p. 2).
- Alcohol or drug use was associated with 69% of assaults, 66% of thefts, 58% of murders, 56% of break and enters and robberies, 45% of sexual assaults, and 22% of frauds (p. 3).
- Over half of all Canadian federal offenders reported that substance use was either directly or indirectly related to at least one of their current offences (p. 3).
- Among offenders with severe alcohol or drug problems, 97% reported that they used alcohol or drugs on the day of the offence, and 87% reported that substance abuse was associated with their crimes over their criminal history (p. 3).

**Canadian Centre on Substance Abuse (CCSA), *Substance Abuse in Corrections FAQs* (Ottawa: CCSA, 2004).**

- In 2002, 30.4% of all crimes (761,683 total), 35.8% of all charges (206,594 total), and 26,710 prison sentences in Canada were attributed to alcohol (p. 21).
- In a 2004 survey, 8.8% of Canadians reported suffering at least one harm during the past year from their own drinking, and 32.7% reported at least one harm from another person's drinking. Being pushed or shoved accounted for 10.8% of these harms, and being hit or physically assaulted accounted for 3.2% (p. 21).

**P. Kendall, *Public Health Approach to Alcohol Policy: An Updated Report from the Provincial Health Officer* (British Columbia: Ministry of Healthy Living and Sport, 2008). Online: <<http://www.health.gov.bc.ca/library/publications/year/2008/alcoholpolicyreview.pdf>>.**

- Men who drink regularly were more likely to abuse family members (p. 3).
- Parental child abuse was 6 times more frequent among men who often drink to excess (p. 3).
- A 1993 survey indicated that women living with men who drank regularly (at least 4 times per week) were 3 times more likely to be assaulted than those whose partners did not drink. Women whose partners frequently drank 5 or more drinks at one time were 6 times more likely to be abused than those whose partners never drank (pp. 3-4).
- One in 7 seniors who had suffered serious maltreatment in their own home identified their abusers as having a drinking problem (p. 4).

**Health Canada, *Family Violence and Substance Abuse* (Ottawa: Health Canada, 1993). Online: <<http://www.phac-aspc.gc.ca/ncfv-cnivf/pdfs/fvsubab.pdf>>.**

- A 1999 national campus survey reported that 36.9% of sexual assault victims had been drinking and 64.3% had consumed enough alcohol to be considered drunk. Moreover, 35.5% of the perpetrators had been drinking and 60.8% had consumed enough alcohol to be considered drunk (p. 7).
- Similarly, 36% of physical assault victims had been drinking and 54.7% could be considered drunk. Moreover, 34.1% of the perpetrators had been drinking and 72.7% could be considered drunk (p. 7).

**B. Newton-Taylor *et al.*, “Assault on Campus: Prevalence and Risk Factors of Physical and/or Sexual Assault of Canadian University Students” [unpublished, archived at the Centre for Addiction and Mental Health].**

- Rates of being a victim of spousal violence were 6 times higher for people whose partners drank heavily than for those whose partners did not drink or drank moderately. Heavy drinkers were defined as those who consumed 5 or more drinks on 5 or more occasions in the past month (p. 16).

**Statistics Canada, Canadian Centre for Justice Statistics, *Family Violence in Canada: A Statistical Profile 2000* (Ottawa: Statistics Canada, 2000). Online: <<http://www.statcan.ca/english/freepub/85-224XIE/0000085-224-XIE.pdf>>.**

- According to the 2004 General Social Survey, 44% of women and 24% of men who had been victimized by their current or previous partner reported that their partner was drinking at the time (p. 23).
- Between 1995 and 2004, alcohol and/or drug abuse was reported in 62% of spousal homicide cases and 65% of non-spousal homicide cases (p. 54).

**Canadian Centre for Justice Statistics, *Family Violence in Canada: A Statistical Profile 2006* (Ottawa: Statistics Canada, 2006). Online: <<http://www.statcan.gc.ca/pub/85-224-x/85-224-x2006000-eng.pdf>>.**

## **BRITISH COLUMBIA**

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

- In 2002, 29.6% of crimes (146,012 total), 36.7% of charges (27,036 total), and 2,901 prison sentences in British Columbia were attributed to alcohol (p. 21).
- In a 2004 survey, 9.5% of British Columbia residents reported at least one harm in the past year from their own drinking, and 38% reported at least one harm from another person's drinking (p. 21).

**P. Kendall, *Public Health Approach to Alcohol Policy: An Updated Report from the Provincial Health Officer* (British Columbia: Ministry of Healthy Living and Sport, 2008). Online: <<http://www.health.gov.bc.ca/library/publications/year/2008/alcoholpolicyreview.pdf>>.**

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## ONTARIO

- In Ontario, male homicide mortality rates were significantly and positively related to both total alcohol consumption and to beer and spirits consumption from 1968 to 1991.

**R. Mann *et al.*, “Alcohol consumption, alcoholics anonymous membership, and homicide mortality rates in Ontario 1968 to 1991” 30(10) *Alcoholism: Clinical and Experimental Research* 1743.**

- Assaults accounted for 15% of alcohol-related major injury hospitalizations from 1996/97 to 2000/01. Assaults were the third most common alcohol-related major injury, after traffic accidents and falls.
- In 2000/01, all of the people hospitalized for alcohol-related assaults were male, and their average age was 29.

**Canadian Institute for Health Information (CIHI), *Ontario Trauma Registry Bulletin July 2002: Alcohol-Related Major Injury Hospitalizations in Ontario, 2000/2001* (Ottawa: CIHI, 2002) at 10.**

- In a 2005 study, about 39% of 17-21 year old drinkers reported that they had gotten into an argument or fight during or after drinking in the past 12 months. More frequent drinkers, especially binge drinkers (5 or more drinks per session), were more likely to report alcohol-related fights.

**S. Wells, M. Speechley & J. Koval, “Drinking patterns, drinking contexts and alcohol-related aggression among late adolescent and young adult drinkers” (2005) 100(7) *Addiction* 933.**

- In a survey of female students, 19% reported being physically assaulted by someone who had been drinking, compared to 11% who reported being assaulted by someone who had not been drinking (p. 157).
- Almost 7% of female university students were sexually assaulted by someone who had been drinking, compared to 4% who were sexually assaulted by someone who had not been drinking (pp. 157-8).

**B. Newton-Taylor, D. Dewit & L. Gliksman, “Prevalence and Factors Associated With Physical and Sexual Assault of Female University Students in Ontario” (1998) 19 *Health Care for Women International* 155.**

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## UNITED STATES

- In 1996, corrections authorities supervised an estimated 5.3 million offenders a day. Nearly 2 million offenders (36%) had been drinking at the time of their 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).
- Between 1992 and 1995, there was an average of 11.1 million victims of violence each year. On average, 25% of victims were certain and an additional 37% believed that the offender had been drinking before the crime (p. 3).

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

- Alcohol is the drug most likely to be present in rapes. Studies, when averaged, suggested that the perpetrator, victim or both had been drinking prior to approximately 50% of all rapes.
- Studies of rapists have found that more than 25% had used 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 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 assailant had been drinking at the time.
- Studies of child abuse indicate that between 22% and 63% of cases involved alcohol.
- Studies of sexual molestation and incest indicated that alcohol is involved in 30% to 71% of the cases.
- Partner battery studies indicated that alcohol is involved in 60% to 70% of the cases.

**J. 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.**

- Alcohol consumption is common among perpetrators of violent crimes in the United States, including those arrested for homicide (range: 28%-86%), assault (range: 24%-37%), robbery (range: 7%-72%), and sexual offences (range: 13%-60%) (p. 617).
- High school students who binge drink are more likely to be involved, injured, or to injure others in physical fights (p. 617).

**R. Brewer & M. Swahn, “Binge Drinking and Violence” (2005) *Journal of the American Medical Association* at 616.**

## 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 have the highest rates of “heavier” drinking in Great Britain, and males aged 16-30 have the highest rates of violent victimization (p. 574).

**R. Norton & M. 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% to 70% of homicides, 75% of stabbings, 70% of beatings, and 50% of fights and domestic assaults (p. 2).

- Various studies have found a strong association between alcohol-related violence and the concentration of licensed establishments in an area (pp. 7-8).
- A 1998 survey of casualty (emergency) departments found that a quarter of facial injuries were linked to alcohol consumption. Approximately 18,000 young people are scarred for life each year as result of serious facial injuries caused by drunken assaults (p. 8).
- In 2002, 45% of those accused in Scottish homicide cases were drunk at the time of the offence, an additional 15% were drunk and on drugs, and 10% were on only drugs (p. 5).

**Institute of Alcohol Studies (IAS), *Alcohol and Crime* (St. Ives: IAS, 2005).**

- The 2005/06 British Crime Survey (BCS) found that 46% of domestic violence, 21% of muggings, 54% of stranger violence, and 54% of acquaintance violence were perpetrated by assailants under the influence of alcohol. Overall, 44% of assailants in violent incidents were described as being under the influence of alcohol (p. 9).
- The BCS estimated that there were approximately 1,029,000 violent incidents in which the victim believed that the offender was under the influence of alcohol (p. 9).
- Alcohol had been consumed prior to the offence in 73% of domestic violence cases, and 48% of those convicted of domestic violence were alcohol dependent (p. 4).
- A 2003 survey found that binge drinkers comprised 6% of the adult sample, but accounted for 30% of all crimes and 24% of all violent incidents (p. 13).
- Youth violence is often alcohol related, with much of it occurring in and around pubs and nightclubs. A 2004 study indicated that 16-24 year olds experienced the highest level of assaults, the majority of which were alcohol related (p. 9).
- A 2005 survey of male prisoners found that: hazardous and dependent drinkers were 10 times more prevalent in the prison population than in the general population; 35% of prisoners believed they had a drinking problem; and that 46% of prisoners stated that alcohol was linked to their criminal activity, with violent crimes accounting for half of these offences (p. 12).

**Institute of Alcohol Studies (IAS), *Alcohol and Crime* (St. Ives: IAS, 2007). Online: <<http://www.ias.org.uk/resources/factsheets/crime.pdf>>.**

## AUSTRALIA

- A 1995 study estimated that 47% of all perpetrators of assault and 43% of all victims of assault were intoxicated prior to the event.
- Alcohol-related violence in 1997 was estimated to have resulted in 124 deaths, 4,381 years of life lost prematurely and 26,882 days of hospitalization.
- It was estimated that in 1998/99, 8,661 people were admitted to hospital as a result of alcohol-caused assaults (4.6 per 10,000 persons). Seventy-four percent of those admitted were male. Fifteen to thirty-four year olds were overrepresented, accounting for approximately 64% of these hospital admissions.
- Rural areas of the Northern Territory, Western Australia, Queensland, and South Australia had markedly higher levels of hospital admissions for assault than urban regions.
- The Northern Territory consistently had the highest estimated rate of alcohol-caused assault hospitalizations and the highest rate of per capita alcohol consumption.

**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, Curtin University, 2002) at 1.**

- Nearly 75% of people convicted of assault in New South Wales reported that alcohol was related to their offence.
- Thirty-five percent of women who had been physically abused reported that the male perpetrator was under the influence of alcohol. A further 6% reported that a combination of alcohol and other drugs had been consumed prior to the violent episode.

**New South Wales Office of Drug and Alcohol Policy, *Fact Sheet: Alcohol-Related Crime Statistics* (Sydney: NSW Office of Drug and Alcohol Policy, 2006).**

- Approximately 5% of Australians suffered alcohol or drug-related physical abuse in the past 12 months, and 4.4% of those injured required hospitalization (p. 47).
- Of those surveyed, 25.4% reported being verbally abused and 4.5% reported being physically abused in the preceding 12 months by someone under the influence of alcohol. Moreover, 11% reported being verbally abused and 2% reported being physically abused by someone under the influence of some other drug (p. 45).

**Australian Institute of Health and Welfare (AIHW), *2007 National Drug Strategy Household Survey: First Results* (Canberra: AIHW, 2008). Online: <<http://www.aihw.gov.au/publications/phe/ndshs07-df/ndshs07-df.pdf>>.**

## EUROPE

- More than 2,000, or 40% of all murders in Europe, are attributable to alcohol each year (p. 220).
- Seven million adults reported being in fights when drinking in the past year (p. 5).
- Approximately 16% of child abuse and neglect was attributed to alcohol. Moreover, 5 to 9 million children were adversely affected by alcohol abuse in their families (p. 6).
- The economic cost of alcohol-attributable crime in the EU was estimated to be €33 billion in 2003. Police, courts and prisons accounted for €15 billion, crime prevention and insurance accounted for €12 billion, and property damage accounted for €6 billion. The intangible costs (pain, suffering and lives lost) of alcohol-related crime were assessed at €9 to €37 billion (p. 5).

**P. Anderson & B. Baumberg, *Alcohol in Europe, A Public Health Perspective: A Report for the European Commission* (London: Institute of Alcohol Studies, 2006). Online: <[http://ec.europa.eu/health-eu/news\\_alcoholineurope\\_en.htm](http://ec.europa.eu/health-eu/news_alcoholineurope_en.htm)>.**

- More than half of the assaults in Sweden from 1920 to 1984 were estimated to be alcohol-related, with even higher percentages in Norway and Finland (p. 221).
- When Swedish alcohol consumption fell from about 6 to 1 litres per capita in the First World War, assault rates fell from 70 to 40 per 100,000 inhabitants. No explanation other than the decrease in alcohol consumption has been presented (p. 221).
- The age-standardized homicide rate for Russian males fell dramatically during Gorbachev's anti-alcohol campaign, which was estimated to have reduced real alcohol consumption from 14.2 to 10.7 litres per capita between 1984 and 1987. During this period, male deaths from homicide fell from 19.3 to 11.5 per 100,000, suggesting that considerably more than half of the Russian homicides were attributable to drinking (pp. 221-22).

**R. Room & I. Rossow, "The share of violence attributable to drinking" (2001) 6 *Journal of Substance Abuse* 218.**

# ALCOHOL AND SUICIDE

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## CANADA

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### NATIONAL

- Between 1950 and 1998, the Canadian suicide rate increased by 4-5% with each 1-litre increase in per-capita alcohol consumption.
- It was estimated that 25-30% of suicides in Canada are alcohol-related.

**M. Ramstedt, “Alcohol and suicide at the population level – the Canadian experience” (2005) 24(3) Drug and Alcohol Review 203 at 206.**

- In 2001, 22% of youth aged 15 to 24 who died took their own life.
  - Suicide is quickly approaching motor vehicle crashes as the leading cause of death among youth.
- Smartrisk, *Ending Canada’s Invisible Epidemic: A Strategy for Injury Prevention* (Toronto: Smartrisk, 2005).**

- In 2002, 603 (14.16%) deaths of the 4,258 net alcohol-attributed deaths resulted from suicide (total alcohol-attributed deaths minus deaths prevented by alcohol consumption) (p. 43).
- Approximately 17% of all male suicides and 14% of all female suicides were attributed to alcohol (Table I-A-1).

**J. Rehm et al., *The Cost of Substance Abuse in Canada 2002* (Ottawa: Canadian Centre on Substance Abuse, 2006).**

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### BRITISH COLUMBIA

- Between 1996 and 2000, 34 (7%) of the 489 deaths among those under the age of 19 in British Columbia resulted from suicide. Alcohol was mentioned in 71% of the suicide reports and was present in 32% of the deceased.

**J. Greschner & W. Mitic, “Alcohol’s Role in the Deaths of BC Children and Youth” (2002) 93(3) Canadian Journal of Public Health 173 at 174.**

- From 2002-2007, among the 66 suicide victims aged 12 to 18 studied, 40 (61%) had used alcohol and/or drugs during their lives. More than 50% had used both alcohol and drugs.
- All of the suicide victims who tested positive for alcohol and/or drugs were identified as chronic or heavy users of drugs and/or alcohol.

**BC Coroners Service, Child Death Review Unit, *Child and Youth Suicide in B.C.: Summary of a Five-Year Retrospective Review* (Burnaby: BC Coroners Service, 2008). Online: <<http://pssg.gov.bc.ca/coroners/child-death-review/docs/cdru-suicidereportfull.pdf>>.**

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### NORTHWEST TERRITORIES

- Between 1994 and 1996, 43% of tested suicide victims had positive BACs. One-third had BACs above .08% at time of death, and 10% had BACs below .08%.

- Twenty-two percent of suicide victims under the age of 25 and 50% of suicide victims aged 25 years and older were intoxicated at time of death.

**S. Issacs *et al.*, “Suicide in the Northwest Territories: A Descriptive Review” (2000) 19(1) Chronic Diseases in Canada 1 at 6.**

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## MANITOBA

- The authors concluded that per capita alcohol consumption between 1976 and 1997 was significantly related to suicide mortality rates in Manitoba.
- It was estimated that a 1-litre increase in per capita spirits consumption was associated with a 17% increase in total suicides.
- For men, a 1-litre increase in per capita spirits consumption was associated with a 26% increase in suicides.
- For women, a 1-litre increase in total per capita alcohol consumption was associated with a 12% increase in suicides.

**R. Mann *et al.*, “Alcohol Factors in Suicide Mortality Rates in Manitoba” (2008) 53(4) Canadian Journal of Psychiatry 243 at 248-9.**

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## 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 capita alcohol consumption and suicides (p. 459).
- Overall, a 1-litre per year increase in per capita alcohol consumption increased the suicide rate by about 3%. Among those under the age of 60, a 1-litre increase in per capita alcohol consumption increased the suicide rate by about 5%. When per capita alcohol consumption was approximately 10 litres per year, 26% of all suicides could be attributed to alcohol (p. 459).
- The effect of consumption on the suicide rate among women is similar to its effect on men (p. 460).
- 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 60 years of age (p. 460).

**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 and Drugs 455.**

- 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.
- Drinkers are twice as likely as non-drinkers to commit suicide in the home. Those for whom drinking results in trouble at work are 6 times more likely than non-drinkers to commit suicide in the home.
- A recent study found that states with higher per capita spirits sales have higher suicide rates. The authors concluded that a 10% increase in spirits sales results in a 1.4% increase in a state’s suicide rate.
- One study suggested that alcohol may be a more significant factor in “impulsive,” 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.

**Trauma Foundation, *Alcohol and Suicide: Literature Review* (San Francisco: Trauma Foundation, 1998).**

- In a 2005 study of high school students, those who began drinking before the age of 13 were approximately 2.71 times more likely to have attempted suicide in the previous 12 months than those who did not.
- Students who began drinking at age 13 or older were 2 times more likely to have attempted suicide in the previous 12 months than those who did not.

**M. Swahn & R. Bossarte, “Gender, early alcohol use, and suicide ideation and attempts: findings from the 2005 Youth Risk Behavior Survey” (2007) 41(2) *Journal of Adolescent Health* 175 at 179.**

- In 2005, suicide was the 11th leading cause of death for all ages, accounting for approximately 32,000 deaths (p. 1).
- In a 2004 study of suicides in 13 states, 33.3% of victims tested positive for alcohol (p. 1).
- Suicide is the second leading cause of death among 25-34 year olds, and the third leading cause of death among 15-24 year olds (p. 2).

**Center for Disease Control and Prevention (CDC), *Suicide – Facts at a Glance* (Atlanta: CDC, 2008). Online: <<http://www.cdc.gov/violenceprevention/pdf/Suicide-DataSheet-a.pdf>>.**

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## UNITED KINGDOM

- A Northern Ireland study found that 43% of those who committed suicide had an alcohol-use disorder. Moreover, the risk of suicide is 8 times greater among those who currently misuse or are dependent upon alcohol than among those without these characteristics.
- Nineteen percent of English and Welsh suicide victims had misused both alcohol and drugs.

**T. Foster, “Dying for a Drink” (2001) 323 *British Medical Journal* 817 at 818.**

- Forty percent of men who try to kill themselves have had a long-standing alcohol problem.
- Seventy percent of those who succeed in killing themselves were drinking alcohol prior to their death.

**The Royal College of Psychiatrists (RCP), *Alcohol and Depression* (London: RCP, 2004) at 3.**

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## EUROPE

- According to a review of studies from several different European countries, a history of alcohol abuse and heavy drinking was present in 10% to 54% of suicides (p. 2).

**M. Ramstedt, *Alcohol and suicide in 14 European countries – A comparative time series analysis* (Stockholm: Centre for Social Research on Alcohol and Drugs, 2001).**

# PART III: YOUTH, ALCOHOL AND OTHER DRUGS

## CANADIAN TRAUMA DATA

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### CANADA

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#### NATIONAL

- Injuries are the number one killer of Canadians under the age of 45 and overall the fourth leading cause of death in Canada (p. 11).
- In 2002, 13,477 Canadians died of injuries (p. 11).
- It was estimated that injuries cost Canadians \$14.7 billion annually in health care costs (\$3.9 billion) and lost productivity (\$10.8 billion). The average cost per injury was estimated to be \$4,800 (p.11).
- Injuries constitute the third leading source of hospital costs (p. 15).
- Motor vehicle crashes, falls and poisoning account for almost 70% of injury-related health care costs (p. 15).
- In 2002, 414 children under the age of 15 died of injuries, most of which were completely preventable. For every death, it was estimated that 86 children were hospitalized (p. 12).
- In 2001, 1,595 young people aged 15-24 died of injuries in Canada, accounting for more than 70% of all youth deaths (p. 12).
- Approximately 45% of youth deaths involved motor vehicle crashes, nearly 40% of which were alcohol related (p. 12).

**Smartrisk, *Ending Canada's Invisible Epidemic: A Strategy for Injury Prevention* (Toronto: Smartrisk, 2005).**

- Traffic crashes are the single largest cause of death for young people. In 2005, they accounted for 37% of deaths among 15-19 year olds and 29% of deaths among 20-24 year olds (pp. 65-66).
- In 2005, males accounted for 67% of 15-19 year old and 77% of 20-24 year old motor vehicle fatalities (pp. 68-69).

**Statistics Canada, *Mortality, Summary List of Causes, 2005* (Ottawa: Statistics Canada, 2009).**

- Injuries are the leading cause of death for Aboriginal children, youth, and adults under the age of 44.
- Suicide and self-injury accounted for 38% of deaths among 10-19 year olds, and 23% of deaths among 20-44 year olds.
- The death rate from injuries among Aboriginal males of all ages is more than double that of females (146.7 deaths per 100,000 males vs. 67.6 deaths per 100,000 females).
- Suicides, followed by motor vehicle crashes, are the leading causes of male injury deaths. Among females, motor vehicle crashes are the leading cause of injury death.

**Health Canada, *A Statistical Profile on the Health of First Nations in Canada* (Ottawa: Health Canada, 2003). Online <[http://www.hc-sc.gc.ca/fnihah-spnia/alt\\_formats/fnihb-dgspni/pdf/pubs/aborig-autoch/2009-stats-profil-eng.pdf](http://www.hc-sc.gc.ca/fnihah-spnia/alt_formats/fnihb-dgspni/pdf/pubs/aborig-autoch/2009-stats-profil-eng.pdf)>.**

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## **ONTARIO**

- In 2001/02, 9,737 individuals under the age of 20 years were hospitalized due to injuries.
- Males under 20 had a higher rate of injury hospitalization than females.
- Falls were the most common cause of injury hospitalization for children under 15. However, motor vehicle crashes were the most common cause for 15-19 year olds.

