

ALCOHOL, CANNABIS AND IMPAIRED DRIVING

July 11, 2018

madd 

**R. Solomon, Distinguished University Professor,
Faculty of Law, Western University;
K. Mahdi, J.D. 2020, Faculty of Law, Western University; &
A. Sohrevardi, J.D. 2020, Faculty of Law, Western University**

TABLE OF CONTENTS

INTRODUCTION	5
ALCOHOL.....	7
PART I: ALCOHOL CONSUMPTION	7
Section 1: Global	7
Section 2: Alcohol Consumption in Canada	8
(a) Background Information	8
(b) Rates and Patterns of Alcohol Consumption	10
PART II: IMPAIRED DRIVING IN CANADA.....	15
Section 1: Rates of Driving After Alcohol Consumption	15
Section 2: Impaired Driving Crashes	17
(a) A Note on the Impaired Driving Crash Data	17
(b) Alcohol-Related Crash Deaths and Injuries	17
Section 3: Impaired Driving Charges and Convictions	25
(a) A Note on Canadian Impaired Driving Charge and Conviction Data	25
(b) Impaired Driving Charges and Convictions.....	25
(c) Impaired Driving Causing Death: Charges, Convictions and Sentences	31
(d) Impaired Driving Causing Bodily Harm: Charges, Convictions and Sentences	33
PART III: ADDITIONAL ALCOHOL-IMPAIRED DRIVING DATA.....	35
CANNABIS	39
PART I: CANNABIS CONSUMPTION	39
Section 1: Global	39
Section 2: Cannabis Consumption in Canada	40
(a) Background Information	40
(b) Rates and Patterns of Cannabis Consumption	42
PART II: CANNABIS AND IMPAIRED DRIVING	47
Section 1: Rates of Driving After Cannabis Use	47
(a) Survey Data	47
(b) Roadside Screening Tests	49
Section 2: Cannabis and Impaired Driving Deaths and Injuries.....	50
Section 3: Cannabis-Impaired Driving Charges	55
(a) A Note on the Impaired Driving Crash Data	55

INTRODUCTION

This report has grown out of MADD Canada’s ongoing public education, research and policy initiatives. Many of these projects require statistical information on impaired driving and other impairment-related trauma. 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, cannabis and impaired driving, particularly in regard to youth.

We reported the data as it appeared in the original source. Readers must exercise care because the various sources, even within a single jurisdiction, may use slightly different age cohorts, blood-alcohol concentration (BAC) categories, timeframes, and other criteria in reporting the data. As well, the sources may use similar, but not identical definitions of key terms. When a source defined a 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 specific issues were not entirely consistent. Nevertheless, clear patterns typically emerged.

For ease of reference, the title of some charts and tables have been shortened in order to highlight particular issues, and the segments of some charts and tables have been shaded. Each entry was written to stand alone and is fully referenced without short forms. Several charts and tables containing comparative data were included in both the alcohol and cannabis materials.

We have relied on current and authoritative sources. Preference has been given to review articles and articles in leading journals, as well as government studies and those from well-respected organizations, such as the United States National Highway Traffic Safety Administration. However, it should be noted that we did not conduct a systematic review of the research literature, apply defined inclusion criteria, or undertake a comprehensive assessment of the limitations 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 to summarize the available research.