**Canadian Institute for Health Information (CIHI), *Ontario Trauma Registry Analytic Bulletin September 2003: Injury Hospitalizations Among Children and Youth in Ontario, 2001-2002* (Ottawa: CIHI, 2003).**

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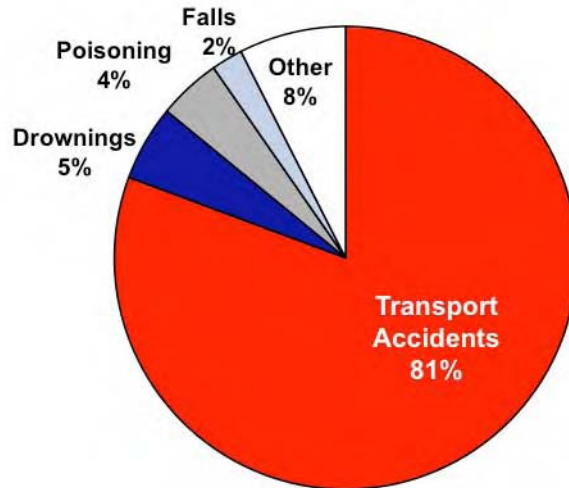
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# TRAUMA AND YOUTH CHARTS

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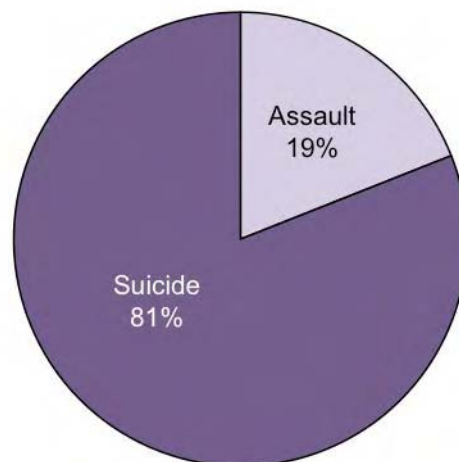
## UNINTENTIONAL TRAUMA DEATHS AMONG 15-19 YEAR OLDS: CANADA, 2005\*



\*Males dominated all categories of unintentional trauma death: transport accidents (68%); drownings (83%); falls (100%); poisoning (60%); and other causes (85%).

Source: Statistics Canada, *CANSIM Table 102-0540, Deaths by Cause 2005* (Ottawa: Statistics Canada, 2009).

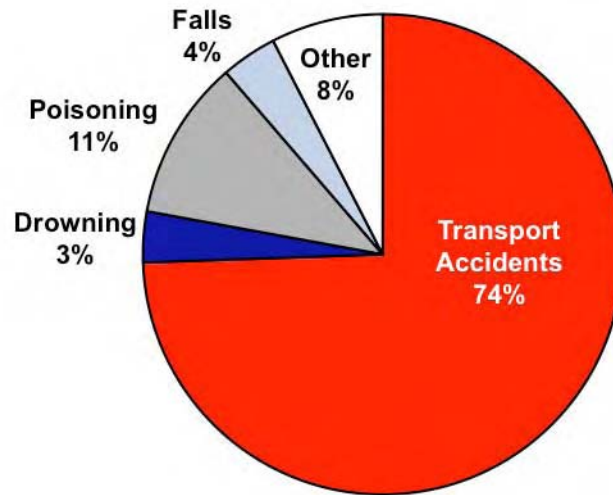
## INTENTIONAL TRAUMA DEATHS AMONG 15-19 YEAR OLDS: CANADA, 2005\*



\*Males accounted for 69% of the suicide and 78% of the assault deaths.

Source: Statistics Canada, *CANSIM Table 102-0540, Deaths by Cause 2005* (Ottawa: Statistics Canada, 2009).

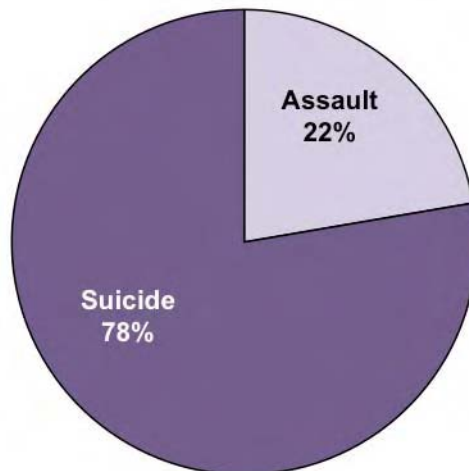
**UNINTENTIONAL TRAUMA DEATHS AMONG 20-24 YEAR OLDS: CANADA, 2005\***



\*Males dominated all categories of unintentional trauma death: transport accidents (77%); drownings (95%); falls (86%); poisoning (68%); and other causes (74%).

**Source: Statistics Canada, *CANSIM Table 102-0540, Deaths by Cause 2005* (Ottawa: Statistics Canada, 2009).**

**INTENTIONAL TRAUMA DEATHS AMONG 20-24 YEAR OLDS: CANADA, 2005\***



\*Males accounted for 78% of the suicide and 87% of the assault deaths.

**Source: Statistics Canada, *CANSIM Table 102-0540, Deaths by Cause 2005* (Ottawa: Statistics Canada, 2009).**

# YOUTH, ALCOHOL AND OTHER DRUGS

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## CANADA

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### NATIONAL

- In 1997, 16 year olds accounted for 7.2% of the fatally-injured teenage drinking drivers, and 19 year olds accounted for 46.9%. Similarly, 16 year olds accounted for 9.2% of the seriously-injured drinking drivers, and 19 year olds accounted for 37.6%.
- Males accounted for 87% of fatally-injured and 89% of seriously-injured teenage drinking drivers. Eighty-eight percent of the alcohol-positive, fatally-injured male drivers had BACs above .08%.
- Fifty-five percent of teenage drinking drivers died and 49.4% were seriously injured in crashes on weekends.
- Seventy-four percent of teenage drinking drivers died and 86% were seriously injured in crashes at night.
- Teenage drinking drivers were more likely to be involved in single-vehicle crashes than older drinking drivers. Seventy-seven percent of teenage drinking drivers who died and 91% of those injured were involved in single-vehicle crashes.

**D. Mayhew & H. Simpson, *Youth and Road Crashes: Reducing the Risks from Inexperience, Immaturity, and Alcohol* (Ottawa: Traffic Injury Research Foundation, 1999) at 6-7.**

- In 2002, 19-24 year olds had the highest per capita charge rate for federal impaired driving offences of any age group, and this was most pronounced in terms of charges laid from Friday to Sunday.
- These rates were relatively low among 16-17 year olds, rose sharply among 18-20 year olds, peaked among 21 year olds, and then fell gradually with age.

**D. Janhevich, M. Gannon & N. Morisset, *Impaired Driving and Other Traffic Offences, 2002* (Ottawa: Statistics Canada, Canadian Centre for Justice Statistics, 2003) at 1-2; and M. Dauvergne, *Forcible Confinement in Canada, 2007* (Ottawa: Statistics Canada, 2009).**

- A study of specialized trauma hospitals (excluding Saskatchewan, Manitoba and the Territories) reported that 10-24 year olds accounted for 27% of alcohol-related trauma admissions in 2002/03.
- Provinces with a legal drinking age of 19 had a rate of alcohol-related major injury of 9 per 100,000 among 18 year olds. In provinces with a drinking age of 18, the comparable rate among 18 year olds was 15 per 100,000.

**Canadian Institute for Health Information (CIHI), *More Than Half of All Alcohol-Related Severe Injuries Due to Motor Vehicle Collisions* (Ottawa: CIHI, 2005).**

- Young drivers are at a greater risk of being killed per kilometre driven than older drivers. In 2004, 16-19 year old drivers were nearly 15 times and 20-24 year olds were nearly 9 times more likely to die per kilometre driven than 45-54 year olds.

**Traffic Injury Research Foundation (TIRF), *Youth and Road Crashes: Magnitude, Characteristics and Trends* (Ottawa: TIRF, 2008). Online: <[http://www.tirf.ca/publications/pdf\\_publications/YouthandRoadCrashes\\_MagnitudeCharacteristicsandTrends.pdf](http://www.tirf.ca/publications/pdf_publications/YouthandRoadCrashes_MagnitudeCharacteristicsandTrends.pdf)> at 15.**

- More than 61% of Canadian youth have used cannabis in their lifetime, and 37% have used it at least once in the past 12 months (p. 40).

- The rate of past-year use was highest in youth ages 18-19 (47.2%), compared to 36.5% for those 20-24, and 29.2% for those 15-17 (p. 40).
- More than 8% of Canadian youth use marijuana on a daily basis (p. 40).
- The lifetime and past-12 month reported use of marijuana among youth has increased steadily from 33.5% and 15.5% respectively in 1989 to 61.4% and 37% in 2004 (p. 100).

**J. Flight *et al.*, *Canadian Addiction Survey: Substance Use by Canadian Youth* (Ottawa: Health Canada, 2007).**

- Among those killed in alcohol-related crashes in 2006, 12% were 16-19 years old and 21.4% were 20-25 years old (p. 14).
- In 2006, alcohol was a factor in 39.9% of the traffic fatalities among 16-19 year olds, and 52.3% of the traffic fatalities among 20-25 year olds (p. 14).
- About 33% of fatally-injured 16-19 year olds and 38.6% of fatally-injured 20-25 year olds had BACs  $\geq .08\%$ .

**Traffic Injury Research Foundation (TIRF), *The Alcohol-Crash Problem in Canada: 2006* (Ottawa: TIRF, 2009).**

- A 2009 international study found a positive correlation between the leniency of alcohol policy and the prevalence of youth drinking in Canada, the United States and the Netherlands.
- In the United States, the legal drinking age is highest (21), access to alcohol is more limited and there are greater penalties for underage drinking.
- As compared to American youth, Canadian youth are more likely to have been drunk by the age of 14, drink on a monthly basis and report frequent drunkenness.

**B. Simons-Morton *et al.*, “Cross-National Comparison of Adolescent Drinking and Cannabis Use in the United States, Canada and the Netherlands” (2009) 20(2) *International Journal of Drug Policy* at 4.**

## POST-SECONDARY STUDENTS

- The *Canadian Campus Survey*, conducted in spring 2004, included responses from 6,282 undergraduate students in 40 universities across Canada.
- It should be noted that 64% of the respondents were women.
- Responses were based on experience over “the past 12 months” (March/April, 2003 to March/April, 2004), the “past month” (March, 2004 to April, 2004), and “since the beginning of the school year” (September, 2003 to April, 2004).
- Only 17.3% of respondents lived on-campus, 40.4% lived off-campus without family and 41.1% lived off-campus with family.
- During the past month period, students who consumed alcohol reported drinking an average of 1.3 times and 6.4 drinks per week. Males reported drinking significantly more frequently than women (1.7 times vs. 1 time per week) and more heavily (8.9 vs. 4.5 drinks per week).
- Forty-one percent of past 30 days drinkers reported consuming 5 or more drinks on a single occasion at least twice in this period (49.9% of males and 34.2% of females). Moreover, 17.3% of past month drinkers reported consuming 8 or more drinks on a single occasion at least twice (25.9% of males and 10.6% of females).
- College students were most likely to drink on weekends (75% of the time) and at off-campus locations (86% of the time).
- Students living on-campus or off-campus without family drank more often and more heavily than students living off-campus with family.
- Thirty-two percent of the students (37.6% of males and 27.5% of females) reported hazardous drinking as measured by scoring 8 or more on the 10-item Alcohol Use Disorder Identification

Test (AUDIT).

- Almost 44% of students reported at least one indicator of harmful drinking, such as feeling guilty, experiencing memory loss or an injury, or having other concerns about their drinking.
- Almost 32% reported at least one indicator of dependent drinking, such as being unable to stop, failing to perform everyday activities or needing a drink first thing in the morning.
- The most commonly reported harms experienced by students since the beginning of the school year were having a hangover (53.4%), memory loss (25.4%), regretting their actions (24.5%), and missing classes due to a hangover (18.8%).
- The hazardous alcohol-related behaviours included having unplanned sexual relations (14.1%), driving a car after drinking too much (7.4%), having unsafe sex (6.0%), and drinking while driving (3.8%).
- The commonly reported harms resulting from other students' drinking were study or sleep disruptions (32.9%), serious arguments or quarrels (17.3%), being assaulted (10%), and being sexually harassed (9.8%).

**E. Adlaf *et al.*, *Canadian Campus Survey, 2004, Executive Summary* (Toronto: Centre for Addiction and Mental Health, 2005) at 1-8.**

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#### ATLANTIC PROVINCES

- Almost 49% of grades 10 and 12 students in the Atlantic provinces reported using cannabis (p. 1028).
- Among cannabis users, 15.1% reported driving under the influence of the drug in the past 12 months (p. 1029).
- The highest rates of driving under the influence of cannabis were among males, students who had used fake IDs to purchase alcohol, and students who had driven under the influence of alcohol (p. 1029).
- Relative to students who did not drive under the influence of alcohol, students who did were 6 times more likely to drive under the influence of cannabis (p. 1031).
- Students who drove under the influence of cannabis were twice as likely as cannabis-free students to report being in a collision. Moreover, it was not cannabis consumption *per se* that increased the risk of a collision, but rather its use just prior to driving (p. 1031).
- Nearly 12% of students reported driving under the influence of alcohol (p. 1029).

**M. Asbridge *et al.*, "Motor vehicle collision risk and driving under the influence of cannabis: evidence from adolescents in Atlantic Canada" (2005) 37 Accident Analysis and Prevention 1025.**

- In 2007, approximately 51% of grade-7, 9,10 and 12 students reported drinking in the previous 12 months, and 29% reported drinking at least once in the past 30 days (p. 21).
- Approximately 27% reported heavy episodic drinking (5 or more drinks in one sitting) at least once in the preceding 30 days. Rates were lowest among grade-7 students (about 4%) and highest among grade-12 students (50%) (p. 21).
- Twenty-nine percent of students had used cannabis during the past 12 months, and 5% of students had used cannabis on a daily basis during the past month (p. iii).
- About 23% of grade-12 students with a driver's licence had driven within an hour of using cannabis (p. iii), compared with 13% who had driven after consuming alcohol (p. 59).
- During the 12 months, 19% of all students had ridden with a driver who had consumed alcohol and 23% had ridden with a driver who had consumed cannabis.

**C. Poulin & D. Elliot, *Student Drug Use Survey in the Atlantic Provinces* (Halifax: Dalhousie University, 2007). Online: <[http://www.gov.pe.ca/photos/original/doh\\_sds\\_tech.pdf](http://www.gov.pe.ca/photos/original/doh_sds_tech.pdf)>.**

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## ALBERTA

- In 2005, 63.4% of Alberta high school students reported drinking at least once in the previous 12 months (p. 5).
- Alberta students (63.4%) were second only to Quebec students (69%) in terms of their drinking rate (p. 17).
- Overall, 31.3% of students reported binge drinking (5 or more drinks on at least one occasion) in the preceding 12 months (p. 14). Males (32.8%) and females (30%) reported similar rates of binge drinking (p. 18).
- Heavy drinking increased significantly with grade: binge drinking rates were lowest among grade-7 students (3%) and highest among grade-12 students (47.5%) (p. 18).
- One-third of all high school students reported drinking at hazardous levels, as measured by scoring 8 or more on the 10-item Alcohol Use Disorder Identification Test (AUDIT) (p. 18). Hazardous drinking increased significantly with grade, ranging from 5.9% among grade-7 students to almost 40% among grade-12 students (p. 5).

**Alberta Alcohol and Drug Abuse Commission (AADAC), *The Alberta Youth Experience Survey (TAYES) 2005: Summary Report* (Edmonton: AADAC, 2006). Online: <[http://www.aadac.com/documents/TAYES05\\_summary\\_report.pdf](http://www.aadac.com/documents/TAYES05_summary_report.pdf)>.**

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## BRITISH COLUMBIA

- Vehicle crashes were the leading cause of death among children and youth in 2003, accounting for 37% of all fatalities.
- In 2003, 83 youths aged 13-21 were killed in road crashes and more than 11,600 were injured.

**Centre for Addictions Research of BC (CARSBBC), *Statistics Overview* (Richmond: CARSBBC, 2003) at 1-2.**

- More than 90% of consumption among 15-24 year old males, and 85% of consumption among similarly aged females exceeded the Centre for Addiction and Mental Health's low-risk drinking guidelines (no more than 2 drinks per day, and up to 14 drinks per week for men and 9 for women) (p. 8).
- Almost 27% of undergraduate students in British Columbia are considered hazardous drinkers, as measured by scoring 8 or more on the 10-item Alcohol Use Disorder Identification Test (AUDIT) (p. 9).
- In 2003, 20% of in-school youth reported binge drinking on at least 3 occasions in the preceding month (5 or more standard drinks on a single occasion for males and 4 or more for females) (p. 10).

**P. Kendall, *Public Health Approach to Alcohol Policy: An Updated Report from the Provincial Health Officer* (British Columbia: Ministry of Healthy Living and Sport, 2008). Online: <<http://www.health.gov.bc.ca/library/publications/year/2008/alcoholpolicyreview.pdf>>.**

- In 2008, 29% of British Columbia high school students reported that they had consumed an alcoholic drink at least once by the age of 13. This percentage rose to 78% by the age of 17 (p. 33).
- Twenty-six percent of high school students reported drinking alcohol in the week preceding the survey (p. 34).
- Fourty-four percent of current high school drinkers reported binge drinking (5 or more drinks within a couple of hours) at least once in the past month. This percentage has changed little since 1998. Males and females were equally likely to binge drink (p. 34).

**A. Smith et al., *A Picture of Health: Highlights from the 2008 British Columbia Adolescent Health Survey* (Vancouver: McCreary Centre Society, 2009).**

## MANITOBA

- In 2004, 58.5% of all high school students reported drinking in the previous 12 months (p. 14). Among current drinkers, 7.4% reported drinking weekly (p. 15).
- Almost 25% of high school students reported binge drinking (5 or more drinks in one sitting) monthly in the previous year (p. 17).
- Fifteen percent of students reported drinking at hazardous levels (8 or more drinks in one sitting) at least once a month in the previous year (p. 17).
- Almost 9.5% of grade-12 students (12% of males and 7% of females) had signs of alcohol dependence (p. 19). Alcohol dependence was defined as scoring above 20 on a modified Alcohol Use Disorder Identification Test (AUDIT).

**D. Patton, T. Mackay & B. Broszeit, *Alcohol and Other Drug Use by Manitoba Students* (Winnipeg: Addictions Foundation of Manitoba, May 2005). Online: <<http://www.afm.mb.ca/pdf/Alcohol%20and%20other%20drug%20use%20by%20Manitoba%20students%202005%20report.pdf>>.**

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## ONTARIO

- In 2007, more than 61% of all high school students reported drinking in the past 12 months (p. 45), and nearly 10% reported drinking weekly (p. 50).
- More than 26% of students reported binge drinking (5 or more drinks on a single occasion) at least once in the 4 weeks prior to the survey. Of these students, 38% reported binge drinking 2 to 3 times in the previous 4 weeks (p. 57).
- Among current student drinkers, 8.5% reported binge drinking 4 or more times in the 4 weeks prior to the survey (p. 67).
- Binge drinking rates were lowest among grade-7 students (4.4%) and highest among grade-12 students (48%) (p. 57).
- More than 18% of students reported drinking at hazardous levels, as measured by scoring 8 or more on the Alcohol Use Disorder Identification Test (AUDIT). Males and females were equally likely to drink at hazardous levels (p. 70).
- Almost 12% of all drivers in grades 10 to 12 had driven within an hour of consuming 2 or more drinks during the past 12 months (14.1% of males and 8.8% of females) (p. 198).
- One and a half percent of students reported having been in an alcohol or drug treatment program in 2007, more than double the 2005 reported rate (.7%) (p. 208).
- More than 8% of Ontario students reported both hazardous drinking and elevated psychological distress (e.g. symptoms of anxiety or depression) as measured by AUDIT (p. 208).

**E. Adlaf & A. Paglia-Boak, *Drug Use Among Ontario Students 1977-2007: Detailed OSDUHS Findings* (Toronto: Centre For Addiction and Mental Health, 2007). Online: <[http://www.camh.net/Research/Areas\\_of\\_research/Population\\_Life\\_Course\\_Studies/OSDUS/OSDUHS2007\\_DrugDetailed\\_final.pdf](http://www.camh.net/Research/Areas_of_research/Population_Life_Course_Studies/OSDUS/OSDUHS2007_DrugDetailed_final.pdf)>.**

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## QUEBEC

- In a Quebec nighttime roadside survey, 24.3% of 16-19 year old drivers and 22.4% of 20-24 year old drivers who provided samples (urine and/or saliva) 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, 2002* (Montreal: Société de l'assurance automobile du Québec, 2002) at 429. Online: <[http://www.saaq.gouv.qc.ca/t2002/actes/pdf/\(16a\).pdf](http://www.saaq.gouv.qc.ca/t2002/actes/pdf/(16a).pdf)>.**

- In a study of drivers fatally injured between April 1, 1999 and December 31, 2002, 12.2% of the 16-24 year old drivers were positive for only drugs and 24.8% were positive for only alcohol. An additional 14.9% of the drivers were positive for both drugs and alcohol.

**J. Bouchard & M. Brault, “Link Between Driving Records and the Presence of Drugs and/or Alcohol in Fatally Injured Drivers” in P. Williams & A. Clayton, eds., *Proceedings of the 17th International Conference on Alcohol, Drugs and Traffic Safety, 2004* (Glasgow: International Council on Alcohol, Drugs and Traffic Safety, 2004) at 3. Online: <<http://www.icadts.org/T2004/pdfs/O28.pdf>>.**

## UNITED STATES

- Sixty-eight percent of the 2,355 children who died in alcohol-related crashes between 1997 and 2002 were riding with drinking drivers.
- In 79% of the alcohol-related crashes in which a child was killed, at least one driver had a BAC above .08%. Of these crashes, 60% occurred between 6 a.m. and 9 p.m.
- Only 32% of children killed while riding with drinking drivers were restrained at the time of the crash.

**Morbidity and Mortality Weekly Report, *Child Passenger Deaths Involving Drinking Drivers: United States, 1997-2002* (Atlanta: Centre for Disease Control and Prevention, 2004) at 78.**

- In a 2003 high school survey, 33.5% of the students who drank but did not engage in binge drinking had ridden with someone who had been drinking, and 10.6% had driven after drinking within the last 30 days.
- These percentages increased with the frequency of binge drinking. Forty-three percent of those who had binge drank once in the past 30 days had ridden with someone who had been drinking and 18.7% had driven after drinking. Over 60% of those who had binge drank 3-5 times had ridden with someone who had been drinking and 40.8% had driven after drinking. Over 85% of those who had binge drank 10 or more times in the past 30 days had ridden with someone who had been drinking and 68.2% had driven after drinking.
- Strong correlations were found between the frequency of alcohol use and the likelihood of other forms of risky behaviour, such as unsafe sex, violent conduct, attempted suicide, and illicit drug or tobacco use.

**J. Miller *et al.*, “Binge Drinking and Associated Health Risk Behaviors Among High School Students” (2007) 119(1) *Paediatrics: Official Journal of the American Academy of Paediatrics* 76 at 82.**

- In 2007, 75% of high school students had at least one alcoholic drink in their lifetime and 44.7% had consumed alcohol in the past 30 days.
- About 24% of students had first consumed alcohol before the age of 13.
- About 26% of students had consumed five or more drinks within a couple of hours in the past 30 days.
- Approximately 29% of students had ridden with someone who had been drinking and 11% had driven after drinking in the past 30 days.
- About 38% of students had used marijuana in their lifetime, and about 20% had done so in the past 30 days.
- About 8% of students had tried marijuana before the age of 13.

- More than 13% of students had sniffed glue, or inhaled an aerosol spray or fumes from paint or sprays at least once in their lifetime.