ALCOHOL

PART I: ALCOHOL CONSUMPTION

SECTION 1: GLOBAL

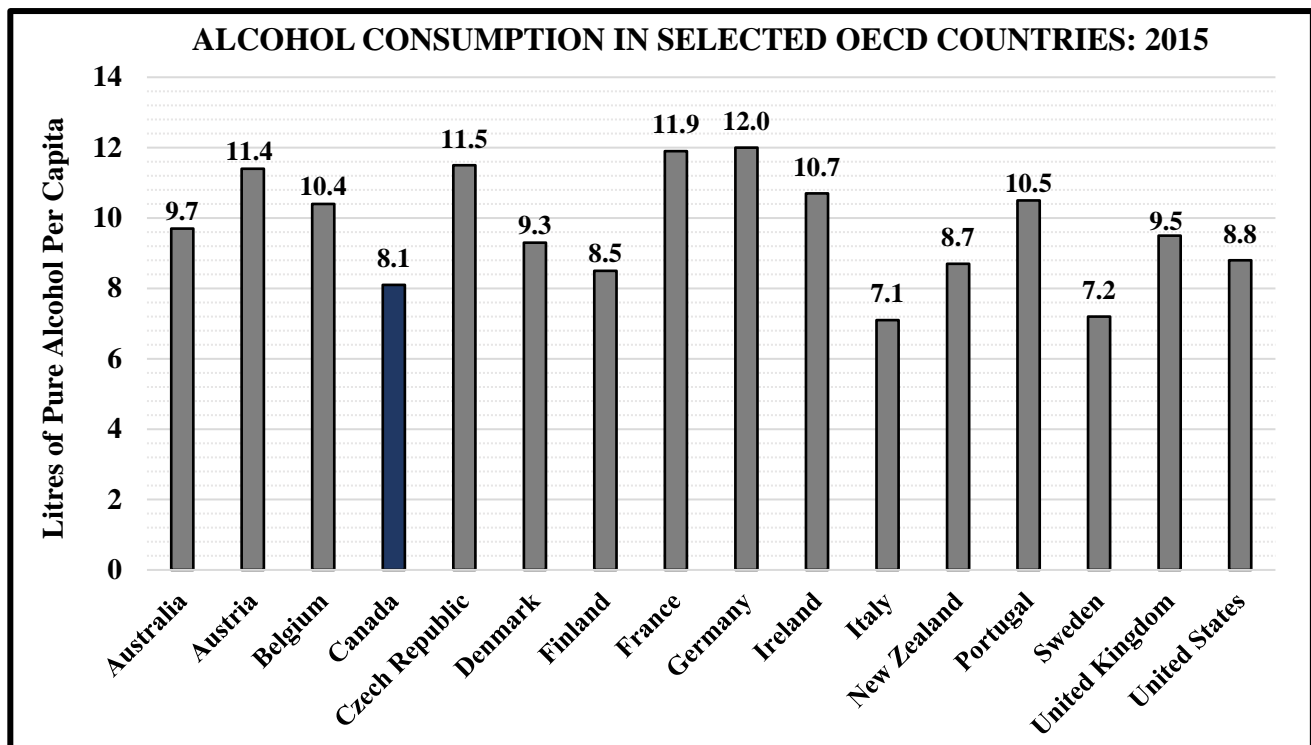
- Alcohol use is the third leading global risk factor (after being underweight and unsafe sex) in terms of the burden of disease or lost years of healthy life.

World Health Organization (WHO), *Global Health Risks: Mortality and Burden of Disease Attributable to Selected Major Risks* (Geneva: WHO, 2009) at 9.

- Approximately 3.8% of deaths worldwide and 4.6% of “disability-adjusted life-years” are attributable to alcohol.
- The costs of alcohol constitute more than 1% of the gross national product of high and middle-income countries.

J. Rehm *et al.*, “Alcohol and Global Health 1: Global burden of disease and injury and economic cost attributable to alcohol use and alcohol-use disorders” (2009) 373 *The Lancet* 2223.

- As the following chart illustrates, per capita alcohol consumption in Canada, among those 15 years of age and older, is lower than most other countries in the Organization for Economic Co-Operation and Development (OECD).



Source: OECD, *Non-Medical Determinants of Health: Alcohol Consumption* (Paris: OECD, 2018), online: OECD.Stat <http://stats.oecd.org/index.aspx?DataSetCode=HEALTH_LVNG>.

- In 2013, there were an estimated 1.25 million road traffic deaths worldwide (p. 2). Rates of road traffic deaths in low and middle-income countries are more than double those in high-income countries (p. 5). Road crashes are the leading cause of death among 15-29 year olds (p. x).

World Health Organization (WHO), *Global Status Report on Road Safety 2015* (Geneva: WHO, 2015), online: <http://www.who.int/violence_injury_prevention/road_safety_status/2015/en/>.

SECTION 2: ALCOHOL CONSUMPTION IN CANADA

(a) Background Information

- For every litre increase in per capita alcohol consumption in Canada 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 at 888.

- In 2005, alcohol use contributed to 3,958 deaths in Canada among those under the age of 65 (p. 6, Table 3)
- The leading causes of alcohol-attributable deaths were liver cirrhosis, motor vehicle crashes, self-inflicted injuries, breast cancer, and alcohol dependence syndrome (p. 6, Table 3).
- Taking into account years of life gained due to alcohol’s health benefits, it was estimated that in 2005, a net of 134,555 potential years of life were lost (PYLLs) due to alcohol among those under the age of 65 (p. 7, Table 4). The greatest contributor to alcohol-attributable PYLLs was motor vehicle crashes (29,955 PYLLs) (p. 7).

K. Shield *et al.*, “Mortality and Potential Years of Life Lost Attributable to Alcohol Consumption in Canada in 2005” (2012) 12 *BMC Public Health* 1.

- In Canada, only tobacco causes more deaths, disease and disability than alcohol.
- The burden attributable to alcohol exceeds that of obesity, physical inactivity, illegal drug use, and other health risks.