**Centre for Disease Control and Prevention (CDC), *2007 National Youth Risk Behavior Survey Overview* (Atlanta: CDC, 2008) at 1-2.**

- In 2007, the crash rate per mile driven by 16-19 year olds was 4 times that of older drivers. Moreover, the crash rate of 16 year olds was twice that of 18-19 year olds.
- Among fatally-injured 16-17 year old passenger vehicle drivers, 22% of males and 11% of females had BACs  $\geq$  .08%. Among fatally-injured 18-19 year old drivers, 32% of males and 18% of females had BACs  $\geq$  .08%.

**Insurance Institute for Highway Safety (IIHS), *Fatality Facts 2007: Teenagers* (Arlington: IIHS, 2008). Online: <[http://www.iihs.org/research/fatality\\_facts\\_2007/teenagers.html](http://www.iihs.org/research/fatality_facts_2007/teenagers.html)>.**

- In 2007, motor vehicle crashes were the leading cause of death among 15-20 year olds (p. 1).
- In 2007, 3,174 drivers aged 15-20 were killed in crashes and an additional 252,000 were injured (p. 1).
- Thirty-one percent of the 15-20 year old fatally-injured drivers had been drinking, and 26% had BACs  $\geq$  .08% (p. 3).
- The severity of the crashes increased with alcohol involvement. Three percent of 15-20 year old drivers involved in property-damage-only crashes, 4% of those involved in personal injury crashes, and 23% of those involved in fatal crashes had been drinking (p. 4).
- The number of 15-20 year old drivers in fatal crashes, who had BACs  $\geq$  .08%, fell by 5% between 1997 and 2007 (p. 4).
- In 2007, 26% of 15-20 year old male drivers involved in fatal crashes were alcohol-positive, compared to 14% of female drivers (p. 4).
- Seventy-five percent of 15-20 year old alcohol-positive drivers, who were killed in passenger car crashes, were unrestrained (p. 4).

**National Highway Traffic Safety Administration (NHTSA), *Traffic Safety Facts, 2007 Data, Young Drivers* (Washington, D.C.: NHTSA, 2008). Online: <<http://www-nrd.nhtsa.dot.gov/Pubs/811001.pdf>>.**

- Between 2002 and 2007, approximately 12% of American children lived with at least one parent who was dependent on, or had abused, alcohol or an illicit drug during the previous 12 months.
- About 5.4 million children live with a father who met the criteria for past 12 months substance abuse or dependence, and about 3.4 million children live with a mother who fit these criteria.

**Department of Health and Human Services (DHHS), *Children Living With Substance-Dependent Parents or Substance-Abusing: 2002-2007* (Washington D.C.: DHHS, 2009). Online: <<http://oas.samhsa.gov/2k9/SAParents/SAParents.pdf>>.**

- A study of American adults found that those who began drinking at earlier ages were more likely to experience alcohol-related problems in adolescence and adulthood.
- Compared with persons who waited until age 21 to start drinking, those who started drinking at age 14 had 6.3 times greater odds of having been in a motor vehicle crash after drinking, 4.6 times greater odds of having been in a physical fight after drinking, and 5.2 times greater odds of having been accidentally injured after drinking (p. 787).
- Earlier drinking onset has been linked to violent behaviour, dating violence victimization, criminal behaviour, and predatory violence (p. 784).

**R. Hingson *et al.*, “Age of Drinking Onset and Injuries, Motor Vehicle Crashes, and Physical Fights After Drinking and When Not Drinking” (2009) 33(5) *Alcoholism: Clinical and Experimental Research* 783.**

- Among 18-24 year old American college students, alcohol-related unintentional injury deaths increased from 1,440 in 1998 to 1,825 in 2005 (*i.e.* 3% per 100,000).
- Self-reported consumption of 5 or more drinks on a single occasion, at least once in the past month, increased from 41.7% in 1999 to 44.7% in 2005.
- The percentage who reported driving under the influence of alcohol in the past year rose from 26.5% in 1999 to 28.9% in 2005.
- In 2001, 599,000 (10.5%) full-time 4-year college students were injured because of drinking, 696,000 (12%) were hit or assaulted by another drinking college student, and 97,000 (2%) were the victim of alcohol-related sexual assault or date rape. In 2005, there were no significant changes in these percentages in colleges with the highest proportions of heavy drinking students.

**R. Hingson, W. Zha & E. Weitzman, "Magnitude of and Trends in Alcohol-Related Mortality and Morbidity Among U.S. College Students Ages 18-24, 1998-2005" (2009) Journal of Studies on Alcohol and Drugs, Supplement No.16, 12.**

## UNITED KINGDOM

- In 2006, 17-19 year olds and 20-24 year olds accounted for 12% and 23% respectively, of all drinking and driving incidents among car drivers.
- Seventeen to nineteen year olds had the highest rate of drinking and driving incidents per licence holder, followed closely by 20-24 year olds.
- Based on the average number of miles driven, 17-19 year olds had a drinking and driving incident rate more than 3 times that of 25-29 year olds, 6 times that of 30-34 year olds, 8 times that of 35-39 year olds, and at least 12 times that of those 40 years old or older.
- Twenty to twenty-four year olds had a drinking and driving incident rate twice that of 25-29 year olds, 3.5 times that of 30-34 year olds, 4.7 times that of 35-39 year olds, and at least 7 times that of those 40 years old or above.

**Department for Transport (DfT), *Road Casualties Great Britain: 2007* (London: DfT, 2008) at 33. Online: <<http://www.dft.gov.uk/adobepdf/162469/221412/221549/227755/rcgb2007.pdf>>.**

- Fourteen percent of 12-13 year olds, 33% of 14-15 year olds, and 62% of 16-17 year olds reported having consumed alcohol during the previous week (p. 3).
- Among those who had ever drunk, 36% of 13 year olds, 53% of 15 year old girls, and 56% of 15 year old boys reported binge drinking during the past 30 days (5 or more drinks on a single occasion) (p. 8).
- Although those under 18 years old cannot legally buy alcohol, 63% of 16-17 year olds and 10% of 12-15 year olds who drank in the last year reported that they generally buy their alcohol themselves, usually in pubs, bars and nightclubs (p. 4).
- Thirty-six percent of 12-17 year old offenders are frequent drinkers, in contrast to only 20% of non-offenders (p. 4).
- Sixty-two percent of youth under 18 years old see drinking as a positive way of socializing with their friends (p. 4).

**Institute of Alcohol Studies (IAS), *Adolescents and Alcohol* (St. Ives: IAS, 2009). Online: <<http://www.ias.org.uk/resources/factsheets/adolescents.pdf>>.**

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## AUSTRALIA

- Fifteen to twenty-four year olds account for about 52% of the alcohol-related fatal and serious road injuries in Australia (excluding Victoria).

**T. Chikritzhs et al., *National Alcohol Indicators Bulletin No. 2: Trends in Alcohol-Related Road Injury in Australia, 1990-1997* (Perth: National Drug Research Institute, Curtin University, 2000).**

- Between 1993 and 2002, an estimated 2,643 young people aged 15-24 died from alcohol-attributable injury and disease caused by risky or high-risk drinking.
- Between 1993/1994 and 2001/2002, more than 100,000 young people were hospitalized for alcohol-attributable injury and disease.
- The most common causes of alcohol-attributable deaths for young people were road injury, suicide and violence.
- Young males were 4 times more likely to die from an alcohol-attributable cause than young females.

**T. Chikritzhs et al., *National Alcohol Indicators Bulletin No. 6: Trends in Youth Alcohol Consumption and Related Harms in Australian Jurisdictions, 1990-2002* (Perth: National Drug Research Institute, Curtin University, 2004).**

- Between 1993 and 2002, an estimated 501 underage drinkers (aged 14-17) died from alcohol-attributable injury and disease caused by risky or high-risk drinking.
- More than 3,300 youth aged 14-17 were hospitalized for alcohol-attributable injury and disease in 1999/2000.
- Teenage males were 3.5 times more likely than teenage females to die from alcohol-attributable injury.
- The number of alcohol-attributable deaths among 14-17 year olds has declined steadily since 1990.

**T. Chikritzhs et al., *National Alcohol Indicators Bulletin No. 7: Under-aged Drinking Among 14-17 Year Olds and Related Harms in Australia* (Perth: National Drug Research Institute, Curtin University, 2004).**

- Twenty-one percent of Australian teenagers drink at least weekly (p. 32).
- Almost 24% of 16-17 year old males and 27.3% of females drink at risky levels (5 or more drinks for females and 7 or more drinks for males in one sitting) on a monthly basis. The comparable percentage for 18-19 year old males is 44% and for females is 46% (p. 108).
- At least 17% of 18-19 year olds drink at high-risk levels on a weekly basis (7 or more drinks for females and 11 drinks for males in one sitting) (p. 109).

**Australian Institute of Health and Welfare (AIHW), *2007 National Drug Strategy Household Survey* (Canberra: AIHW, 2008). Online: <<http://www.aihw.gov.au/publications/phe/ndshs07-df/ndshs07-df.pdf>>.**

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## EUROPE

- In 2002, more than 10,000 people aged 15-29 died due to alcohol in European countries classified by the World Health Organization as having very low childhood and adult mortality rates (these are primarily Western European and European Union countries).
- Nearly 27% of deaths among young males were alcohol-attributable, compared to 10.3% of deaths among young females.

**J. Rehm *et al.*, “Volume of Alcohol Consumption, Patterns of Drinking and Burden of Disease in the European Region 2002” (2006) 101(8) *Addiction* 1086 at 1092.**

- More than 90% of 15-16 year olds consumed alcohol at some point in their lives. The average age for beginning to drink was 12.5 years old, and the average age for first time being drunk was 14 years old (p. 4).
- On average, 15-16 year olds consume the equivalent of nearly 4.5 standard Canadian drinks on a single occasion (p. 4).
- More than 13% of 15-16 year olds have been drunk more than 20 times in their lives. Over 18% binge drank (5 or more drinks on a single occasion) at least 3 times in the last month (p. 4).

**P. Anderson & B. Baumberg, *Alcohol in Europe, A Public Health Perspective: A Report for the European Commission* (London: Institute of Alcohol Studies, 2006). Online: <[http://ec.europa.eu/health-eu/news\\_alcoholineurope\\_en.htm](http://ec.europa.eu/health-eu/news_alcoholineurope_en.htm)>.**

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# YOUTH AND CONSUMPTION CHARTS

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## WEEKLY AND MONTHLY HEAVY DRINKING\* AMONG CURRENT DRINKERS: CANADA, 2004

Age Group	Weekly	Monthly
15 - 17	7.6%	35.7%
18 - 19	16.1%	51.8%
20 - 24	14.9%	47.0%
25 - 34	6.5%	30.4%
35 - 44	5.3%	24.2%
45 - 54	6.0%	22.0%
All (15 - 75+)	6.2%	25.5%

\*Males consuming 5 or more drinks and females consuming 4 or more drinks on a single occasion.

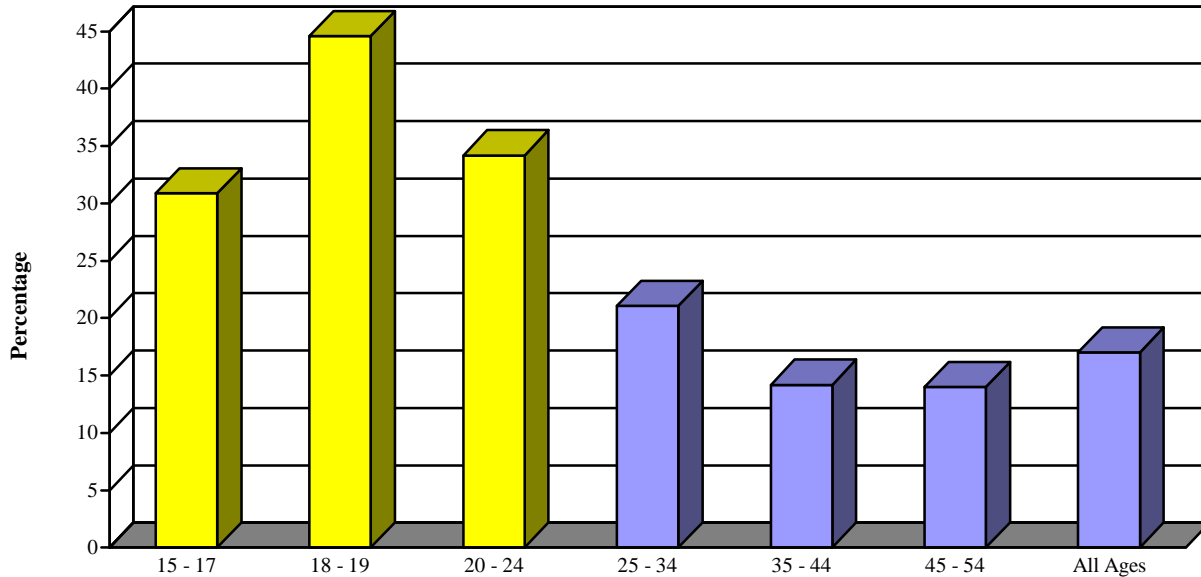
Source: E. Adlaf *et al.*, *Canadian Addiction Survey: Detailed Report* (Ottawa: Canadian Centre on Substance Abuse, 2005) at 31.

## ALCOHOL CONSUMPTION AMONG CURRENT DRINKERS ON A TYPICAL DRINKING DAY IN THE PAST 12 MONTHS: CANADA, 2004

Age Group	1 - 2 Drinks	3 - 4 Drinks	5+ Drinks
15 - 17	38.3 %	32.9 %	28.8 %
18 - 19	34.0 %	23.5 %	42.5 %
20 - 24	38.4 %	30.0 %	31.6 %
25 - 34	54.5 %	23.4 %	22.0 %
35 - 44	66.1 %	19.9 %	14.0 %
45 - 54	67.6 %	19.2 %	13.2 %
All (15 - 75+)	63.7 %	20.2 %	16.0 %

Source: E. Adlaf *et al.*, *Canadian Addiction Survey: Detailed Report* (Ottawa: Canadian Centre on Substance Abuse, 2005) at 29.

**PERCENTAGE OF CURRENT DRINKERS WHO DRANK HAZARDOUSLY\*  
IN THE PAST 12 MONTHS: CANADA, 2004**



\*Scoring 8 or more on the Alcohol Use Disorder Identification Test (AUDIT).

Source: E. Adlaf *et al.*, *Canadian Addiction Survey: Detailed Report* (Ottawa: Canadian Centre on Substance Abuse, 2005) at 42.

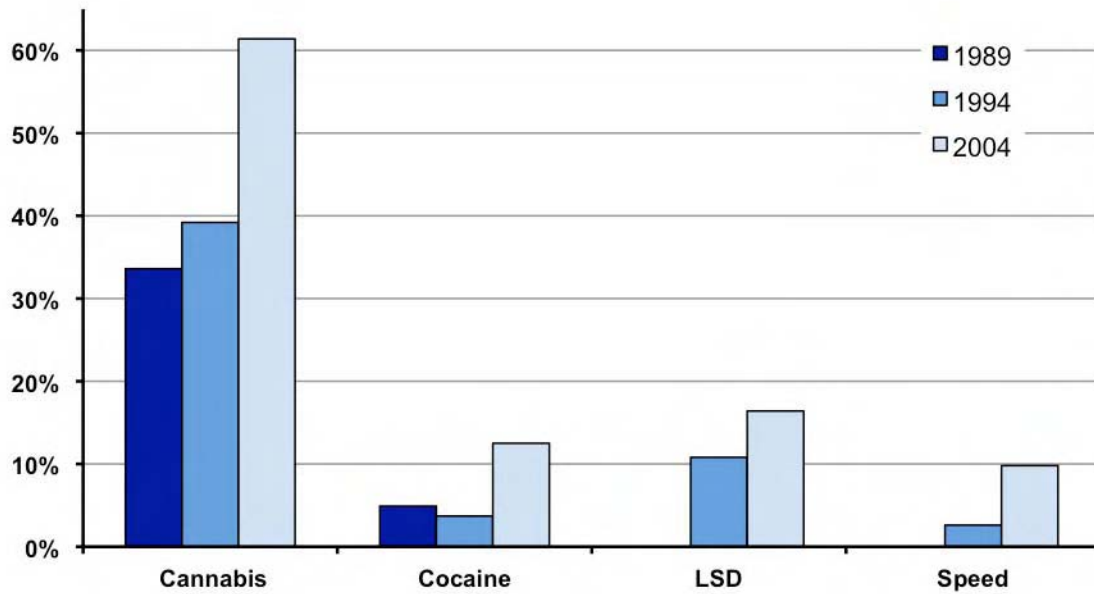
**PERCENTAGE OF INDIVIDUALS HARMED BY DRINKING  
IN THE PAST 12 MONTHS: CANADA, 2004**

Age Group	Harmed by Own Drinking	Harmed by Others' Drinking
15 - 17	} 21.8 %*	Not surveyed
18 - 19		62.6 %
20 - 24		58.3 %
25 - 34	} 7.8 %	41.9 %
35 - 44		32.7 %
45 - 54	} 5.9 %	30.4 %
55 - 64		24.8 %
65 - 74	} 2.8 %	14.9 %
75+		5.4 %
<b>All (15 - 75+)</b>	<b>8.8 %</b>	<b>32.7 %</b>

\* The most commonly reported problems related to: physical health; friendship and social life; financial position; home life and marriage; and work, study and employment.

Source: E. Adlaf *et al.*, *Canadian Addiction Survey: Detailed Report* (Ottawa: Canadian Centre on Substance Abuse, 2005) at 43, 44 and 46.

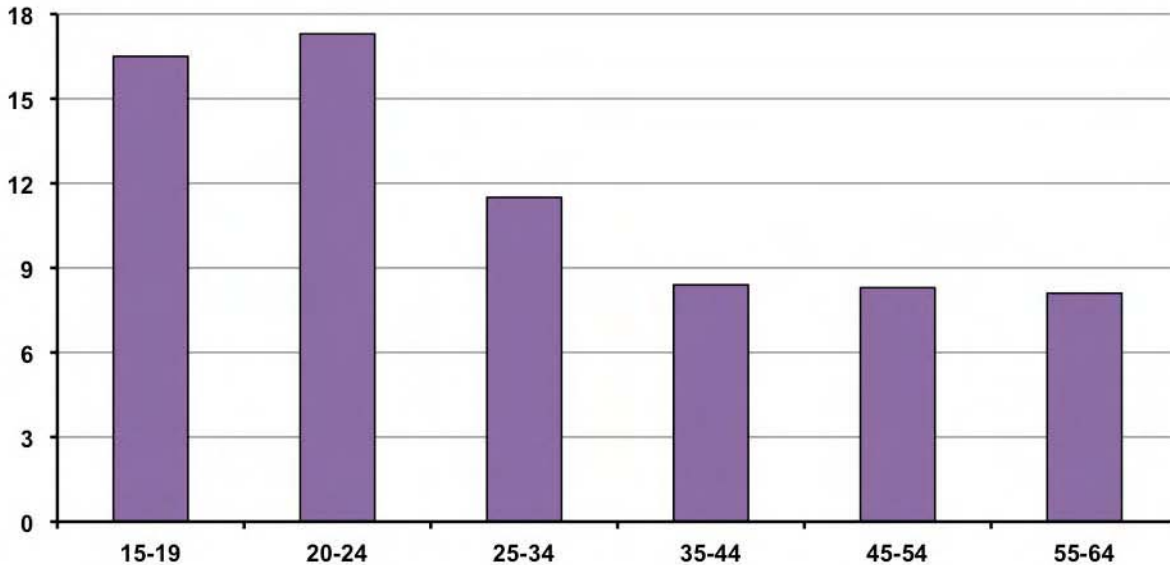
**PERCENTAGE OF 15-24 YEAR OLDS WHO USED DRUGS DURING THEIR LIFETIME:  
CANADA, 1989, 1994 AND 2004**



Source: J. Flight *et al.*, *Canadian Addiction Survey: Substance Use by Canadian Youth* (Ottawa: Health Canada, 2007) at 102-3 and 110.

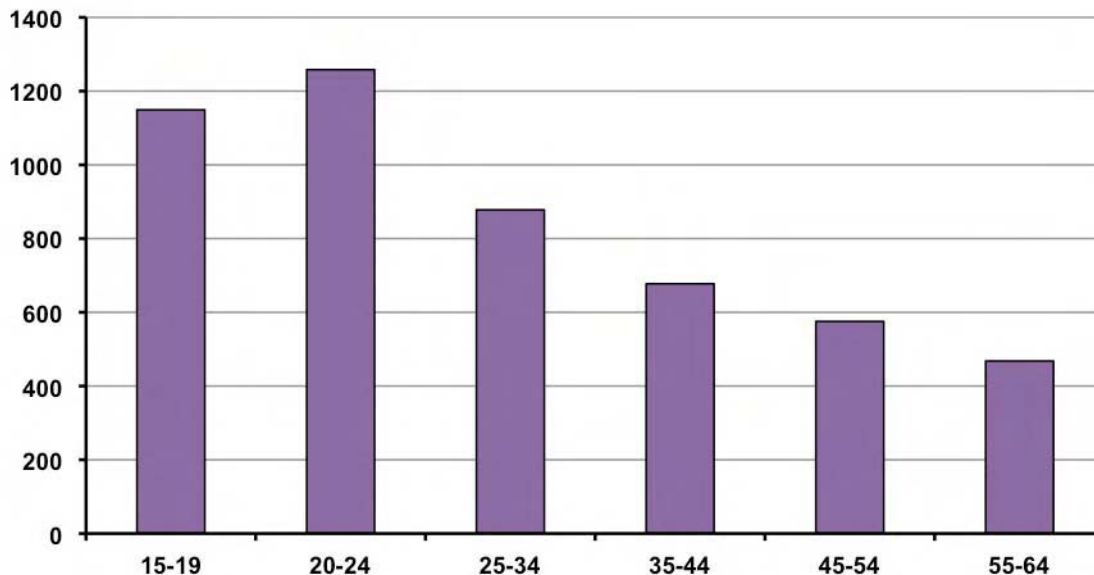
# YOUTH AND DRIVING CHARTS

**MOTOR VEHICLE DEATH RATES PER 100,000, BY AGE GROUP: CANADA, 2006**



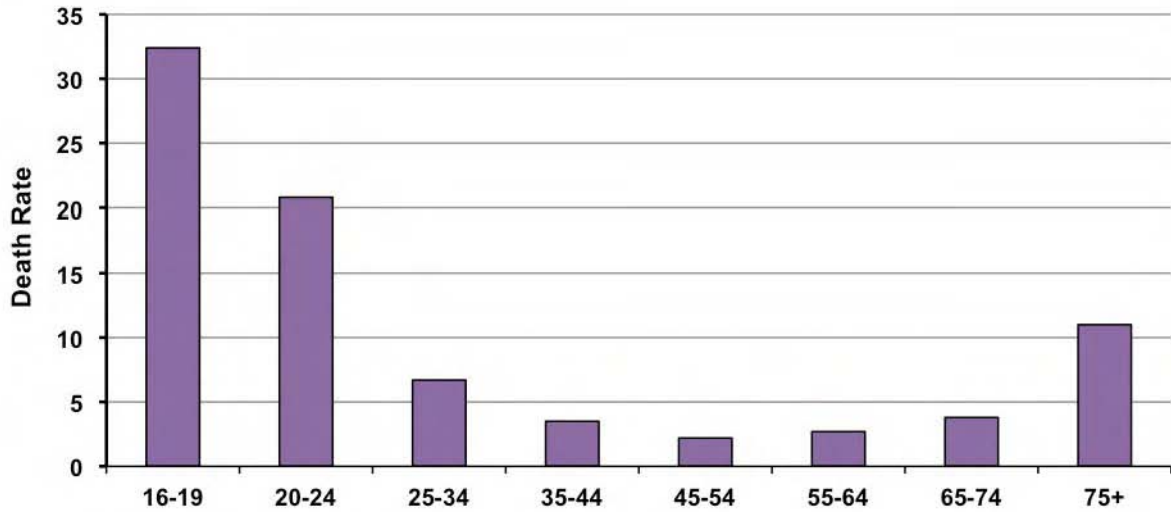
Sources: Statistics Canada, *CANSIM Table 051-0001, Population by Age and Sex* (Ottawa: Statistics Canada, 2008); and Transport Canada, *Canadian Motor Vehicle Traffic Collision Statistics, 2006* (Ottawa: Transport Canada, 2007) at 2.