Canadian Public Health Association (CPHA), *Too High a Cost: A Public Health Approach to Alcohol Policy in Canada* (Ottawa: CPHA, 2011) at 1.

- In 2015-16, about 56,600 Canadians were hospitalized for illnesses and medical conditions caused solely by alcohol. More than 21% of these patients had two or more such hospitalizations in that period (p. 13).
- An average of six 10-19 year olds are hospitalized daily for conditions caused solely by alcohol (p. 16). The hospitalization rate among females in this age group was 40.7% higher than that for males (p. 17).
- In 2014-15, the average cost per hospitalization caused solely by alcohol was approximately \$8,100 (p. 8), which is about \$2,300 higher than the cost per average hospitalization (p. 8).
- The leading alcohol conditions requiring hospitalizations are chronic alcohol use disorder (24%), alcohol withdrawal (23%), harmful alcohol use (18%), and liver cirrhosis (13%) (p. 9).

Canadian Institute for Health Information (CIHI), *Alcohol Harm in Canada: Examining Hospitalizations Entirely Caused by Alcohol and Strategies to Reduce Alcohol Harm* (Ottawa: CIHI, 2017), online: <<https://www.cihi.ca/sites/default/files/document/report-alcohol-hospitalizations-en-web.pdf>>.

- It was estimated that over half of the \$267 million spent in Canada on hospitalizations for substance use disorders in 2011 was attributable to alcohol.

M. Young & R. Jesseman, *The Impact of Substance Use Disorders on Hospital Use* (Ottawa: Canadian Centre on Substance Abuse, 2014) at 2.

- The total annual cost for treating Canadians under the age of 54 who have Fetal Alcohol Spectrum Disorder was approximated at \$5.3 billion.

B. Stade *et al.*, “The Burden of Prenatal Exposure to Alcohol: Revised Measurement of Cost” (2009) 16 *Canadian Journal of Clinical Pharmacology* e91 at e101.

- In Canada, the economic cost of substance use increased by 14% from \$33.7 billion in 2007 to \$38.4 billion (excluding Quebec) in 2014 (p. 11). Alcohol accounted for \$14.6 billion (38.1%), tobacco accounted for \$12.0 billion (31.2%), opioids accounted for \$3.5 billion (9.1%), cannabis accounted for \$2.8 billion (7.3%), and cocaine accounted for \$2.2 billion (5.8%) (p. 8).
- The per capita cost of alcohol use in Canada was \$412, compared to \$337 for tobacco, \$98 for opioids, \$79 for cannabis, and \$63 for cocaine (p. 10).
- The per capita cost of substance use in Canada as a whole (excluding Quebec) was \$1,081 (p. 11). The per capita costs did not vary substantially among the provinces. However, the territorial per capita costs were from \$848 to \$1,571 higher than the national average (p. 11).
- In terms of the 2014 costs, 40.8% were attributable to lost productivity, 29.0% to healthcare, 23.3% to criminal justice, and 7.0% to other direct costs (p. 9).
- There were an estimated 14,827 alcohol-attributable premature deaths in 2014, resulting in approximately 244,144 potential years of life lost (p. 25).
- Of the \$14.6 billion in alcohol-related costs, lost productivity accounted for over \$5.92 billion (40.4%), healthcare accounted for \$4.23 billion (28.9%), criminal justice accounted for \$3.15 billion (21.5%), and other direct costs accounted for \$1.34 billion (9.2%) (p. 10).

Canadian Substance Use Costs and Harms Scientific Working Group, *Canadian Substance Use Costs and Harms (2007-2014)* (Ottawa: Canadian Centre on Substance Use and Addiction, 2018).

- The estimated motor vehicle damage costs attributable to substance use was \$1.69 billion in 2014. Of these costs, 42.3% were attributable to alcohol, 25.5% were attributable to cannabis, 11.7% were attributable to opioids, and 18.4% were attributable to other central nervous system depressants (p. 126).

Canadian Substance Use Costs and Harms Scientific Working Group, *Canadian Substance Use Costs and Harms (2007-2014): Technical Report* (Ottawa: Canadian Centre on Substance Use and Addiction, 2018).

- In the 2013-14 fiscal year, alcohol generated \$6.36 billion in provincial and territorial direct net government revenue, \$1.50 billion in federal excise tax and customs duties, and \$2.69 billion in HST, GST and PST.