**MOTOR VEHICLE INJURY RATES PER 100,000, BY AGE GROUP: CANADA, 2006**



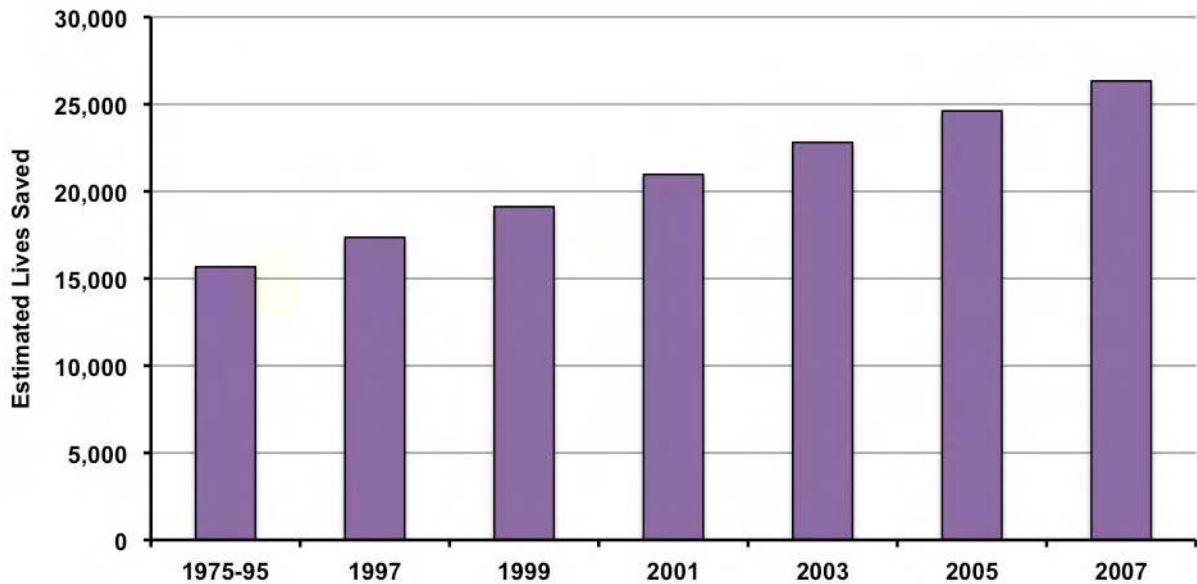
Sources: Statistics Canada, *CANSIM Table 051-0001, Population by Age and Sex* (Ottawa: Statistics Canada, 2006); and Transport Canada, *Canadian Motor Vehicle Traffic Collision Statistics, 2006* (Ottawa: Transport Canada, 2007) at 2.

**DRIVER DEATHS PER BILLION KILOMETRES DRIVEN, BY AGE:  
CANADA, 2004**



Source: P. Emery, D. Mayhew & H. Simpson, *Youth and Road Crashes: Magnitude, Characteristics and Trends* (Ottawa: Traffic Injury Research Foundation, 2008) at 15.

**CUMULATIVE ESTIMATE OF THE LIVES SAVED BY THE MINIMUM DRINKING AGE  
LAWS: UNITED STATES, 1975-2007**



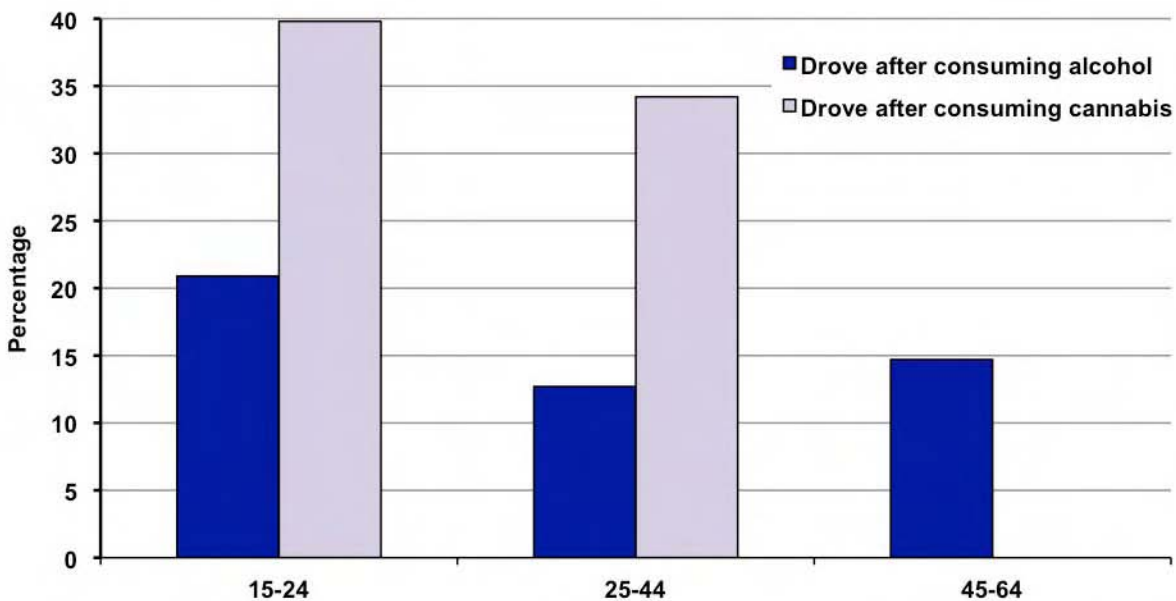
Source: National Highway Traffic Safety Administration (NHTSA), *Traffic Safety Facts, 2007 Data, Young Drivers* (Washington D.C.: NHTSA, 2008) at 5.

**RELATIVE RISK OF A FATAL SINGLE-VEHICLE CRASH  
FOR MALES, AT VARIOUS BACS**

	.02% - .049%	.05% - .079%	.08% - .099%	.10% - .149%	.15% +
<b>Age 16-20</b>	5	17	52	241	15,560
<b>Age 21-34</b>	3	7	13	37	573
<b>Age 35+</b>	3	6	11	29	382

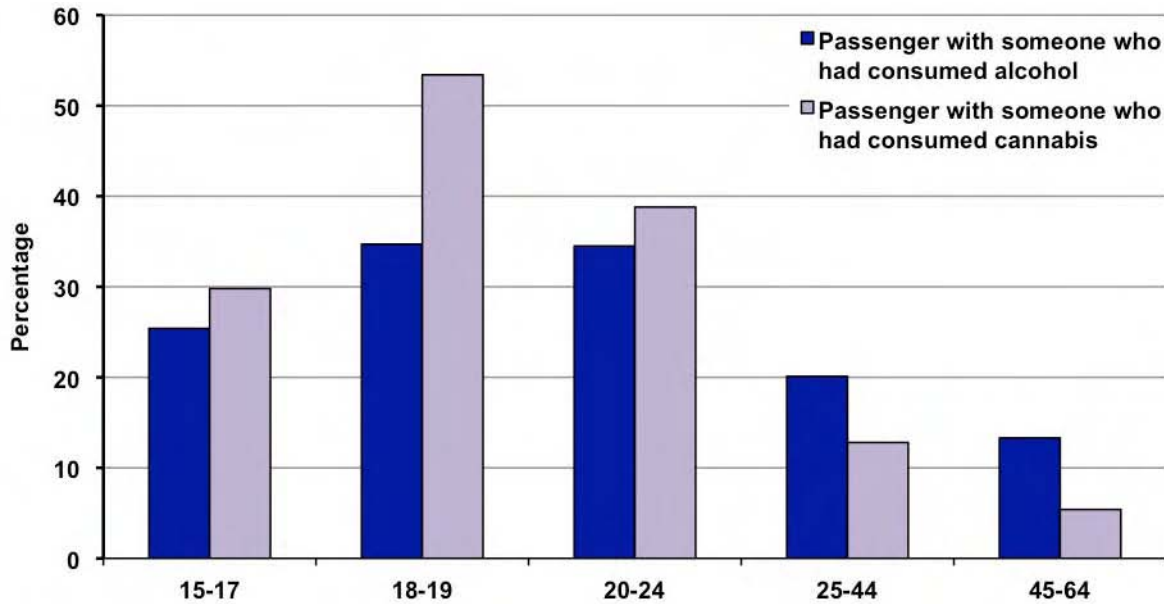
Source: P. Zador, S. Krawchuk & R. Voas, “Alcohol-Related Relative Risk of Driver Fatalities and Driver Involvement in Fatal Crashes in Relation to Driver Age and Gender: An Update Using 1996 Data” (2000) 61 J. Stud. Alcohol 387 at 392.

**PERCENTAGE OF INDIVIDUALS WHO HAD DRIVEN AFTER CONSUMING ALCOHOL OR  
CANNABIS IN THE PAST 12 MONTHS, BY AGE: CANADA, 2004**



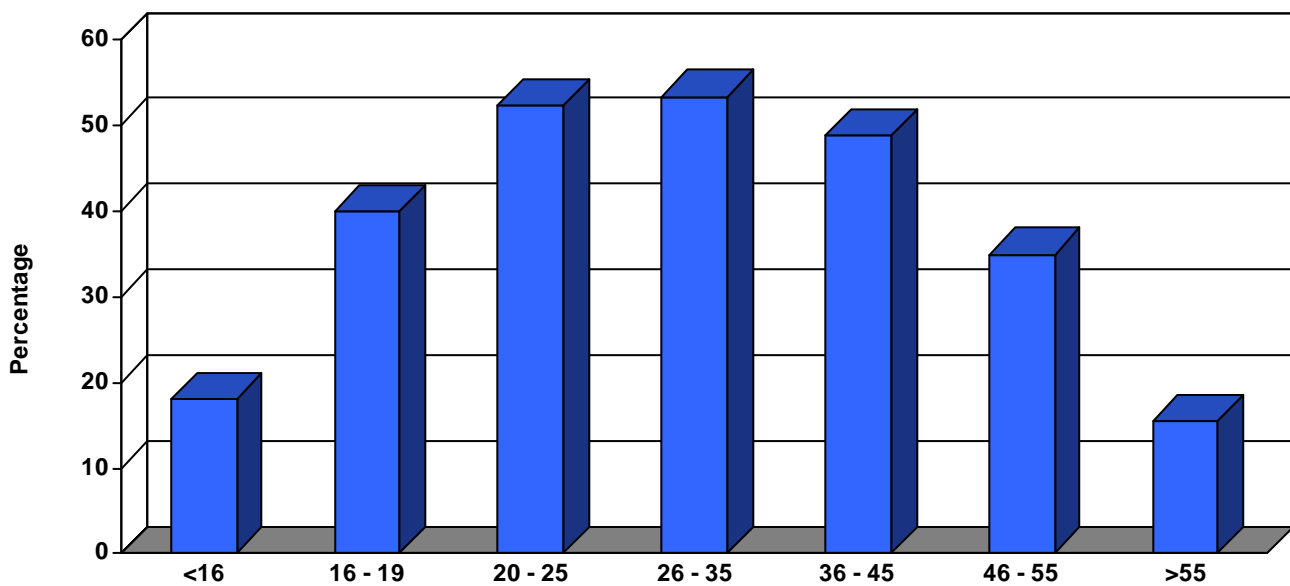
Source: J. Flight *et al.*, *Canadian Addiction Survey: Substance Use by Canadian Youth* (Ottawa: Health Canada, 2007) at 97.

**PERCENTAGE OF INDIVIDUALS WHO RODE WITH SOMEONE UNDER THE INFLUENCE OF ALCOHOL OR CANNABIS IN THE PAST 12 MONTHS, BY AGE: CANADA, 2004**



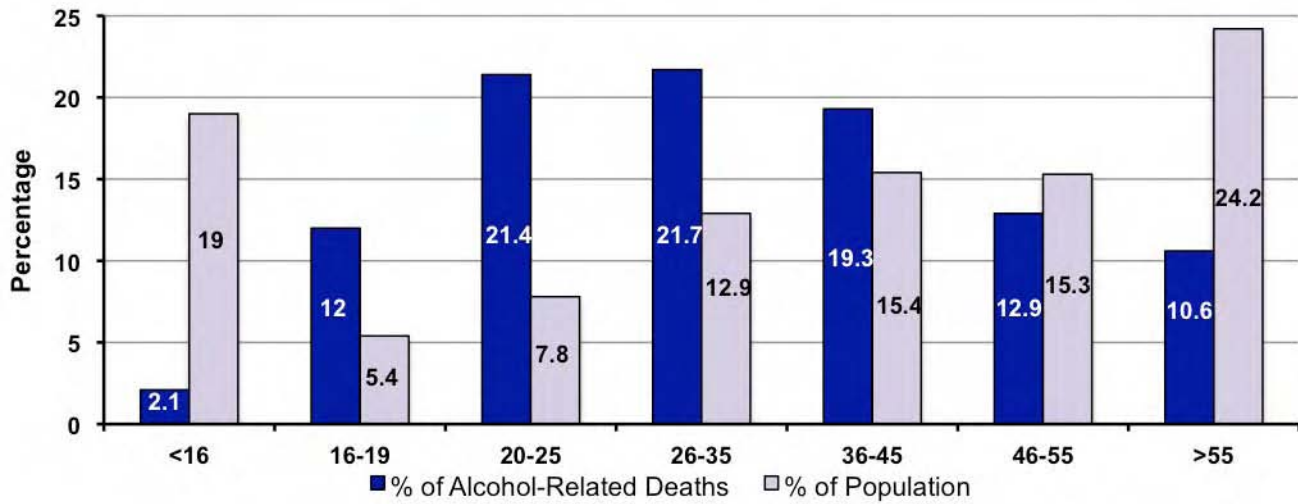
Source: J. Flight *et al.*, *Canadian Addiction Survey: Substance Use by Canadian Youth* (Ottawa: Health Canada, 2007) at 97-99.

**PERCENTAGE OF ALCOHOL-RELATED CRASH DEATHS, BY AGE GROUP: CANADA, 2006**



Source: Traffic Injury Research Foundation (TIRF), *The Alcohol-Crash Problem in Canada: 2006* (Ottawa: TIRF, 2009) at 14.

**PERCENTAGE OF ALCOHOL-RELATED TRAFFIC DEATHS AND POPULATION,  
BY AGE GROUP: CANADA, 2006**



Sources: Traffic Injury Research Foundation (TIRF), *The Alcohol-Crash Problem in Canada: 2006* (Ottawa: TIRF, 2009) at 14; and Statistics Canada, *CANSIM Table 051-0001, Population by Age and Sex* (Ottawa: Statistics Canada, 2008).

# PART IV: TOPICS IN TRAFFIC TRAUMA

## ALCOHOL AND PEDESTRIANS

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### CANADA

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#### NATIONAL

- In 2006, 59.5% of the 417 fatally-injured pedestrians were tested for alcohol. Of those tested, 41.9% had been drinking and 27% had BACs above .16%.
- However, 50% of the tested fatally-injured 16-19 year old pedestrians, 75.8% of the fatally-injured 20-25 year old pedestrians, and 71.4% of fatally-injured 26-35 year old pedestrians had been drinking. These age categories accounted for 10.6%, 24% and 14.4%, respectively, of the total number of alcohol-positive, fatally-injured pedestrians.
- Males accounted for 59.2% of the fatally-injured pedestrians, but 77.9% of those who had been drinking and 77.2% of those with BACs above .08%.

**Traffic Injury Research Foundation (TIRF), *The Alcohol-Crash Problem in Canada: 2006* (Ottawa: TIRF, 2009) at 27-29.**

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#### BRITISH COLUMBIA

- Among non-child pedestrian fatalities, 30% had BACs greater than .08%, and 24% had BACs greater than .15%.
- Fatalities among impaired pedestrians are more likely to take place in business, commercial and rural areas, and less likely to occur in residential areas. At the time of the collision, 36% of the impaired pedestrians were crossing a street with no signal or crosswalk, compared to 26.4% of non-impaired pedestrians.

**R. Wilson & M. Fang, "Alcohol and Drug Impaired Pedestrians Killed or Injured in Motor Vehicle Collisions" in H. Laurell & F. Schlyter, eds., *Proceedings of the 15th International Conference on Alcohol, Drugs and Traffic Safety, 2000* (Stockholm: International Council on Alcohol, Drugs and Traffic Safety, 2000). Online: <<http://www.icadts.org/proceedings/2000/ica-dts2000-086.pdf>>.**

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#### UNITED STATES

- In 2007, 4,654 pedestrians were killed in traffic crashes in the United States, which is a 13% decrease from 1997. Moreover, 70,000 pedestrians were injured in traffic crashes in 2007. On average, one pedestrian was killed in a traffic crash every 113 minutes, and one was injured every 8 minutes (p. 1).
- Twenty percent of 5-9 year olds and 21% of children under 5 years of age killed in crashes were pedestrians (p. 2).

- Either the driver or the pedestrian had been drinking in 49% of the pedestrian fatality crashes (p. 4).
- Among the fatally-injured pedestrians, 35% had BACs  $\geq$  .08% and an additional 4% had BACs of .01% to .079% (p. 4).
- Fourteen percent of the drivers in fatal pedestrian crashes had BACs  $\geq$  .08%, and an additional 5% had BACs of .01% to .079% (p. 4).
- In 6% of the crashes, both the driver and the pedestrian had BACs  $\geq$  .08% (p. 4).

**National Highway Traffic Safety Administration (NHTSA), *Traffic Safety Facts, 2007 Data: Pedestrians* (Washington, D.C.: NHTSA, 2008).**

- In 2007, 54% of pedestrians aged 16 and older killed between 9 p.m. and 6 a.m. had BACs  $\geq$  .08%, compared to 24% of pedestrians killed between 6 a.m. and 9 p.m.

**Insurance Institute for Highway Safety (IIHS), *Fatality Facts 2007: Pedestrians* (Arlington: IIHS, 2008). Online: <[http://www.iihs.org/research/fatality\\_facts\\_2007/pedestrians.html](http://www.iihs.org/research/fatality_facts_2007/pedestrians.html)>.**

## UNITED KINGDOM

- The percentage of 16-19 year old fatally-injured pedestrians who were alcohol-positive increased from 59% to 78% for males, and from 38% to 50% for females between 1985/89 and 1995/99.
- Between 1995 and 1999, the percentage of fatally-injured pedestrians who tested positive for alcohol increased from 40% to 48%. The percentage of fatally-injured pedestrians with BACs above .08% increased from 31% to 39%.

**M. Keigan & R. Tunbridge, *The Incidence of Alcohol in Fatally-Injured Adult Pedestrians* (Berkshire: TRL Limited, 2003).**

- In 2006, 48% of fatally-injured pedestrians over 16 years of age, who were tested, had positive BACs, and 39% had BACs above .08% (p. 32).
- Seventy-four percent of pedestrians killed between 10 p.m. and 4 a.m. had BACs above .08%, compared to 21% of pedestrians killed between 4 a.m. and 10 p.m (p. 32).
- It was estimated that in 2006, drinking and driving killed or seriously injured 160 pedestrians and less seriously injured an additional 310 (p. 30).

**Department for Transport (DfT), *Road Casualties Great Britain: 2007* (London: DfT, 2008) at 32. Online: <<http://www.dft.gov.uk/adobepdf/162469/221412/221549/227755/rcgb2007.pdf>>.**

## EUROPE

- Among the 286 fatally-injured pedestrians who were tested between 1977 and 1995, 19% were positive for alcohol and the median BAC was .16%. The proportion of alcohol-positive victims did not change significantly during this period.

**M. Ostrom & A. Eriksson, "Pedestrian Fatalities and Alcohol" (2001) 33(2) *Accident Analysis and Prevention* 173.**

## AUSTRALIA

- Between 1998 and 2002, 70% of fatally-injured male pedestrians aged 15-54 had BACs above .05%, and 58% had BACs above .15%.

**Australian Transport Safety Bureau (ATSB), *Monograph 14: Male Pedestrian Fatalities* (Canberra: ATSB, 2003) at 1.**

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## ALCOHOL AND CANADIAN PEDESTRIANS CHART

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### NUMBER OF FATALLY-INJURED PEDESTRIANS AND PERCENTAGE WHO TESTED POSITIVE FOR ALCOHOL: CANADA, 1987-2006

Year	Fatally-Injured Pedestrians	% Positive for Alcohol	Year	Fatally-Injured Pedestrians	% Positive for Alcohol
1987	760	48.6	1997	502	44.7
1988	748	41.9	1998	498	42.6
1989	676	43.2	1999	473	41.0
1990	683	45.2	2000	420	37.6
1991	598	45.8	2001	405	40.9
1992	522	43.9	2002	399	36.4
1993	551	43.9	2003	458	38.3
1994	517	50.8	2004	416	41.1
1995	493	41.3	2005	418	38.7
1996	548	40.3	2006	417	41.9

Source: Traffic Injury Research Foundation (TIRF), *The Alcohol-Crash Problem in Canada: 2006* (Ottawa: TIRF, 2009) at 39.

# ALCOHOL AND BICYCLISTS

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## CANADA

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### NATIONAL

- Between 1987 and 1999, 24.7% of fatally-injured cyclists had positive BACs. Among these alcohol-positive cyclists, 81.5% had BACs  $\geq$  .08%.
- Among 36-55 year olds, 31.9% of fatally-injured cyclists had positive BACs.

**D. Beirness, "Alcohol Involvement in Recreational Vehicle Operator Fatalities in Canada" in D. Mayhew & C. Dussault, eds., *Proceedings of the 16th International Conference on Alcohol, Drugs and Traffic Safety, 2002* (Montreal: Société de l'assurance automobile du Québec, 2002). Online: <[http://www.saaq.gouv.qc.ca/t2002/actes/pdf/\(27a\).pdf](http://www.saaq.gouv.qc.ca/t2002/actes/pdf/(27a).pdf)>.**

- In 2006, 9.8% of fatally-injured bicyclists had been drinking and, of these, 80% had BACs above .08% (p. 25).

**Traffic Injury Research Foundation (TIRF), *The Alcohol-Crash Problem in Canada: 2006* (Ottawa: TIRF, 2009).**

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### ONTARIO

- Among the 428 patients hospitalized due to cycling from 1995/96 to 1999/00, 31% had positive BACs. Twenty-six percent of the alcohol-positive patients had BACs greater than .08%.

**Canadian Institute for Health Information (CIHI), *Ontario Trauma Registry Bulletin: Hospitalization due to Major Sports and Recreational Injuries in Ontario, 1999-2000* (Ottawa: CIHI, 2001) at 9. Online: <[http://secure.cihi.ca/cihiweb/en/downloads/bl\\_otr31jul2001\\_e.pdf](http://secure.cihi.ca/cihiweb/en/downloads/bl_otr31jul2001_e.pdf)>.**

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## UNITED STATES

- In 2007, 698 cyclists were killed and 44,000 were injured in traffic crashes (p. 1).
- Males accounted for 88% of the fatally-injured cyclists (p. 3).
- Cyclists accounted for 13% of all traffic fatalities among non-occupants in 2007 (p. 1).
- In 33% of the fatal crashes, either the driver or the cyclist had a BAC  $\geq$  .08%. BACs of .01% to .079% were reported in an additional 10% of the fatal crashes (p. 3).
- Thirty-one percent of cyclists killed had positive BACs, and nearly 25% had BACs  $\geq$  .08% (p. 2).

**National Highway Traffic Safety Administration (NHTSA), *Traffic Safety Facts, 2007 Data: Bicyclists and other Cyclists* (Washington, D.C.: NHTSA, 2008).**

- In 2007, 28% of fatally-injured bicyclists aged 16 and older had BACs  $\geq$  .08%.
- Ninety-two percent of the fatally-injured bicyclists were not wearing helmets.

**Insurance Institute for Highway Safety (IIHS), *Fatality Facts 2007: Bicycles* (Arlington: IIHS, 2008). Online: <[http://www.iihs.org/research/fatality\\_facts\\_2007/bicycles.html](http://www.iihs.org/research/fatality_facts_2007/bicycles.html)>.**

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## UNITED KINGDOM

- In 2006, 26% of fatally-injured bicyclists aged 16 and older had positive BACs, 13% had BACs  $\geq$  .08%, and 10% had BACs  $\geq$  .15% (p. 32).
- Fifty percent of cyclists killed between 10 p.m. and 4 a.m. had BACs above .08%, compared to 10% of cyclists killed between 4 a.m. and 10 p.m. (p. 30).
- It was estimated that 30 cyclists were killed or seriously injured in 2006 as a result of drinking and driving, and an additional 70 cyclists were injured (p. 32).

**Department for Transport (DfT), *Road Casualties Great Britain: 2007* (London: DfT, 2008).  
Online: <<http://www.dft.gov.uk/adobepdf/162469/221412/221549/227755/rcgb2007.pdf>>.**

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# ALCOHOL AND SNOWMOBILING

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## CANADA

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### NATIONAL

- Between 1987 and 1999, 743 people died while snowmobiling in Canada. Among those fatally injured, 71.2% had positive BACs, 17.9% had BACs between .081% and .15%, and 38.8% had BACs  $\geq$  .15%.
- Fatally-injured snowmobile drivers were 2.47 times more likely to have been alcohol positive than alcohol negative.
- Those aged 16-25 accounted for 29% of fatally-injured snowmobile drivers. Alcohol was involved in 75% of these fatalities.

**D. Beirness, “Alcohol Involvement in Snowmobile Operator Fatalities in Canada” in D. Mayhew & C. Dussault, eds., *Proceedings of the 16th International Conference on Alcohol, Drugs and Traffic Safety, 2002* (Montreal: Société de l’assurance automobile du Québec, 2002). Online: <[http://www.saaq.gouv.qc.ca/t2002/actes/pdf/\(27a\).pdf](http://www.saaq.gouv.qc.ca/t2002/actes/pdf/(27a).pdf)>.**

- In 2006, 52.2% of fatally-injured snowmobile operators had been drinking. Among these alcohol-positive snowmobilers, 83.3% had BACs above .08% (p. 25).

**Traffic Injury Research Foundation (TIRF), *The Alcohol-Crash Problem in Canada: 2006* (Ottawa: TIRF, 2009).**

- Alcohol was a factor in 49% of severe trauma admissions resulting from snowmobiling. Ninety-one percent of those with positive BACs were driving the snowmobile.
- The average stay among alcohol-positive patients admitted to a specialized trauma unit with snowmobile-related injuries was more than three times longer (33 days) than that of patients who were not alcohol positive.

**Canadian Institute for Health Information (CIHI), “Most snowmobile-related injuries occur in February” (Ottawa: CIHI, 2006). Online: <[http://secure.cihi.ca/cihiweb/disPage.jsp?cw\\_page=media\\_25jan2006\\_e#figs](http://secure.cihi.ca/cihiweb/disPage.jsp?cw_page=media_25jan2006_e#figs)>.**

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### ONTARIO

- During the 2000/01 snowmobile season, there were 36 snowmobiling fatalities within OPP jurisdiction. Alcohol was a factor in 40% of these incidents.
- Between 1997/98 and 2001/02, an average of 25 people died in snowmobile crashes. On average, 48.4% of these deaths were alcohol-related.

**J. McDonnell, C. Hughes & L. Lee-Davidson, “Ontario Provincial Police Specialized Patrols: ... (S.A.V.E.) Teams” in D. Mayhew & C. Dussault, eds., *Proceedings of the 16th International Conference on Alcohol, Drugs and Traffic Safety, 2002* (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)>.**

- Between 1997 and 2001, alcohol was involved in 63% of water-related snowmobiling fatalities. Thirty-three percent of victims had BACs  $\geq$  .08%, and the average BAC among alcohol-positive victims was .13% (p. 22).

- Ninety-four percent of people who drowned while snowmobiling were not wearing a personal flotation device or suit (p.3).

**Lifesaving Society, *The Drowning Report: A Profile of Drownings and Water-Related Deaths in Ontario: 2004 Edition* (Ottawa: Lifesaving Society, 2004).**

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## MANITOBA

- Alcohol use was associated with 88% of the snowmobile-related injuries sustained by patients admitted to the Winnipeg Health Sciences Centre between 1988 and 1997.
- Of the 294 alcohol-positive patients, 207 (70.4%) had BACs greater than .08%.

**R. Stewart & G. Black, “Snowmobile trauma: 10 years’ experience at Manitoba’s tertiary trauma centre” (2004) 47(2) Canadian Journal of Surgery 90 at 91.**

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## UNITED STATES

- Snowmobiling data collected over various time periods between 1989 and 2001 indicated that alcohol was involved in 65% of fatalities in Alaska, 41% of fatalities in Maine, 56% of fatalities in Michigan, 67% of fatalities in New Hampshire, 41% of fatalities in New York, and 10% of fatalities in Wisconsin.

**J. Pierz, “Snowmobiling Injuries in North America” (2003) 409 Clinical Orthopaedics and Related Research 29 at 33-4.**

- There were a total of 28 snowmobile fatalities during the 2002/03 winter season in Vermont, New Hampshire and Maine. This was the highest annual total in the past 12 seasons.
- Five of the 20 deceased who were tested had BACs  $\geq$  .08%.

**Center For Disease Control and Prevention (CDC), *Snowmobile Fatalities – Maine, New Hampshire and Vermont, 2002-2003* (Atlanta: CDC, 2003). Online: <<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5250a1.htm>>.**

- In the 2007/08 season, there were 201 snowmobiling accidents in Minnesota, resulting in 7 fatalities. Thirty-nine percent of the total accidents involved alcohol.

**Minnesota Department of Natural Resources (MDNR), *2007-2008 Fatal Snowmobile Accidents Report* (Minnesota: MDNR, 2008). Online: <[http://files.dnr.state.mn.us/enforcement/incident\\_reports/snowmobileaccidents08.pdf](http://files.dnr.state.mn.us/enforcement/incident_reports/snowmobileaccidents08.pdf)>.**

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# ALCOHOL AND ALL-TERRAIN VEHICLES (ATV)

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## CANADA

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### NATIONAL

- ATV crashes in Canada claimed 255 lives from 1987 to 1999. Those aged 16-25 accounted for 36% of these fatalities.
- Among those tested, 55.7% had positive BACs, 13.3% had BACs between .081% and .15%, and 31.4% had BACs above .15%.
- Among the fatally-injured ATV drivers, 35.2% of 16-20 year olds, 61.5% of 21-25 year olds, and 73.2% of 26-35 year olds tested positive for alcohol.

**D. Beirness, "Alcohol Involvement in Recreational Vehicle Operator Fatalities in Canada" in D. Mayhew & C. Dussault, eds., *Proceedings of the 16th International Conference on Alcohol, Drugs and Traffic Safety, 2002* (Montreal: Société de l'assurance automobile du Québec, 2002). Online: <[http://www.saaq.gouv.qc.ca/t2002/actes/pdf\(27a\).pdf](http://www.saaq.gouv.qc.ca/t2002/actes/pdf(27a).pdf)>.**

- The number of people hospitalized due to ATV injuries climbed almost 50% from 1,693 in 1996/97 to 2,535 in 2000/01. In 2000/01, 5-19 year olds accounted for 36% of all ATV injuries.
- Among the ATV-related severe injury admissions in 2001/02, 26% tested positive for alcohol.
- ATV injuries are now the third most common cause of severe sports and recreational injuries, after cycling and snowmobiling.

**Canadian Institute For Health Information (CIHI), *ATV Injuries Resulting in Hospitalization on the Rise* (Ottawa: CIHI, 2003). Online: <[http://secure.cihi.ca/cihiweb/dispPage.jsp?cw\\_page=media\\_05feb2003\\_e](http://secure.cihi.ca/cihiweb/dispPage.jsp?cw_page=media_05feb2003_e)>.**

- In 2006, 57.1% of fatally-injured ATV drivers had been drinking. Among these alcohol-positive ATV drivers, 77.5% had BACs above .08% (p. 25).

**Traffic Injury Research Foundation (TIRF), *The Alcohol-Crash Problem in Canada: 2006* (Ottawa: TIRF, 2009).**

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### ALBERTA

- Between 2002 and 2007, 59% of tested fatally-injured ATV drivers had positive BACs. Seventy-seven percent of the fatally-injured males tested had BACs above .08% (p. 2).

**The Alberta Centre for Injury Control & Research (ACICR), *All-Terrain Vehicle Injuries in Alberta* (Edmonton: ACICR, 2008). Online: <[http://www.acicr.ualberta.ca/pages/documents/ATV\\_August2008letterstyle2007deathscosting.pdf](http://www.acicr.ualberta.ca/pages/documents/ATV_August2008letterstyle2007deathscosting.pdf)>.**

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### ONTARIO

- During the 2005/06 fiscal year, ATVs generated 5,584 emergency room visits and 579 hospitalizations in Ontario.
- Males accounted for 80% of the visits and 83% of the hospitalizations.

- Fifteen to nineteen year old males accounted for 16.7% of the total visits and 15% of the total hospitalizations.

**Ontario Injury Prevention Resource Centre, “All-Terrain Vehicle Injuries” (2008) 5(7) Ontario Injury Compass at 1-2.**

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# ALCOHOL AND MOTORCYCLES

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## CANADA

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### NATIONAL

- Between 1993 and 1997, motorcyclists under the age of 20 accounted for slightly more than 19% of the total fatalities and approximately 22% of those seriously injured. These percentages are about double those of similarly-aged motor vehicle drivers.
- 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* (Ottawa: Minister of Public Works and Government Services, 2001).**

- Vulnerable road users (pedestrians, bicyclists and motorcycle/moped riders) consistently account for approximately 20% of road users killed or seriously injured annually.
- In 2006, motorcyclists accounted for 7.6% of road users killed.

**Transport Canada, *Canadian Motor Vehicle Traffic Collision Statistics, 2006* (Ottawa: Transport Canada, 2007) at 2. Online:<<http://www.tc.gc.ca/roadsafety/tp/tp3322/2006/pdf/stats2006.pdf>>.**

- In 2006, 14.9% of fatally-injured motorcyclists were legally impaired (p. 23).
- Sixty-four people died in alcohol-related motorcycle crashes in Canada (p. 14).
- Among fatally-injured motorcycle drivers who were tested, 30.4% had been drinking. Among these fatally-injured motorcyclists, 49% had BACs above .08% (p. 23).

**Traffic Injury Research Foundation (TIRF), *The Alcohol-Crash Problem in Canada: 2006* (Ottawa: TIRF, 2009).**

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### ONTARIO

- In 2006, 53 people were killed on motorcycles (either as drivers or passengers), and an additional 1,571 were injured.
- Those under 25 years of age accounted for 20% of the fatalities.
- Nine percent of fatally-injured motorcyclists had BACs  $\geq$  .08%.
- Seventy-three percent of fatal motorcycle collisions occurred at night, and 44% occurred on weekends.

**Ministry of Transportation, *Ontario Road Safety: Annual Report 2006* (Toronto: Ministry of Transportation, 2008) at 91.**

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### UNITED STATES

- In 2007, 5,154 motorcyclists were killed in the United States, a 7% increase from 2006. An additional 103,000 motorcyclists were injured (p.1).
- In 2006, motorcyclists were about 35 times more likely to die and 8 times more likely to be

injured per mile travelled than passenger car occupants (p. 3).

- In 2007, 36% of motorcyclists involved in fatal crashes were speeding, compared with 24% of car drivers and 19% of light truck drivers (p. 4).
- Among motorcyclists involved in fatal crashes, 26% did not have a valid licence, which is twice the rate of car drivers (p. 4).
- Among fatally-injured motorcyclists, 8% had BACs between .01% and .079%, and 28% had BACs  $\geq$  .08% (p. 5).
- Twenty-seven percent of motorcycle drivers, 23% of passenger car drivers, 23% of light truck drivers, and 1% of large truck drivers involved in fatal crashes had BACs  $\geq$  .08% (p. 5).
- Among fatally-injured motorcyclists, 35% of 35-39 year olds, 37% of 40-44 year olds, and 41% of 45-49 year olds had BACs  $\geq$  .08% (p. 5).
- Motorcyclists killed in nighttime crashes were nearly 4 times more likely to have BACs  $\geq$  .08% than those killed during the day (44% and 12%, respectively) (p. 5).
- Fifty-five percent of the fatally-injured motorcyclists with BACs  $\geq$  .08% were reportedly not wearing helmets (p. 6).

**National Highway Traffic Safety Administration (NHTSA), *Traffic Safety Facts, 2007 Data: Motorcycles* (Washington, D.C.: NHTSA, 2008).**

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## UNITED KINGDOM

- In 2006, 21% of fatally-injured motorcycle riders aged 16 and older had positive BACs, 13% had BACs above .08%, and 9% had BACs above .15% (p. 32).
- Forty percent of motorcycle riders killed between 10 p.m. and 4 a.m. had BACs above .08%, compared to only 9% of motorcycle riders killed between 4 a.m. and 10 p.m. (p. 32).
- It was estimated that 340 motorcyclists were killed or seriously injured as a result of drinking and driving in 2006 (p. 30).

**Department for Transport (DfT), *Road Casualties Great Britain: 2007* (London: DfT, 2008). Online: <<http://www.dft.gov.uk/adobepdf/162469/221412/221549/227755/rcgb2007.pdf>>.**

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## AUSTRALIA

- A study of motorcycle crashes from 1995 to 1997 found that alcohol-positive motorcyclists were 5 times more likely to crash than those who had not been drinking. Motorcyclists with BACs above .05% were about 40 times more likely to crash.

**N. Haworth *et al.*, *Case Control Study of Motorcycle Crashes* (Canberra: Monash University Accident Research Centre, 1997) at 134. Online: <<http://www.monash.edu.au/muarc/reports/atsb174.pdf>>.**

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# ALCOHOL, OTHER DRUGS AND PILOTS

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## CANADA

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### NATIONAL

- In one study, 10 licensed pilots were given a marijuana joint containing 19 mg. of THC, a relatively small amount. Twenty-four hours after smoking the joint, they were tested in a flight simulator. All 10 pilots made errors in landing, and one missed the runway completely.

**Canadian Police Association (CPA), *Submission to the Senate Special Committee on Illegal Drugs, May 2001* (Ottawa: CPA, 2001). Online: <<http://www.parl.gc.ca/37/1/parlbus/commbus/senate/com-e/ille-e/presentation-e/police-e.htm>>.**

- In 1995, 15 fatal air-space transport accidents were attributable to alcohol.

**E. Single et al., *Canadian Profile: Alcohol, Tobacco and Other Drugs* (Toronto: Canadian Centre on Substance Abuse and Centre for Addiction and Mental Health, 1999) at 61.**

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## UNITED STATES

- Between 1985 and 2000, there were 1,642 general aviation crashes, and 313 pilots killed in Maryland, New Mexico and North Carolina.
- BAC information was available for 233 of the fatally-injured pilots. Of these pilots, 11% had positive BACs and 6% had BACs exceeding the legal limit for flying ( $\geq 0.04\%$ ). The mean BAC was .075%, with a standard deviation of .064%.
- Illicit drugs were found in two pilots with positive BACs, and in one pilot with a negative BAC.

**G. Li et al., “Characteristics of alcohol-related fatal general aviation crashes” (2005) 37(1) *Accident Analysis and Prevention* 143.**

- A study of crashes between 1994 and 2000 indicated that 3.4% of the pilots had a conviction for an alcohol-related traffic offence. A prior impaired driving conviction was associated with a 43% increased risk of crash involvement.

**G. Li et al., “Driving-while-intoxicated history as a risk marker for general aviation pilots” (2005) 37 *Accident Analysis and Prevention* 179.**

- Under FAA rules, pilots are prohibited from flying with a BAC of .02% or above, and are considered legally intoxicated at a BAC of .04%. Pilots are also prohibited from consuming alcohol eight hours prior to flying.
- Between 2000 and 2003, 22 pilots tested positive for alcohol through random testing. Thirty-eight pilots tested positive for alcohol through reasonable suspicion checks, and 146 pilots tested positive for drugs through random testing.
- Checks and follow-up examinations led to the revocation or suspension of the licences of 230 pilots in 2000, and 220 in 2001.

**B. Sweedler, “Flying High – Alcohol Impaired Airline Pilots – How Big is the Problem and What are the Countermeasures?” in P. Williams and A. Clayton, eds., *Proceedings of the 17th International Conference on Alcohol, Drugs and Traffic Safety, 2004* (Glasgow, UK: International Council on Alcohol, Drugs and Traffic Safety, 2004).**

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# PART V: IMPAIRED DRIVING

## CANADA

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### ALCOHOL

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#### NATIONAL

- In 2002, the Canadian Council of Motor Transport Administrators (CCMTA) introduced the Road Safety Vision 2010 (RSV 2010) project. Among other things, the CCMTA called for a 40% reduction by 2010 in the 1996/2001 percentage of alcohol-related traffic fatalities and serious injuries (p. ES-1).
- An independent mid-term evaluation characterized the progress made by the end of 2005 as “disappointing,” stating that Canada’s overall position was “unacceptable” (p. ES-2).
- No province or territory was on track to meet the alcohol-related traffic fatality target. Five jurisdictions (MB, NB, NF, PE, and QC) had increased rates, 1 (NWT) made no improvement, 4 (AB, NS, ON, and SK) had made minimal progress, and 2 (BC and YK) had made moderate progress (p. 57).
- The report states that the “current *Criminal Code* [provisions] are a disincentive for the police to charge drivers at less than .10% BAC” and create “difficulties for the development...of sanctions for offenders at lower BAC levels.” Moreover, the provincial short-term administrative licence suspensions were described as a “wholly inadequate” response to the risks associated with BACs  $\geq .05\%$  (p. 66).
- The study also criticized Canada’s current road trauma reporting system, stating that it was far too slow and was “unacceptable in terms of good international practice” (ES-9).

**M. Johnson & E. Howard, *Road Safety Vision 2010: Mid-Term Review, Final Report* (Burnaby: Canadian Traffic Safety Institute, 2007).**

- The Canadian Council of Motor Transport Administrators’ (CCMTA’s) own internal study of the Road Safety Vision 2010 project reported disappointing results. As of 2006, the project achieved only 19% of the targeted progress in reducing drinking driving fatalities and serious physical injuries (p. 36).
- The project called for reducing the percentage of fatalities involving drinking drivers to 18% by 2010. However, in 2005, this percentage stood at nearly 33%.
- Moreover, data from a subsequent study indicated that the percentage of alcohol-related traffic deaths rose in 2006.\*

**P. Gutoskie, *Road Safety Vision 2010, 2006 Update* (Ottawa: Canadian Council of Motor Transport Administrators, 2008). \*G. Mercer, *Estimating the Presence of Alcohol and Drug Impairment in Traffic Crashes and their Costs to Canadians: 1999 to 2006* (Vancouver: Applied Research and Evaluation Services, 2009) at 10.**

- In 2006, alcohol and/or drugs were involved in an estimated 1,278 fatalities, 75,374 injuries, and 163,893 property-damage-only crashes involving 249,117 damaged vehicles (p. 10).
- The total financial and social costs of these losses were estimated to be as high as \$12.8 billion (p. 12).

**G. Mercer, *Estimating the Presence of Alcohol and Drug Impairment in Traffic Crashes and their Costs to Canadians: 1999 to 2006* (Vancouver: Applied Research and Evaluation Services, 2009).**

- The estimated 10.2 million alcohol-impaired driving trips made in 2006 resulted in only 60,402 individuals being charged and 32,594 being convicted of an impaired driving offence in the 2006/07 reporting year. This translated to 1 charge for every 169 impaired driving trips, and 1 conviction for every 313 impaired driving trips. Thus, on average, a driver would have to become impaired and drive once a week for almost 3.25 years before being charged once and for more than 6 years before being convicted of impaired driving.
- Another national study indicated that Canadian drivers made more than 20 million trips within an hour of consuming 2 or more drinks in the past 12 months. Based on this data, the preceding charge and conviction rates per impaired driving trip may be significantly overstated.

**W. Vanlaar et al., *The Road Safety Monitor 2006: Drinking and Driving*, (Ottawa: Traffic Injury Research Foundation, 2006) at 7; Statistics Canada, *CANSIM Table 252-0014, Adult and Youth charged...annual (number)* (Ottawa: Statistics Canada, 2008); Statistics Canada, *CANSIM Table 252-0046, Adult criminal...annual* (Ottawa: Statistics Canada, 2008); Traffic Injury Research Foundation (TIRF), *The Road Safety Monitor 2006: Drinking and Driving* (Ottawa: TIRF, 2006) at 7; and D. Beirness & C. Davis, "Driving after Drinking in Canada: Findings from the Canadian Addiction Survey" (2007) 98(6) *Canadian Journal of Public Health* 476 at 477.**

- In 2006, 3,122 people were killed (p. 4) and another 15,458 were seriously injured in motor vehicle crashes (p. 9).
- Sixteen to nineteen year olds and 20-25 year olds accounted for 12% and 21.4% respectively, of the total number of alcohol-related traffic fatalities (p. 14).
- Alcohol was a factor in 39.9% of the total traffic fatalities among 16-19 year olds, and 52.3% of the total traffic fatalities among 20-25 year olds (p. 15).
- Among drivers killed in 2006, 38.2% of 16-19 year olds and 45.4% of 20-25 year olds had been drinking (p. 17).
- About 33% of the fatally-injured 16-19 year old drivers and 38.6% of the fatally-injured 20-25 year old drivers had BACs  $\geq$  .08%. An additional 5.1% of the 16-19 year old drivers and 6.8% of the 20-25 year old drivers had positive BACs below .08% (p. 17).

**Traffic Injury Research Foundation (TIRF), *The Alcohol-Crash Problem in Canada: 2006* (Ottawa: TIRF, 2009).**

- In 1997, 1 in every 278.6 licensed drivers in Canada was charged with an impaired driving offence.\* By 2006, the charge rate had fallen to 1 in every 369 licensed drivers.\*\*
  - In contrast, 1 in every 139 licensed drivers in the United States was charged with an impaired driving offence in 2006.\*\*\*
  - Thus, Canada's charge rate for impaired driving in 2006 was less than 38% of the American rate.\*\*
- \* **Transport Canada, *Canadian Motor Vehicle Traffic Collision Statistics, 2003* (Ottawa: Minister of Transport, 2004); and Statistics Canada, *CANSIM Table 252-0014, Adult and youth charged...annual* (Ottawa: Statistics Canada, 1998).**
- \*\* **Transport Canada, *Canadian Motor Vehicle Traffic Collision Statistics, 2006* (Ottawa: Minister of Transport, 2007); and Statistics Canada, *CANSIM Table 252-0014, Adult and youth charged...annual* (Ottawa: Statistics Canada, 2007).**
- \*\*\* **National Highway Traffic Safety Administration (NHTSA), *Traffic Safety Facts, 2007 Data, Overview* (Washington, D.C.: NHTSA, 2008) at 5.**
- In 2008, more than 18% of Canadians reported driving at least once in the past 30 days after consuming alcohol (p. 1), and 5.2% reported driving at least once in the past 12 months when they thought they had BACs over .08% (p. 2).

- Among those who drove after drinking in the past 12 months, 36.6% reported doing most of their drinking at the home of a friend or relative, 25.4% reported drinking at a bar and 18% reported doing most of their drinking in their own home (p. 2).
- More than 6% of those surveyed reported being a passenger at least once in the past 30 days in a vehicle driven by someone who had been drinking (p. 2).

**Traffic Injury Research Foundation (TIRF), *The Road Safety Monitor 2008: Drinking and Driving National* (Ottawa: TIRF, 2008).**

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### **BRITISH COLUMBIA**

- A study of 6,067 drivers admitted to British Columbia hospitals following a crash between January 1, 1992 and March 31, 2000 found that only one-third were administered a blood-alcohol test (p. 2).
- Among the 1,697 tested drivers, 47.1% had been drinking. Of the alcohol-positive drivers, 22.5% had BACs of between .01% and .08% and 77.5%, or 619 drivers, had BACs above .08%. The mean BAC of the alcohol-positive drivers was .156% (p. 5).
- The police listed alcohol as a contributing factor in 70.5% of the cases in which the driver's BAC was subsequently found to exceed .08%.
- Nevertheless, only 11% (68/619) of the drivers with BACs above .08% were convicted of an impaired driving offence. Less than 4% (22 drivers) received a provincial 90-day administrative licence suspension, and 10.7% (66 drivers) were given a 24-hour roadside suspension (p. 7).

**R. Purssell *et al.*, "Proportion of injured alcohol-impaired drivers subsequently convicted of an impaired driving criminal code offence in British Columbia" (2004) 6(2) Canadian Journal of Emergency Medicine.**

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### **NEW BRUNSWICK**

- A 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 made up only 3.5% of the total drivers in New Brunswick, but were involved in 8% of the fatal crashes (p. 439).
- Suspended drivers tended to drive most often between midnight and 6 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 self-reported number of kilometres driven per week during the suspension was 44 for first offenders and 75 for repeat offenders (p. 443).
- Thirty-two percent of first-time offenders and 35% of repeat offenders admitted driving during their suspension period (p. 445).
- Ninety percent of the suspended drivers stopped by the police produced an apparently valid driving permit, even though the law requires them to surrender their permits when suspended (p. 439).

**J. Malenfant *et al.*, "A study to measure the incidence of driving under suspension in the Greater Moncton Area" (2002) 34(4) Accident Analysis and Prevention 439.**

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## CANADIAN ALCOHOL-RELATED DRIVING CHARTS

### TOTAL MOTOR VEHICLE FATALITIES: CANADA, 1980-2006

Year	Fatalities	Year	Fatalities	Year	Fatalities
1980	5,461	1989	4,238	1998	2,911
1981	5,383	1990	3,963	1999	2,984
1982	4,169	1991	3,690	2000	2,927
1983	4,216	1992	3,501	2001	2,776
1984	4,120	1993	3,615	2002	2,932
1985	4,364	1994	3,263	2003	2,768
1986	4,068	1995	3,351	2004	2,722
1987	4,283	1996	3,062	2005	2,905
1988	4,154	1997	3,033	2006	2,889

Sources: Transport Canada, *Canadian Motor Vehicle Traffic Collision Statistics, 1999* (Ottawa: Transport Canada, 2000) at 2; and Transport Canada, *Canadian Motor Vehicle Traffic Collision Statistics, 2006* (Ottawa: Transport Canada, 2007) at 2.

### NUMBER OF FATALLY-INJURED DRIVERS AND PERCENTAGE WHO TESTED POSITIVE FOR ALCOHOL: CANADA, 1987-2006

Year	Fatally-Injured Drivers	% Positive for Alcohol	Year	Fatally-Injured Drivers	% Positive for Alcohol
1987	2,250	53.1	1997	1,802	39.0
1988	2,326	50.7	1998	1,714	39.1
1989	2,384	46.4	1999	1,793	33.1
1990	2,181	45.4	2000	1,710	35.6
1991	2,067	48.0	2001	1,645	37.9
1992	1,981	48.0	2002	1,744	35.0
1993	2,043	44.7	2003	1,671	38.3
1994	1,886	43.9	2004	1,633	34.7
1995	1,924	43.4	2005	1,784	36.5
1996	1,728	41.7	2006	1,738	37.1

Source: Traffic Injury Research Foundation (TIRF), *The Alcohol-Crash Problem in Canada: 2006* (Ottawa: TIRF, 2009) at 36.

**BACS OF ALCOHOL-POSITIVE, FATALLY-INJURED DRIVERS:  
CANADA, 1990 - 2006**

Year	Total No. of BAC-Positive Drivers	The Number and Percentage of Drivers With BACs at:		
		.01% - .08%	.081% - .15%	.151% +
1990	797	155 (20%)	159 (20%)	483 (60%)
1992*	762	126 (17%)	165 (22%)	471 (62%)
1994	703	127 (18%)	143 (20%)	433 (62%)
1996	598	97 (16%)	133 (22%)	368 (62%)
1998	559	90 (16%)	136 (24%)	333 (60%)
2000	513	91 (18%)	118 (23%)	304 (59%)
2002	511	87 (17%)	133 (26%)**	291 (57%)***
2004	478	94 (20%)	130 (27%)**	254 (53%)***
2006	540	100 (19%)	137 (25%)**	303 (56%)***

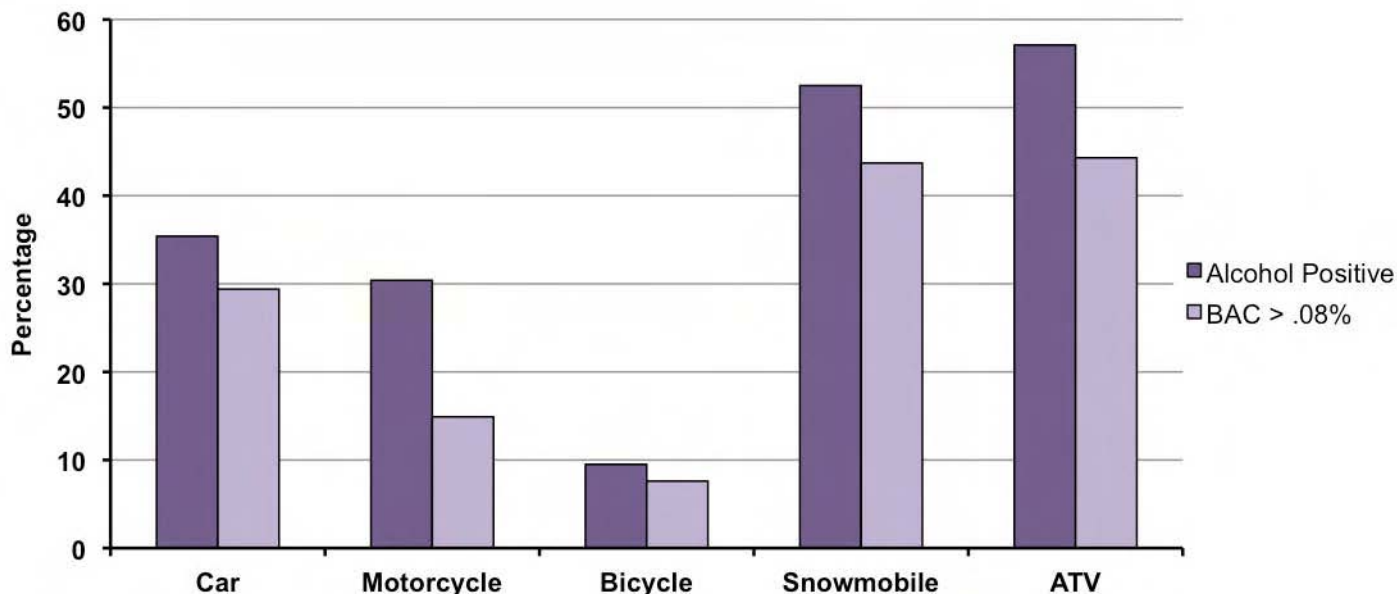
\* Due to rounding, the total does not equal 100%.

\*\* Drivers with BACs of .081% - .16%.

\*\*\* Drivers with BACs greater than .16%.

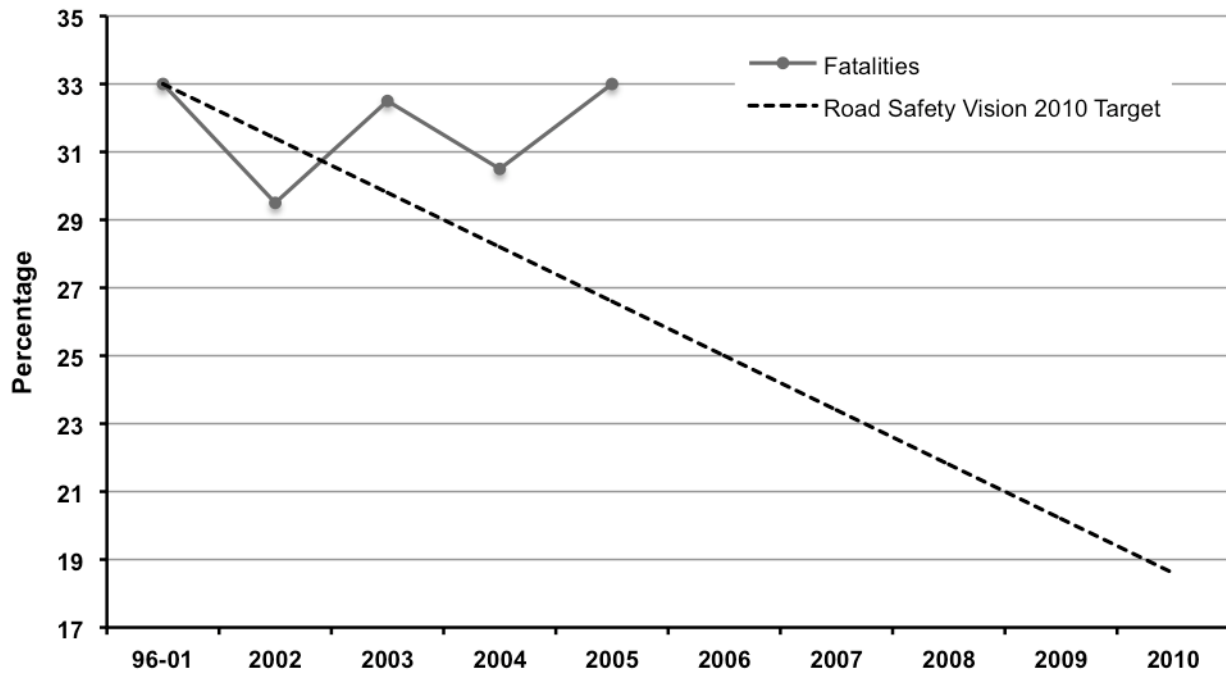
**Sources: Data for this chart were obtained from Transport Canada and the Traffic Injury Research Foundation.**

**ALCOHOL CONSUMPTION AMONG FATALLY-INJURED DRIVERS, BY TYPE OF VEHICLE: CANADA, 2006**



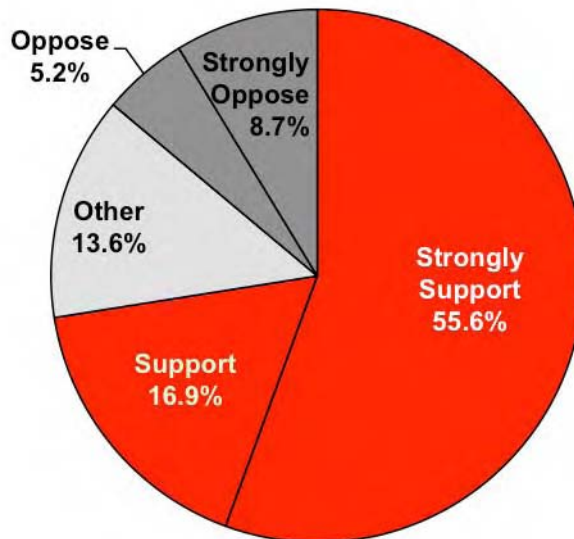
Source: Traffic Injury Research Foundation (TIRF), *The Alcohol-Crash Problem in Canada: 2006* (Ottawa: TIRF, 2009) at 22-24.

**ROAD SAFETY VISION 2010 TARGETS AND ACTUAL PERCENTAGE OF FATALITIES INVOLVING DRINKING DRIVERS: CANADA, 1996/2001-2005**



Source: P. Gutoskie, *Road Safety Vision 2010: 2006 Update* (Ottawa: Canadian Council of Motor Transport Administrators, 2008) at 13.

**PUBLIC SUPPORT FOR REDUCING THE PERMISSIBLE *CRIMINAL CODE* BAC LIMIT: CANADA, 2005**



Source: SES Research Incorporated, *MADD (Canada) National Poll, November 2005* (Ottawa: SES, 2005).

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

Standard 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	.0185%	.0146%	.0112%	.0035%	.000%	.000%	.000%	.000%	.000%
3	.0428%	.0369%	.0319%	.0278%	.0219%	.0169%	.0128%	.0069%	.0019%
4	.0671%	.0592%	.0525%	.0521%	.0442%	.0375%	.0371%	.0292%	.0225%
5	.0913%	.0815%	.0731%	.0763%	.0665%	.0581%	.0613%	.0515%	.0431%
6	.1156%	.1038%	.0937%	.1006%	.0888%	.0787%	.0856%	.0738%	.0637%
7	.1398%	.1261%	.1144%	.1248%	.1111%	.0994%	.1098%	.0961%	.0844%
8	.1641%	.1484%	.1350%	.1491%	.1334%	.1200%	.1341%	.1184%	.1050%

	Likely criminal threshold under the proposed .05% law.
	Likely criminal threshold under the current .08% law.

\* Based on 13.46 grams of alcohol and an average metabolism rate of a .015% decrease in BAC per hour.

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 224.

**BACS FOR FEMALES IN RELATION TO TIME, WEIGHT AND  
STANDARD CANADIAN DRINKS\***

Standard 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	.0514%	.0451%	.0398%	.0364%	.0301%	.0248%	.0214%	.0151%	.0098%
3	.0921%	.0827%	.0746%	.0771%	.0677%	.0596%	.0621%	.0527%	.0446%
4	.1328%	.1202%	.1095%	.1178%	.1052%	.0945%	.1028%	.0902%	.0795%
5	.1734%	.1578%	.1444%	.1584%	.1428%	.1294%	.1434%	.1278%	.1144%
6	.2141%	.1953%	.1793%	.1991%	.1803%	.1643%	.1841%	.1653%	.1493%
7	.2548%	.2329%	.2141%	.2398%	.2179%	.1991%	.2248%	.2029%	.1841%

	Likely criminal threshold under the proposed .05% law.
	Likely criminal threshold under the current .08% law.

\* Based on 13.46 grams of alcohol and an average metabolism rate of a .015% decrease in BAC per hour.

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 225.

## DRUGS

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### NATIONAL

- In a 2002 survey, 17.7% of drivers reported driving within 2 hours of using a prescribed medication, over-the-counter remedy, marijuana, or other illicit drug during the past 12 months.
- These results suggest that an estimated 3.7 million Canadians drove after taking some medication or drug that could potentially impact their ability to drive safely.
- The most common drugs used were over-the-counter medications (15.9%), prescription drugs (2.3%), marijuana (1.5%), and 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.
- More than 80% of drivers agreed that drivers suspected of being under the influence of drugs should be required 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. Beirness, H. Simpson & K. Desmond, *The Road Safety Monitor 2002: Drugs and Driving* (Ottawa: Traffic Injury Research Foundation, 2003).**

- Between 2000 and 2004, 42% of fatally-injured drivers who tested positive for cannabis had BACs above .08% (p. 8).

**S. Palmer & P. Boase, “Prevalence of Drug Impaired Driving in Canada 2000-2004” in B. Logan, ed., *International Council on Alcohol, Drugs and Traffic Safety* (Seattle: International Council on Alcohol, Drugs and Traffic Safety, 2007).**

- In 2005, 61.4% of 15-24 year old Canadians reported using cannabis in their lifetime, and 37% reported using it at least once in the past 12 months (p. 40).
- The rate of use in the past 12 months was 47.2% among 18-19 year olds, compared to 36.5% for 20-24 year olds and 29.2% for 15-17 year olds (p. 40).
- About 8.2% of Canadian youth use marijuana on a daily basis (p. 40).
- About 21% of youth reported driving under the influence of alcohol, and 40% reported driving under the influence of cannabis in the past 12 months (p. 95).
- About 33% of youth reported having been a passenger with someone under the influence of alcohol, and 39.6% reported having been a passenger with someone under the influence of cannabis in the past 12 months (p. 95).

**J. Flight et al., *Canadian Addiction Survey: Substance Use by Canadian Youth* (Ottawa: Health Canada, 2007).**

- In a 2005 survey, 2.4% of respondents reported driving within 2 hours of using marijuana or hashish in the previous year (p. 9) and, of these, 69% also reported driving within 2 hours of drinking.

**H. Simpson et al., *The Road Safety Monitor: Drugs and Driving* (Ottawa: Traffic Injury Research Foundation, 2006) at 10.**

- It was estimated that in 2006, 27.9% of traffic fatalities involved alcohol, 9.3% involved alcohol and drugs, and 3.72% involved drugs alone.

- In 2006, 13.95% of crash injuries involved only alcohol, 4.65% involved alcohol and drugs, and 1.86% involved drugs alone.

**G. Mercer, *Estimating the Presence of Alcohol and Drug Impairment in Traffic Crashes and their Costs to Canadians: 1999 to 2006* (Vancouver: Applied Research and Evaluation Services, 2009).**

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### ATLANTIC PROVINCES

- Almost 49% of students in grades 10 and 12 in the Atlantic provinces reported using cannabis (p. 1028).
- Among cannabis users, 15.1% reported driving under the influence of the drug in the past 12 months (p. 1029).
- The highest rates of driving under the influence of cannabis were among males, students who had used fake ID to purchase alcohol, and students who had driven under the influence of alcohol (p. 1029).
- Relative to students who did not drive under the influence of alcohol, students who did were 6 times more likely to drive under the influence of cannabis (p. 1031).
- Students who drove under the influence of cannabis were twice as likely as cannabis-free students to report being in a collision. Moreover, it was not cannabis consumption *per se* that increased the risk of a collision, but rather its use just prior to driving (p. 1031).
- Nearly 12% of students reported driving under the influence of alcohol (p. 1029).

**M. Asbridge *et al.*, “Motor vehicle collision risk and driving under the influence of cannabis: evidence from adolescents in Atlantic Canada” (2005) 37 Accident Analysis and Prevention 1025.**

- In 2007, 23% of senior high school students with a driver’s licence in the Atlantic Provinces reported that they had, on at least one occasion in the previous 12 months, driven within an hour of having used cannabis (p. 73).

**C. Poulin & D. Elliot, *Student Drug Use Survey in the Atlantic Provinces 2007: Atlantic Technical Report* (Halifax: Dalhousie University, 2007). Online: <[http://www.gov.pe.ca/photos/original/doh\\_sds\\_tech.pdf](http://www.gov.pe.ca/photos/original/doh_sds_tech.pdf)>.**

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### PRAIRIE PROVINCES

- In Saskatchewan, the percentage of deceased drivers who tested positive for drugs rose from 5.7% in 2000 to 38.3% in 2002. In Manitoba, the percentage of deceased drivers who tested positive for drugs was 23.5% in 2000 and 28.8% in 2002. The comparable figures for Nova Scotia were 15.8% in 2000 and 20.5% in 2002.

**D. Mayhew *et al.*, *Drugs Among Fatally Injured Drivers: 2000-2002* (Ottawa: Traffic Injury Research Foundation, 2004) at 5.**

- In 2004, about 20% of male and 15% of female high school students over 16 years old in Manitoba reported driving after using cannabis at least once in the past 12 months (p. 46).

**D. Patton *et al.*, *Alcohol and other drug use by Manitoba students* (Winnipeg: Addictions Foundation of Manitoba, 2005). Online: <<http://www.afm.mb.ca/pdf/Alcohol%20and%20other%20drug%20use%20by%20Manitoba%20students%202005%20report.pdf>>.**

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### BRITISH COLUMBIA

- In a 2008 nighttime roadside survey (9 p.m. - 3 a.m.), 15.5% of drivers tested positive for alcohol, drugs or both. More than 10% of drivers tested positive for drugs (p. 3).
- Cannabis (4.6%) and cocaine (4.6%) were the most frequently detected drugs (p. 15).

- More than 8% of tested drivers had positive BACs, 5.6% had BACs  $\leq$  .08%, and 2.5% had BACs greater than .08% (p. 12).
- Males (13.2%) were more likely to test positive for drugs than females (5.1%) (p. 16).
- Among the 16.8% of drug-positive drivers who were also alcohol-positive, 52% had BACs  $\geq$  .05% and 23.8% had BACs greater than .08% (p. 16).
- Among tested 16-18, 19-24 and 25-34 year old drivers, 9.1%, 10.2% and 12.4%, respectively, were drug-positive (p. 16).

**D. Beirness & E. Beasley, *Alcohol & Drug Use Among Drivers: British Columbia Roadside Survey 2008* (Ottawa: Canadian Centre on Substance Abuse, 2009).**

## ONTARIO

- Young drivers had the highest rates of driving within an hour of cannabis use (9.3% of 18-19 year olds, 5% of 20-24 year olds, 2.1% of 25-34 year olds, and 1.6% of 35-44 year olds) (p. 261).
- Among cannabis users, 22.8% reported driving within an hour of use (p. 262).
- Forty-seven percent of those who reported driving within an hour of cannabis use also reported driving within an hour of having 2 or more drinks (p. 263).

**G. Walsh & R. Mann, “On the High Road: Driving Under the Influence of Cannabis in Ontario” (1999) 90(4) *Canadian Journal of Public Health* 260.**

- A 2002/03 Ontario survey found that approximately 10% of adults who had used cannabis reported having been in a collision during the past year, compared to 6.6% of adults who had never used cannabis.
- Adults who used cannabis more than once a week were 2.76 times more likely to be in a collision than those who had never used cannabis. Those with at least 1 symptom of cannabis dependence were 1.72 times more likely to be in a collision than those without symptoms of cannabis dependence.

**R. Mann *et al.*, “Cannabis use and self-reported collisions in a representative sample of adult drivers” (2007) 28 *Journal of Safety Research* 669 at 672.**

- In 2007, it was estimated that 25.6% of high school students (26.9% of males and 24.3% of females) reported using cannabis at least once in the previous 12 months (p. 81). Among users, 44% used cannabis at least 10 times in the previous 12 months (p. 90).
- More than 15% of drivers in grades 10 to 12 reported driving within 1 hour of using cannabis at least once during the past 12 months (17.9% of males and 12.7% of females) (p. 201).
- The frequency of using cannabis and driving increased from 3.7% of grade-10 drivers to 18.9% of grade-12 drivers (p. 201).
- Almost 26% of high school students reported being in a vehicle at least once in the past 12 months driven by someone who had been drinking and 17.6% rode with someone who had used drugs prior to driving (p. 201).
- Almost 12% of all drivers in grades 10 to 12 (14.1% of males and 8.8% of females) had driven within an hour of consuming 2 or more drinks during the past 12 months (p. 198).

**E. Adlaf & A. Paglia-Boak, *Drug Use Among Ontario Students 1977-2007: Detailed OSDUHS Findings* (Toronto: Centre for Addiction and Mental Health, 2007).**

## QUEBEC

- A study of drivers fatally injured between April 1, 1999 and December 31, 2002 found that, of those tested, 46.4% had consumed alcohol, drugs or a combination of both. (21.7% were positive for alcohol alone, 11.7% were positive for alcohol and drugs, and 13% were positive for drugs alone).

- Among the alcohol-positive drivers, 85% had BACs above .08%.
- The drugs most commonly detected among the deceased drivers were: cannabis (13.1%); benzodiazepines (9.2%); cocaine (4.7%); opiates (1.3%); PCP (0.5%); amphetamines (0.4%); and barbiturates (0.4%).
- Males aged 16-34 were overrepresented among deceased drivers who were positive for illegal drugs, whereas drivers aged 55 and above were overrepresented among deceased drivers who were positive for legal drugs.
- Seatbelts were not worn by 48% of the drivers who had consumed both alcohol and drugs, 37.6% of drivers who had consumed alcohol alone, and 27.9% of drivers who had consumed drugs alone. In Quebec, seatbelt use among the general driving population is more than 90%.

**J. Bouchard & M. Brault, “Link Between Driving Records and the Presence of Drugs and/or Alcohol in Fatally Injured Drivers” in P. Williams and A. Clayton, eds., *Proceedings of the 17th International Conference on Alcohol, Drugs and Traffic Safety, 2004* (Glasgow: International Council on Alcohol, Drugs and Traffic Safety, 2004) at 2-3. Online: <<http://www.icadts.org/T2004/O28.html>>.**

- A 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 on Alcohol, Drugs and Traffic Safety, 2002* (Montreal: Société de l’assurance automobile du Québec, 2002) at 429. Online: <[http://www.saaq.gouv.qc.ca/t2002/actes/pdf/\(16a\).pdf](http://www.saaq.gouv.qc.ca/t2002/actes/pdf/(16a).pdf)>.**

## CANADIAN ALCOHOL/DRUG-IMPAIRED DRIVING CHARTS

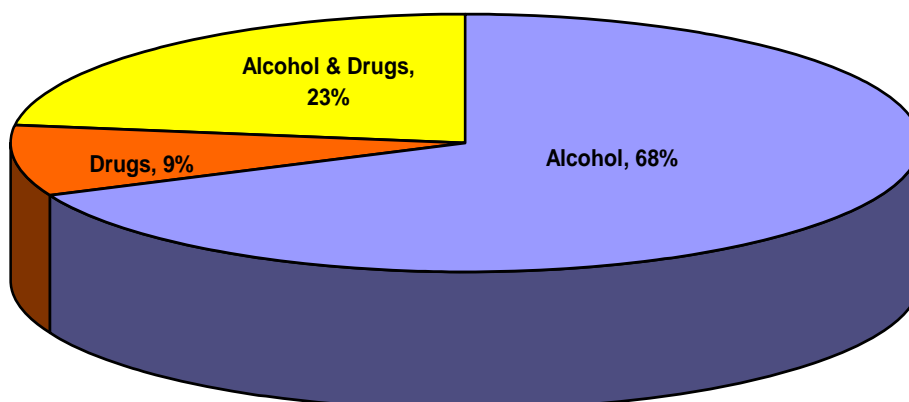
### ALCOHOL AND DRUG-IMPAIRED FATALITIES, INJURIES AND PROPERTY-DAMAGE-ONLY (PDO) CRASHES: CANADA, 1999-2006

Year	Fatalities	Injuries	PDO Crashes*
1999	1,247	73,579	159,990
2000	1,176	69,362	150,824
2001	1,213	71,536	155,606
2002	1,161	68,470	148,881
2003	1,257	74,181	161,298
2004	1,157	68,245	148,391
2005	1,210	71,413	155,198
2006	1,278	75,374	163,893
Average	1,212	71,523	155,510

\* The author estimated that an average of 1.52 vehicles were damaged in each PDO crash.

Source: G. Mercer, *Estimating the Presence of Alcohol and Drug Impairment in Traffic Crashes and their Costs to Canadians: 1999 to 2006* (Vancouver: Applied Research and Evaluation Services, 2009) at 8-9.

### PERCENTAGE OF FATAL CRASHES, BY TYPE OF IMPAIRMENT: CANADA, 2006



Source: G. Mercer, *Estimating the Presence of Alcohol and Drug Impairment in Traffic Crashes and their Costs to Canadians: 1999 to 2006* (Vancouver: Applied Research and Evaluation Services, 2009) at 6.

## CANADIAN IMPAIRED DRIVING CHARGE, CONVICTION AND SENTENCING CHARTS

**NOTE:** Canadian impaired driving charge, conviction and sentencing data are difficult to obtain and interpret. The data are often incomplete in terms of the years covered and the number of jurisdictions reporting. In some years, the charge and conviction data include young offenders, but not in others. Moreover, charge and conviction data are difficult to reconcile, as charge data are reported by calendar year, while conviction data are reported by fiscal year. As a result, the following charts should be seen as illustrating general trends.

### ANNUAL CHARGES AND DISPOSITIONS IN PROVINCIAL AND TERRITORIAL COURTS, CUMULATIVE AVERAGES: CANADA, 1994-1998

Offence (Criminal Code Section)	No. of Charges	Dispositions				
		Stay/ Withdrawal	Acquittals	Guilty	Transferred to superior court	Other**
Impaired Driving (s. 253(a))	55,705*	61%	4%	31%	0%	5%
Driving with a BAC over .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%

\* Suspects are typically charged with both impaired driving and driving with a BAC over .08%. Pursuant to *Keinapple v. R.*, [1975] 1 S.C.R. 729, an accused cannot be convicted of two criminal offences arising from a single criminal act. Consequently, when an accused is convicted of either offence, the other charge is stayed or withdrawn.

\*\* 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,\* CUMULATIVE AVERAGES: CANADA, 1994-1998

Offence (Criminal Code Section)	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 was imposed, such as prison 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).**

**DRIVERS CHARGED AND CONVICTED OF AN IMPAIRED DRIVING OFFENCE:  
CANADA, 1993-2006**

Year	Impaired Operation Offences*		Year	Impaired Operation Offences*	
	Number of Drivers Charged**	Number of Drivers Convicted***		Number of Drivers Charged**	Number of Drivers Convicted***
1993	92,531	n/a	2000	69,126	36,872 (00/01)
1994	88,582	46,211 (94/95)	2001	68,986	38,082 (01/02)
1995	84,085	44,352 (95/96)	2002	66,889	37,212 (02/03)
1996	79,347	42,150 (96/97)	2003	65,236	34,297 (03/04)
1997	72,307	40,278 (97/98)	2004	63,317	33,759 (04/05)
1998	72,579	36,467 (98/99)	2005	60,538	33,983 (05/06)
1999	73,143	34,377 (99/00)	2006	60,402	32,592 (06/07)

\* This category includes driving while impaired, driving with a BAC > .08%, failing to provide a blood or breath sample, and impaired driving causing death or bodily harm. More than 90% of the total charges were for driving while impaired or driving with a BAC > .08%.

\*\* Charge data from 1993 to 2004 include adults and youth, while charge data for 2005 and 2006 are for adults only. Charge data are reported by calendar year.

\*\*\* Conviction data for 1994/95 to 2004/05 include eight jurisdictions: Alta., Nfld., NS, Ont., P.E.I., Que., Sask., and Yk. Conviction data for 2005/06 and 2006/07 include adults only, but for all 13 jurisdictions. Conviction data are reported by fiscal year.

**Sources: Statistics Canada, CANSIM Table 252-0014, Adult and youth charged...annual (Ottawa, Statistics Canada, 2008); and Statistics Canada, CANSIM Table 252-0046, Adult criminal court survey...annual (Ottawa: Statistics Canada, 2008).**

**IMPAIRED DRIVING FATALITIES, INJURIES, CHARGES, AND CONVICTIONS:  
CANADA, 1999-2006**

Year	Impaired Traffic Deaths	Impaired Driving Causing Death (s. 255(3))		Impaired Traffic Injuries	Impaired Driving Causing Bodily Harm (s. 255(2))	
		Charges*	Convictions**		Charges*	Convictions**
1999	1,247	123	42 (99/00)	73,579	962	328 (99/00)
2000	1,176	147	49 (00/01)	69,362	992	336 (00/01)
2001	1,213	100	41 (01/02)	71,563	911	375 (01/02)
2002	1,161	98	42 (02/03)	68,470	931	359 (02/03)
2003	1,257	142	50 (03/04)	74,181	900	349 (03/04)
2004	1,157	119	58 (04/05)	68,245	842	309 (04/05)
2005	1,210	110	43 (05/06)	71,413	842	317 (05/06)
2006	1,278	137	36 (06/07)	75,374	842	233 (06/07)

\* Charge data from 1999 to 2004 include adults and youth, while charge data for 2005 and 2006 are for adults only. Charge data are reported by calendar year.

\*\* Conviction data for 1999/00 to 2005/06 include adult and youth for Alta., Nfld., NS, Ont., P.E.I., Que., Sask., and Yk. Conviction data for 2005/06 and 2006/07 include adults only, but for all 13 jurisdictions. Conviction data are reported by fiscal year.

**Sources: G. Mercer, Estimating the Presence of Alcohol and Drug Impairment in Traffic Crashes and their Costs to Canadians: 1999 to 2006 (Vancouver: Applied Research and Evaluation Services, 2009) at 8; and Statistics Canada, CANSIM Table 252-0014, Adult and youth charged...annual (Ottawa: Statistics Canada, 2008).**

# UNITED STATES

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## ALCOHOL

- In 2000, drivers with BACs  $\geq .10\%$  were involved in more than 2 million crashes that killed 12,892 and injured 448,630 people.
- Drivers with BACs between .080% and .099% were involved in an estimated 35,410 crashes that killed 1,097 and injured 20,150 people.
- Drivers with positive BACs below .08% were involved in an estimated 69,400 crashes that killed 2,664 and injured 43,730 people.

**National Highway and Traffic Safety Administration (NHTSA), *Impaired Driving in the United States*. Online: <<http://www.nhtsa.dot.gov/people/injury/alcohol/impaired-drivingusa/us.pdf>>.**

- A 2001 survey reported that about 22% of drivers had driven a motor vehicle within 2 hours of consuming alcohol in the previous 12 months.
- These drivers made an estimated 809 million to 1 billion driving trips within 2 hours of consuming alcohol in the previous 12 months. They consumed an average of 2.6 drinks within 2 hours of driving (average BAC = .03%). About 5% were estimated to have BACs  $\geq .08\%$ .
- Of these drivers, those under age 21 consumed an average of 5.1 drinks prior to driving.
- Drivers 16-20 years old made 3% of all drinking-driving trips, and their average BACs were nearly 3 times that of legal age drinkers.

**National Highway Traffic Safety Administration (NHTSA), *Traffic Tech, National Survey of Drinking and Driving Attitudes and Behaviours, 2001* (Washington, D.C.: NHTSA, 2003). Online: <<http://www.nhtsa.gov/people/injury/alcohol/traffic-tech2003/TT280.pdf>>.**

- In 2005, traffic fatalities were the leading cause of death for people aged 3-6 and 8-34 (p. 1).
- Traffic fatalities ranked 3rd overall in terms of the total years of life lost (p.1).

**National Highway Traffic Safety Administration (NHTSA), *Traffic Safety Facts, Research Note, Motor Vehicle Traffic Crashes As a Leading Cause of Death in the United States, 2005* (Washington, D.C.: NHTSA, 2008). Online: <<http://www-nrd.nhtsa.dot.gov/Pubs/810936.pdf>>.**

- In 2007, 12,998 people were killed in alcohol-impaired driving crashes, accounting for 32% of total motor vehicle fatalities (p. 1).
- Among those killed, 66.5% (*i.e.* 8,644) were drivers with BACs  $\geq .08\%$ , 27.6% (*i.e.* 3,581) were motor vehicle occupants, and 5.9% (*i.e.* 773) were nonoccupants (p. 1).
- In 2007, there was an average of 1 alcohol-related traffic fatality every 40 minutes (p. 1).
- Motorcyclists accounted for 27% of all fatal crashes where the driver's BAC was  $\geq .08\%$ , drivers of light trucks accounted for 23%, passenger car drivers accounted for 23%, and drivers of large trucks accounted for 1% (p. 4).
- The percentage of drivers in fatal crashes with BACs  $\geq .08\%$  was: 18% among 16-20 year olds, 35% among 21-24 year olds, 29% among 25-34 year olds, and 25% among 35-44 year olds (p. 4).
- In 2007, 36% of drivers in nighttime (6 p.m. - 6 a.m.) fatal crashes were impaired, compared to 9% of drivers during the day (p. 3).
- In 2007, 15% of all drivers in fatal crashes during the week were alcohol-impaired, compared to 31% on weekends.

**National Highway Traffic Safety Administration (NHTSA), *Traffic Safety Facts, 2007 Data, Alcohol-Impaired Driving* (Washington, D.C.: NHTSA, 2008). Online: <<http://www-nrd.nhtsa.dot.gov/Pubs/810985.pdf>>.**

- Thirty-six people are killed and approximately 700 more are injured every day in motor vehicle crashes that involve an alcohol-impaired driver. The annual cost of alcohol-related crashes exceeds \$51 billion.
- In 2007, over 1.4 million drivers were arrested for driving under the influence of alcohol or drugs, which is less than 1% of the 159 million self-reported episodes of alcohol-impaired driving among U.S. adults each year.
- Half of the 306 child passengers (14 years old or younger) killed in alcohol-related crashes in 2006 were riding with drivers who had BACs  $\geq$  .08%.

**Center for Disease Control and Prevention (CDC), *Motor Vehicle Safety, Impaired Driving* (Atlanta: CDC, 2009). Online: <[http://www.cdc.gov/MotorVehicleSafety/Impaired\\_Driving/impaired-driv\\_factsheet.html](http://www.cdc.gov/MotorVehicleSafety/Impaired_Driving/impaired-driv_factsheet.html)>.**

- A 2007 survey found that 12.7% of people aged 12 or older drove under the influence of alcohol in the past 12 months.
- About 7.8% of 16-17 year olds, 18.3% of 18-20 year olds, and 25.8% of 21-25 year olds reported driving under the influence of alcohol. The percentage of people who reported driving under the influence of alcohol declined after age 25.
- Males were nearly twice as likely as females to drive under the influence of alcohol.

**Department of Health and Human Services, *Results from the 2007 National Survey on Drug Use and Health: National Findings* (Rockville: Substance Abuse and Mental Health Services Administration, 2008) at 36. Online: <<http://oas.samhsa.gov/nsduh/2k7nsduh/2k7Results.pdf>>.**

- The 2007 National Roadside Survey reported that only 2.2% of drivers on weekend nights had BACs of .08% or higher, which constituted a decline of 71% in the percentage of alcohol-impaired drivers on the roads from 1973. The declines at other BAC levels were similar (p. 1).
- The percentage of drivers with BAC levels of .08% or higher was 0.2% during the day, 1.2% from 10 p.m. to midnight, and 4.8% from 1 a.m. to 3 a.m. (p. 2).

**R. Compton & A. Berning, *Traffic Safety Facts, Results of the 2007 National Roadside Survey of Alcohol and Drug Use by Drivers* (Washington, D.C.: National Highway Traffic Safety Administration, 2009).**

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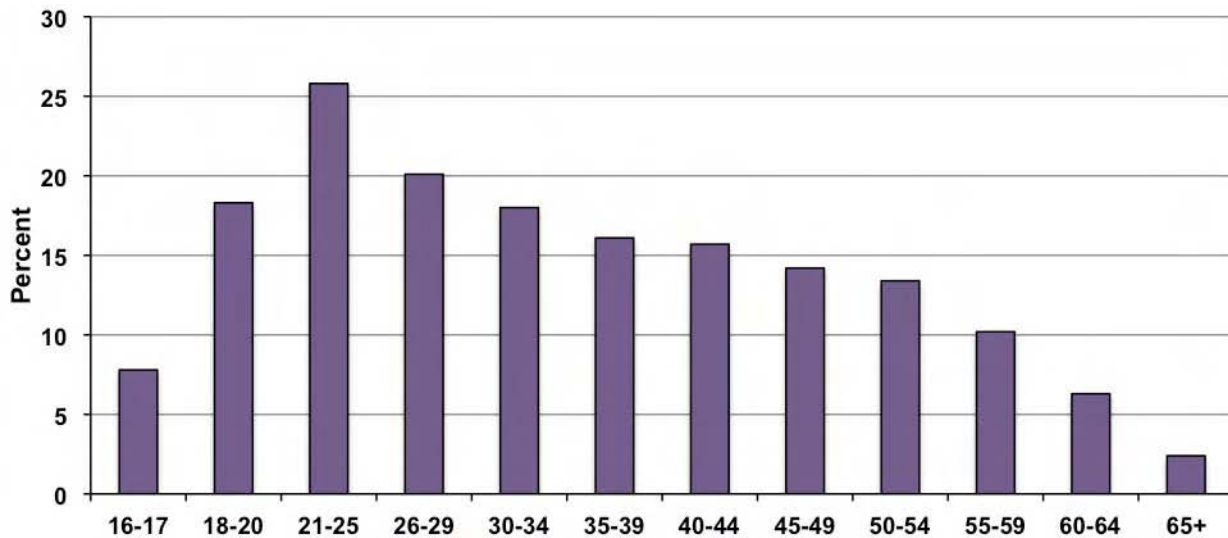
## DRUGS

- In 2007, among the more than 35.5 million people aged 12 or older who reported using illicit drugs in the past 12 months (p. 252), 28% (*i.e.* 9.9 million) had driven under the influence of illegal drugs. The rate was highest among young adults aged 18-25 (12.5%) (p. 29).
- Males aged 12 or older (5.7%) were more than twice as likely as females (2.4%) to report driving under the influence of illicit drugs at least once in the past 12 months (Table 7.95B).
- Unemployed adults aged 26 to 49 were more likely than similarly-aged full or part-time workers to report driving under the influence of illegal drugs in the past 12 months (Table 7.96B).
- More than 25% of 18-25 year olds reported driving under the influence of alcohol and/or drugs in the past 12 months (Table 7.95B).
- About 13% of drivers aged 26 or older reported driving under the influence of alcohol and/or drugs in the past 12 months, including 2.7% who reported driving under the influence of an illicit drug (Table 7.95B).

**Department of Health and Human Services, *Results from the 2007 National Survey on Drug Use and Health: National Findings* (Rockville: Substance Abuse and Mental Health Services Administration, 2008).**

## AMERICAN IMPAIRED DRIVING CHARTS

### PERCENTAGE OF AMERICANS WHO REPORTED DRIVING UNDER THE INFLUENCE OF ALCOHOL IN THE PAST 12 MONTHS, BY AGE GROUP: 2007



Source: Department of Health and Human Services, *Results from the 2007 National Survey on Drug Use and Health: National Findings* (Rockville: Substance Abuse and Mental Health Services Administration, 2008) at Figure 3.5.

### THE NUMBER AND PERCENTAGE OF ALCOHOL-RELATED TRAFFIC CRASH FATALITIES: UNITED STATES, 1982-2007

Year	Alcohol-Related Fatalities	% of All Traffic Crash Fatalities
1982	26,172	59.6%
1985	23,166	52.9%
1988	23,833	50.6%
1991	20,159	48.6%
1994	17,308	42.5%
1997	16,711	39.8%
2000	17,380	41.4%
2003	17,105	39.9%
2004	16,919	39.5%
2005	15,985	36.7%
2006	15,970	37.4%
2007	15,387	37.5%

Sources: National Institute on Alcohol Abuse and Alcoholism (NIAAA), *Traffic crashes...United States, 1982-2004* (Bethesda: NIAAA, 2006) at 1; and National Highway Traffic Safety Administration (NHTSA), *Persons Killed, by Highest Driver Blood Alcohol Concentration...USA* (Washington, D.C.: NHTSA, 2008) at 1.

# UNITED KINGDOM

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## ALCOHOL

- There were an estimated 460 alcohol-related road fatalities in 2007, the same number as in 1999 (p. 3).
- On average, there are 200-300 road fatalities per year associated with BACs between .01% and .08%. In 1998, an estimated 80 fatalities were attributable to BACs between .05% and .08% (p. 11).
- More than 90% of convicted drinking drivers were male and 52% were under the age of 33. Approximately 50% had BACs above .15%, and 12% were convicted of a second offence within 10 years (p. 6) [no date].
- About 50% of vehicle occupants killed between 10 p.m. and 4 a.m. have BACs  $\geq$  .08%. On Friday and Saturday nights, this proportion rises to 60% (p. 13).

**Institute of Alcohol Studies (IAS), *Drinking and Driving* (St. Ives: IAS, 2009). Online: <[http://www.ias.org.uk/resources/factsheets/drink\\_driving.pdf](http://www.ias.org.uk/resources/factsheets/drink_driving.pdf)>.**

- In a 2002 survey, 44% of all drivers reported driving after drinking in the previous year. Moreover, 12% had driven when they believed they were “over the limit.” Men were nearly 3 times more likely to report driving while over the limit than women.
- Seventy-two percent of the drivers who admitted to driving while “over the limit” did so only once or twice in the previous year. However, 18% admitted driving “over the limit” once or more a month.
- Young men were the most likely to drive when they believed they were “over the limit.” Twenty-six percent of 16-29 year olds admitted to driving while “over the limit” in the previous year. Thirteen percent of all respondents (drivers and non-drivers) had been a passenger when they thought the driver was “over the limit” in the previous year.

**Home Office, *Drink-driving: prevalence and attitudes in England and Wales 2002: Findings* (London: Research, Development and Statistics Directorate, 2005) at 1-2.**

- In 2006, 13% of motorcyclists, 26% of other vehicle drivers, 13% of cyclists, and 39% of pedestrians killed in traffic crashes had BACs above .08% (p. 32).
- In 2007, an estimated 16% of road fatalities involved drivers with BACs above .08% (p. 26).

**Department for Transport (DfT), *Road Casualties Great Britain: 2007 Annual Report* (London: DfT, 2008).**

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## DRUGS

- The number of people killed in traffic crashes who were positive for illegal drugs has increased sixfold since 1988.
- Three percent of motorists admitted getting into a car, within the past 12 months, when they knew the driver was under the influence of cannabis or marijuana. One percent admitted doing so when they knew the driver was under the influence of ‘harder’ drugs, such as ecstasy, cocaine or amphetamines.
- Nearly one-quarter of motorists admitted that they would always or sometimes drive, even if they knew that the medicines they were taking could impair their driving ability.

**Royal Automobile Club (RAC), *Report on Motoring 2003, Drink, Drugs and Driving: Report Summary* (Norwich: RAC, 2004). Online: <<http://www.rac.co.uk/know-how/owning-a-car/report-on/monitoring/report-on-monitoring-2003-drink-drugs.htm>>.**

- At least one medicinal or illicit drug was detected in 24% of fatally-injured drivers, passengers and pedestrians. Among the fatally-injured who were positive for drugs, 31.5% had also consumed alcohol, and 21.5% had BACs above .08%.
- A 2002 government report indicated that alcohol or drugs were detected in 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%, and both alcohol and drugs were found in 6.8%.

**Institute of Alcohol Studies (IAS), *Drinking and Driving* (St. Ives: IAS, 2009) at 9. Online: <[http://ias.org.uk/resources/factsheets/drink\\_driving.pdf](http://ias.org.uk/resources/factsheets/drink_driving.pdf)>.**

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# EUROPE

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## ALCOHOL

- In 2000, road accidents killed over 40,000 people and injured more than 11.7 million in the 15 countries of the European Union. One-quarter of these deaths were estimated to be due to alcohol, and cost €40 billion per year (p. 3).
- In Europe, alcohol accounted for an estimated 45% of the burden of disability arising from motor vehicle crashes for men and 18% of the burden of disability for women (p. 3).
- There is a 38% increased risk of accidents at BAC levels of .05%, and a nearly fivefold increase at BAC levels of .10% (p. 4).

**Eurocare Advocacy for the Prevention of Alcohol Related Harm in Europe, *Drinking and Driving in Europe, A Eurocare Report to the European Union* (Brussels: Eurocare, 2003).**

- A Norwegian study of fatally-injured drivers during 2001/02 found that alcohol was present in approximately 24% of cases.

**H. Khiabani *et al.*, “Blood Alcohol Concentration in Apprehended Drivers of Cars and Boats Suspected to be Impaired by the Police” (2008) 9 *Traffic Injury Prevention* 31 at 31-33.**

- In a 2006 Swedish study, 19% of fatally-injured passengers, 18% of fatally-injured drivers and 13% of the surviving drivers tested positive for alcohol.

**K. Ahlm & A. Eriksson, “Driver’s Alcohol and Passenger’s Death in Motor Vehicle Crashes” (2006) 7 *Traffic Injury Prevention* 219 at 221-22.**

- A 2008 Danish study found that 10,000 drivers were convicted of drunk driving and about 1,000 personal injury accidents were caused by drunk drivers in each of the previous five years (pp. 395-96).
- Nearly half of 16-17 year old male drivers involved in crashes were drunk, compared to 10% of 18-24 year old male drivers, just under 10% of 25-64 year old male drivers, and 1% of male drivers aged 64 and over (p. 400). Ninety percent of all drunk drivers were men.

**I. Bernhoft *et al.*, “Trends in Drink Driving Accidents and Convictions in Denmark” (2008) 9 *Traffic Injury Prevention* 395.**

- Between 1998 and 2002, driving under the influence was 1 of the 3 most common causes of traffic fatalities in Iceland.
- The number of drivers apprehended for driving under the influence of alcohol and/or drugs per year is equivalent to 1.3% of all licensed drivers.
- Higher than therapeutic doses had been taken in 65.5% of the cases involving prescription drugs (p. 3).
- The prevalence of benzodiazepines, cannabis and opiates in 2000-2002 increased considerably from 1990 to 1997.

**G. Thorsdottir, K. Magnusdottir and J. Kristinsson, “Alcohol, Drugs and Driving in Iceland during Years 2000 to 2002” in P. Williams & A. Clayton, eds., *Proceedings of the 17th International Conference on Alcohol, Drugs and Traffic Safety, 2004* (Glasgow: International Council on Alcohol, Drugs and Traffic Safety, 2004).**

- From 1989 to 1997, the proportion of alcohol-related fatalities in Sweden declined from 31% to 18%, corresponding to the 1990 lowering of the BAC limit from .05% to .02% and the increase of random breath tests from approximately 600,000 to 1.8 million per year in 1994 (p. 3). Since joining the European Union in 1996 and having to accept a gradual loss of its restrictive alcohol

policies, the percentage of fatally-injured drivers who had been drinking rose from 18% in 1997 to 30% in 2004.

- From 1983 to 2002, the number of alcohol-related injury accidents in France fell from 216,139 to 105,470. The number of alcohol-related crash fatalities also decreased. In 2005, 28.1% of the traffic fatalities in France were alcohol related (p. 2).

**B. Sweedler, “Worldwide Trends in Alcohol and Drug Impaired Driving” in B. Logan, ed., *Proceedings of the 18th International Conference on Alcohol, Drugs and Traffic Safety, 2007* (Seattle: International Council on Alcohol, Drugs and Traffic Safety, 2007).**

- Alcohol-related crashes have been steadily declining in Germany. There were 22,345 alcohol-related crashes in 2005, less than half as many as in 1975 (p. 1).
- Alcohol-related fatalities accounted for 11% of all road fatalities in 2005, down from 20% in 1975 (p. 2).

**S. Schoenebeck, “Alcohol Related Road Accidents in Germany - Status til 2005” in B. Logan, ed., *Proceedings of the 18th International Conference on Alcohol, Drugs and Traffic Safety, 2007* (Seattle: International Council on Alcohol, Drugs and Traffic Safety, 2007).**

- Drunk driving was responsible for approximately 30% of serious road injuries and 35% of road fatalities in the Netherlands between 1980 and 2000 (p. 4).
- Approximately 80% of the alcohol-related injuries and fatalities were caused by drivers with BACs  $\geq .13\%$ , some of whom also used illegal drugs. Drivers with BACs  $\geq .13\%$  accounted for only 0.3% to 0.4% of the driving population, but 20% of the drivers with illegal BACs (p. 4).

**M. Mathijssen, “Three Decades of Drink Driving Policy in The Netherlands: An Evaluation” in P. Williams & A. Clayton, eds., *Proceedings of the 17th International Conference on Alcohol, Drugs and Traffic Safety, 2004* (Glasgow: International Council on Alcohol, Drugs and Traffic Safety, 2004).**

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## DRUGS

- The percentage of Norwegian drivers involved in fatal crashes who tested positive for drugs increased from 12.4% in 1989-1990 to 22.8% in 2001-2002. The percentage of drivers who were positive for both alcohol and drugs rose from 8.9% to 17.4%, while the percentage who were positive for alcohol alone dropped from 32.9% to 23.9% (p. 6).
- A mid-1980s study in Rotterdam hospitals showed that 5% of injured drivers had used drugs. In a recent study in Tilburg, nearly 20% of injured drivers were positive for drugs (p. 7).

**B. Sweedler, “Worldwide Trends in Alcohol and Drug Impaired Driving” in B. Logan, ed., *Proceedings of the 18th International Conference on Alcohol, Drugs and Traffic Safety, 2007* (Seattle: International Council on Alcohol, Drugs and Traffic Safety, 2007).**

- In France, cannabis (THC  $\geq 1$  ng/mL) was found in 6.8% of the approximately 11,000 drivers involved in crashes who were tested. About 40% of these drivers also had illegal BACs (pp. 16-17).
- Among the tested drivers, 1.3% were positive for opiates, 0.6% were positive for amphetamines, and 0.3% were positive for cocaine (p. 17).

**M. Biecheler et al., “SAM Survey on Drugs and Fatal Accidents...Alcohol or Cannabis” (2008) 9 *Traffic Injury Prevention* 11.**

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# AUSTRALIA

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## ALCOHOL

- Between 1992 and 2000, alcohol involvement in fatal road crashes fluctuated between 20% and 30% (p. 1).
- The number of drivers and riders killed in road crashes in Australia fell from 1989 to 1992, but has remained relatively constant since that time (p. 2).

**N. Haworth & I. Johnston, “Why Isn’t the Involvement of Alcohol in Road Crashes in Australia Lower?” in P. Williams & A. Clayton, eds., *Proceedings of the 17th International Conference on Alcohol, Drugs and Traffic Safety, 2004* (Glasgow: International Council on Alcohol, Drugs and Traffic Safety, 2004).**

- Over 20% of drivers and riders killed on Australian roads had BACs  $\geq$  .05% (p. 3).
- On average, 1 in 300 drivers tested exceeded the legal limit (p. 3).
- A driver has double the risk of a serious crash at a .05% BAC than at a .00% BAC. At a .08% BAC, the risk is double that at a .05% BAC (p. 5).
- In Queensland, alcohol was a factor in 30% of the fatal crashes in 2004 and the main contributor to fatal road crashes (p. 5).
- In Tasmania, 9% of serious casualties from 1996 to 2005 involved drunk driving, and 16-25 year olds constituted 41% of the alcohol-related serious casualties (p. 5).
- In the Northern Territory, 55% of drivers, riders and pedestrians killed and 15% of those seriously injured in 2004 had BACs  $\geq$  .05% (p. 5).
- In South Australia, 28% of all drivers, riders and pedestrians killed and 20% of those seriously injured in 2002 had BACs  $\geq$  .05%. From 1998 to 2002, the percentage of drivers and riders killed with BACs  $\geq$  .05% rose from 22% to 32%.
- In Adelaide, 40% of those killed in 2002 had BACs  $\geq$  .05% (p. 6).

**I. Faulks & J. Irwin, “Alcohol, drugs, and traffic safety in Australia: Initiative and indicators” in B. Logan, ed., *Proceedings of the 18th International Conference on Alcohol, Drugs and Traffic Safety, 2007* (Seattle: International Council on Alcohol, Drugs and Traffic Safety, 2007). Online: <<http://www.icadts2007.org/print/22initiativesindicators.pdf>>.**

- In 2007, alcohol contributed to 54% of fatal crashes in New South Wales on Thursday, Friday and Saturday nights, 25% of all fatal crashes, 8% of injury crashes, and 6% of all crashes (p. 7).
- Twenty-four percent of all drivers killed and 6% of drivers injured had BACs  $\geq$  .08% (pp. 78-79).
- At least 6% of all drivers and motorcyclists who were killed or injured had BACs  $\geq$  .05%. Among these, 47% had BACs  $\geq$  .15% (p. 7).

**Roads and Traffic Authority of New South Wales, *Road Traffic Crashes in New South Wales, Statistical Statement for the year ended 31 December 2007* (Surry Hills: Roads and Traffic Authority, 2008).**

- In 2008, 50 drivers and motorcyclists killed in Victoria had BACs  $\geq$  .05%, 10 less than in 2007.
- Twenty-eight percent of drivers and motorcyclists killed in Victoria in the previous year had BACs  $\geq$  .05%.
- Males accounted for 82% of the people killed in alcohol-related crashes in 2008.
- Eighteen percent of the people killed were under 21 years old, 34% were 21-29 years old, 20% were 30-39 years old, and 28% were over 40.

- In 2008, 5,700 of 1.42 million drivers breath tested by Victoria Police had BACs  $\geq$  .05%. **Transport Accident Commission (TAC), *Drink Driving Statistics (Victoria: TAC, 2009)*. Online: <<http://www.tac.vic.gov.au/jsp/content/NavigationController.do?areaID=13&tierID=2&navID=098D40B17F00000100E9B48BE7365CB0&navLink=null&pageID=164>>.**
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## DRUGS

- In a 2004 study of Queensland university students, 15% reported driving under the influence of a drug within the past 12 months. The most commonly used drugs were: marijuana (13%); speed (6%); ecstasy (3%); LSD (2%); benzodiazepines (2%); heroin (1%); and cocaine (1%).
- Twenty percent of male and 13% of female students reported driving under the influence of a drug in the past 12 months.
- Thirteen percent of 18-21 year olds, 18% of 22-36 year olds, and 10% of those over 36 reported driving under the influence of a drug in the past 12 months.

**J. Davey, T. Davey & P. Obst, “Drug and Drink Driving by University Students: An Exploration of the Influence of Attitudes” (2005) 6(1) *Traffic Injury Prevention* 44 at 47-48.**

- A study of 3,398 fatally-injured drivers in 3 Australian states from 1990 to 1999 reported that 29.1% of the drivers were positive for alcohol and that 26.7% were positive for other drugs (p. 10).
- Thirty-one percent of drivers killed in Victoria in 2003 tested positive for drugs other than alcohol (p. 9).
- In South Australia, 28% of drivers and motorcyclists killed in 2004 had THC and/or methamphetamines in their blood at the time of the crash (p. 9).
- In Tasmania, drugs other than alcohol were involved in 10% of crashes in 2006 (p. 9). The most commonly found drugs were: cannabis (13.5%), opioids (4.9%), stimulants (4.1%), benzodiazepines (4.1%), and other psychotropic drugs (2.7%). The prevalence of drugs, particularly cannabis and opioids, increased over the decade (p. 10).
- A 2004 study found that 75% of 300 current injecting drug users in Sydney had driven in the previous year and that, among these, 88% had “drug driven” in the previous year (p. 10). A third of those who drove reported having had a drug-related crash in their driving life and 9% reported a drug-related crash in the previous year (p. 10).

**I. Faulks & J. Irwin, “Alcohol, drugs, and traffic safety in Australia: Initiative and indicators” in B. Logan, ed., *Proceedings of the 18th International Conference on Alcohol, Drugs and Traffic Safety, 2007* (Seattle: International Council on Alcohol, Drugs and Traffic Safety, 2007). Online: <<http://www.icadts2007.org/print/22initiativesindicators.pdf>>.**

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## NEW ZEALAND

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- In 2003, the social cost of alcohol-related crashes was about \$760 million.
- Over 80% of drivers with BACs above .08% in fatal crashes were male.
- Between 2001 and 2003, a combination of alcohol and speed contributed to 19% of fatal crashes. Alcohol alone contributed to an additional 12% of fatal crashes, and speed alone contributed to 16%. Therefore, alcohol and/or speed were factors in 47% of all fatal crashes.

**Land Transport Safety Authority (LTSA), *Drinking and Driving Statistics* (Wellington: LTSA, 2005) at 1.**

- Alcohol and/or drugs alone contributed to 15% of all fatal crashes in 2007, and alcohol and/or drugs combined with speed contributed to an additional 15% (p. 3).
- In 2007, driving after consuming alcohol and/or drugs was a contributing factor in 117 fatal traffic crashes, 402 serious injury crashes and 1,182 minor injury crashes. These crashes resulted in 128 deaths, 559 serious injuries and 1,777 minor injuries (p. 1).
- For every 100 alcohol or drug-impaired drivers or motorcyclists killed, 54 passengers and 42 sober road users died as well (p. 3).
- In the 2005 to 2007 fatal crashes, 26% of drivers were recorded to have consumed only alcohol, 2% had consumed both alcohol and drugs, and 2% had used only drugs which contributed to the crash. The authors noted that drugs can be difficult to identify and their contribution may be underrepresented (p. 2).
- From 2005 to 2007, 23% of car and van drivers, 17% of motorcyclists, and 3% of truck drivers involved in fatal crashes were affected by alcohol and/or drugs (p. 5).
- A 15-19 year old driver with a .08% BAC is 86.6 times more likely to be in a fatal crash than a 30 year old driver with a .00% BAC. The relative risk for a 20-29 year old driver with a .08% BAC is 50.2 (p. 1).
- Alcohol and/or drugs was a contributing factor among 45% of 20-24 year old and 52% of 25-29 year old drivers involved in fatal crashes (p. 3).
- More than 83% of the alcohol/drug-affected drivers in fatal crashes were male.
- The contribution of alcohol and/or drug use increases with crash severity. From 2005 to 2007, driving under the influence of alcohol or drugs was a factor in 30% of fatal crashes, 19% of serious injury crashes and 12% of minor injury crashes (p. 2).
- The total social cost of crashes involving alcohol or drugs was about \$838 million, about a fifth of the social cost of all injury crashes (p. 1).

**Ministry of Transport, *Alcohol/Drugs, Crash Statistics For the Year Ended 31 December 2007* (Wellington: Ministry of Transport, 2008).**

- Forty-three percent of all alcohol-related traffic injuries in New Zealand between 2003 and 2007 were sustained by innocent victims. Among children under 15 years of age, almost all alcohol-related traffic injuries were due to someone else's drinking.
- The total annual cost of all alcohol-related traffic injuries was estimated to be approximately \$1.3 billion (N.Z.) of which 42% was attributable to someone else's drinking.

**J. Connor & S. Casswell, "The burden of road trauma due to other people's drinking" (2009) 41 *Accident Analysis and Prevention* 1099 at 1101.**

# GLOBAL IMPAIRED DRIVING CHARTS

**PERCENTAGE OF TRAFFIC FATALITIES\*, BY ROAD USER TYPE:  
SELECTED OECD COUNTRIES, 2007**

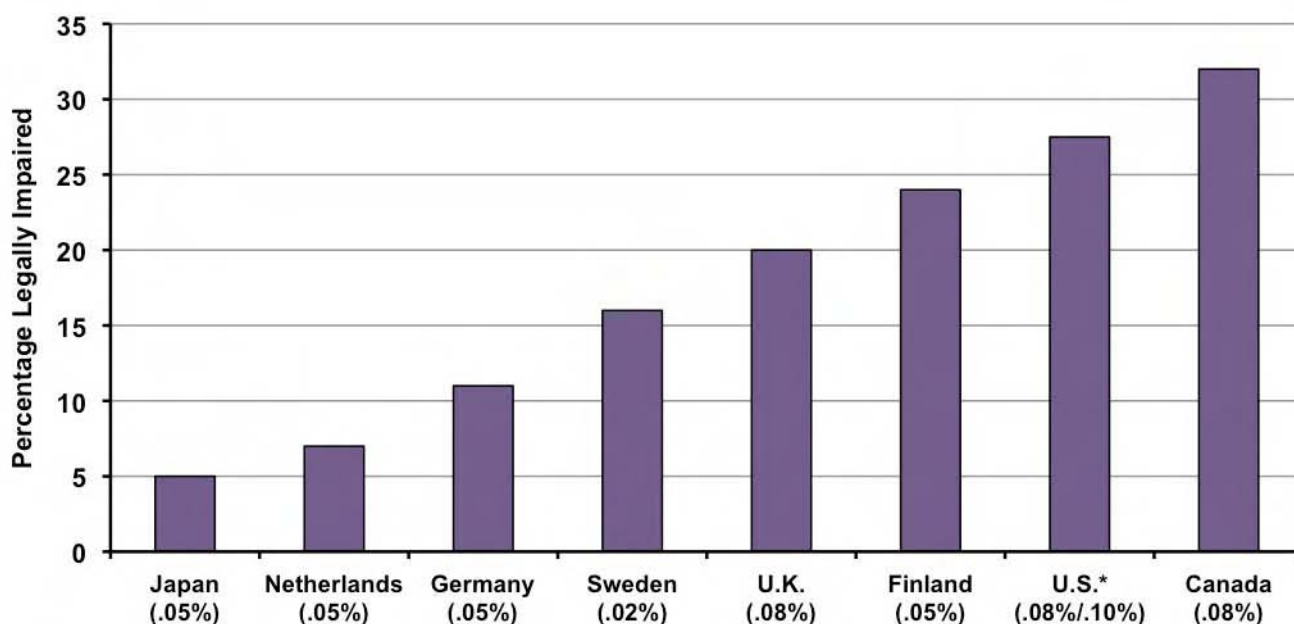
Country	Pedestrians %	Cyclists %	Motorcycle/ Moped Riders %	Passenger Car Occupants %
Sweden	12.3	7.0	15.7	58.6
United Kingdom	21.9	4.6	20.0	48.6
Switzerland	20.6	7.8	23.2	42.2
Japan	33.3	14.9	18.3	21.8
Norway	9.9	3.0	17.2	67.8
Australia	12.5	2.5	14.8	70.2
Netherlands	12.1	20.7	17.5	47.1
Germany	14.0	8.6	18.3	53.0
Canada**	13.2	2.5	7.3	50.0
Finland	12.6	5.8	10.8	63.4
Austria	15.6	5.4	17.4	54.7
U.S.A.**	11.2	1.8	11.0	41.7

\* The totals do not add up to 100%, because traffic fatalities involving pickup trucks, vans, commercial vehicles, snowmobiles, and other categories of vehicles were not reported.

\*\* 2006 data.

**Source: International Road Traffic and Accident Database (IRTAD),  
*Fatalities By Road Use* (Paris: IRTAD, 2009) at 1.**

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



\*At the time, the criminal BAC limit was .08% in 15 American states and .10% in 33 states.

**Source: Transport Canada, *Canada's Road Safety Targets to 2010* (Ottawa: Minister of Public Works and Government Services, 2001) at 7.**

**TRAFFIC DEATHS PER BILLION VEHICLE KILOMETRES TRAVELLED:  
TOP RANKED OECD COUNTRIES, 2004**

Netherlands	6.05	Australia	7.99
Sweden	6.31	Switzerland	8.09
Great Britain	6.46	Germany	8.38
Norway	7.02	Canada	8.61
Finland	7.37	United States	8.94
Denmark	7.80		

**Source: Transport Canada, *Road Safety Vision 2010: 2005 Annual Report* (Ottawa: Minister of Public Works and Government Services, 2006) at 8.**

**BAC DRIVING LIMITS IN HIGH AND MIDDLE INCOME COUNTRIES**

<b>BAC</b>	<b>Countries</b>
<b>.00%</b>	Azerbaijan, Bahrain, Czech Republic, Hungary, Iran, Kuwait, Libyan Arab Jamahiriya, Micronesia, Qatar, Romania, Saudi Arabia, Slovakia, and Ukraine.
<b>.01% - .04%</b>	Algeria,* Bosnia and Herzegovina, Brazil, China, Colombia, Congo, Estonia, Georgia, Japan, Lithuania, Norway, Panama, Poland, Russia, Slovenia, and Sweden.
<b>.05%</b>	Albania, Argentina, Australia, Austria, Belarus, Belgium, Bulgaria, Chile, Costa Rica, Croatia, Cyprus, Denmark,* El Salvador, Finland, France, Germany, Greece, Iceland, Israel, Italy, Latvia, Lebanon, Macedonia, Mauritius, Moldova, Mongolia, Montenegro, Nauru, Netherlands, Nicaragua, Peru, Philippines,* Portugal, San Marino, Serbia, Slovenia, South Africa, South Korea, Spain, Suriname, Swaziland, Switzerland, Syria, Taiwan,* Thailand, Tunisia, Turkey, and Turkmenistan.
<b>.08% - .10%</b>	Armenia, Bahamas, Belize, Botswana, Brunei, Cameroon, Canada, Ecuador, Fiji, Guatemala,* Guyana, Honduras (.07%), Iraq, Ireland, Jamaica, Jordan, Luxembourg,* Malaysia, Malta, Mexico,* Namibia, New Zealand, Oman, Paraguay,* Puerto Rico, Saint Lucia, Seychelles, Singapore, Sri Lanka, Trinidad and Tobago, United Kingdom, United States, Uruguay, and Venezuela.

\* The source for the BAC limits in these countries was the International Center For Alcohol Policies (ICAP), *Blood Alcohol Concentration Limits Worldwide* (Washington, D.C.: ICAP, 2009) at 3.

**Sources: World Health Organization (WHO), *Global Status Report on Road Safety: Time For Action* (Geneva: WHO, 2009) at Table A.5.**

## REPORTED USE OF RANDOM BREATH TESTING IN SELECTED COUNTRIES

<b>YES*</b>	Argentina, Austria, Australia, Belgium, Brazil, Bulgaria, Chile, China, Columbia, Costa Rica, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany,** Greece, Guatemala, Honduras, Hungary, Iceland, Ireland, Italy, Japan, Latvia, Lithuania, Luxembourg, Malta,** Mexico, Moldova, Netherlands, New Zealand, Norway, Peru, Poland, Portugal, Republic of South Korea, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, and Ukraine.
<b>NO</b>	Canada, Dominican Republic, Ecuador, El Salvador, Panama, Russia**, South Africa, United Kingdom, United States of America, and Venezuela.

\* RBT is conducted pursuant to either national or state/territorial legislation.

\*\* The sources differ in regard to RBT in these countries.

**Sources:** Worldwide Brewing Alliance (WBA), *2008 Drinking and Driving Report, 8th edition* (London: WBA, 2009) at 13; World Health Organization (WHO) Regional Office for Europe, *Individual Country Alcohol Profile* (Geneva: WHO, 2009) at 71; and E. Townsend, F. Achterberg & T. Janitzek, *Traffic Law Enforcement Across the EU: An Overview* (Brussels: European Transport Safety Council, 2006).  
**Online:** [http://www.etsc.eu/documents/Countrys\\_Compndium.php](http://www.etsc.eu/documents/Countrys_Compndium.php).



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This publication is a product of the partnership between MADD Canada, the Centre for Addiction and Mental Health (CAMH) and the Canadian Centre on Substance Abuse (CCSA). These organizations have many publications on the effects of alcohol and further information can be found on their respective websites.