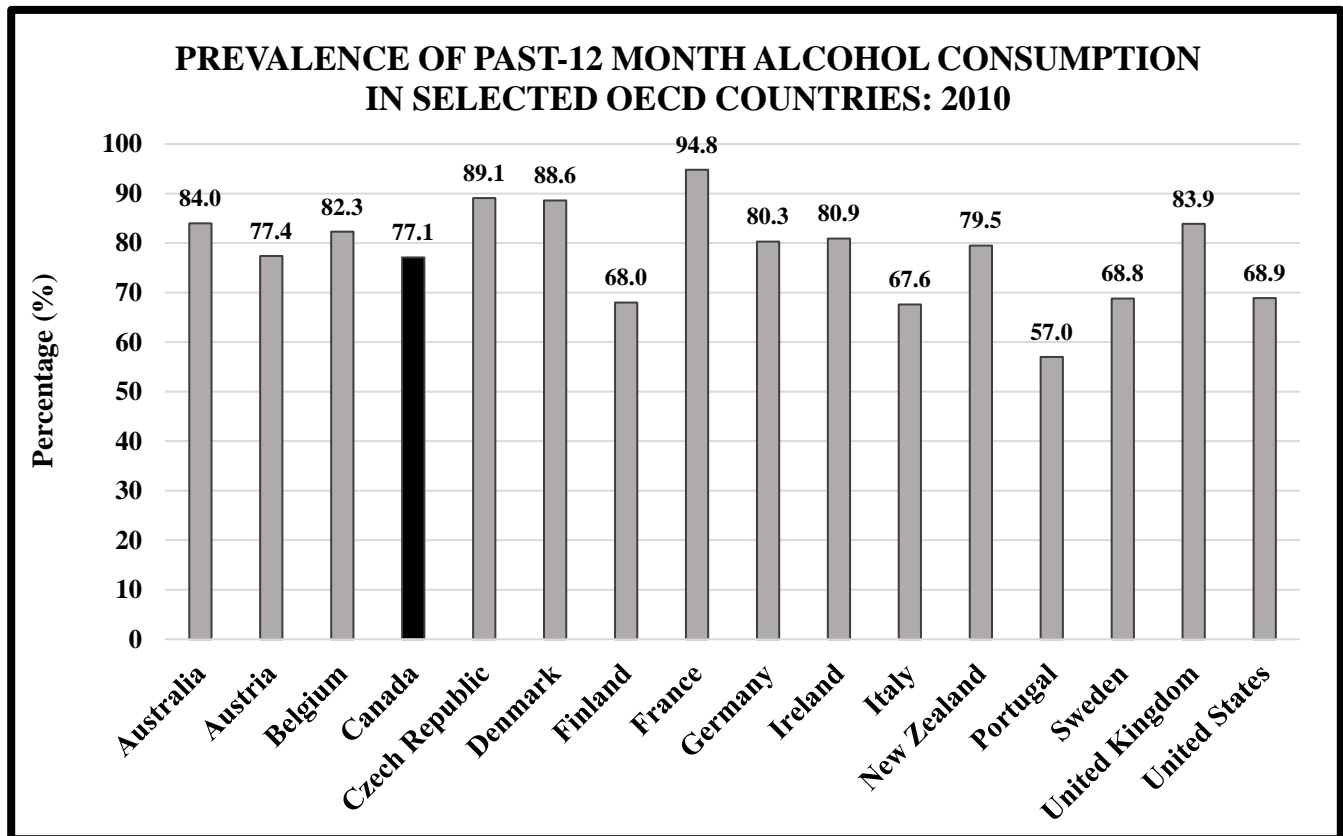
Statistics Canada, *CANSIM Table 10-10-0012-01: Net income of liquor authorities and government revenue from sale of alcoholic beverages* (Ottawa: Statistics Canada, 2018).

(b) Rates and Patterns of Alcohol Consumption

- As indicated earlier, per capita alcohol consumption in Canada, among those 15 years of age and older, in 2013 was 8.2 litres of pure alcohol, which is somewhat lower than most other countries in the Organization for Economic Co-Operation and Development (OECD).

OECD, Non-Medical Determinants of Health: Alcohol Consumption, online: OECD.Stat <http://stats.oecd.org/index.aspx?DataSetCode=HEALTH_LVNG>.

- As the following chart illustrates, the percentage of Canadians who drink is comparable to that in many other countries in the Organization for Economic Co-Operation and Development (OECD).



Source: World Health Organization (WHO), *Global Health Observatory Data Repository: Alcohol Consumers, Past 12 Months by Country* (Geneva: WHO, 2014), online: <<http://apps.who.int/gho/data/node.main.A1044?lang=en>>.

- In 2015, 77% of Canadians (81% of males and 73% of females) reported drinking in the past year and this figure has remained relatively unchanged in recent years.
- 59% of 15-19 year olds and 83% of 20-24 year olds reported past-year drinking.

Statistics Canada, *Canadian Tobacco Alcohol and Drugs (CTADS): 2015 Summary* (Ottawa: Statistics Canada, 2017) at Table 15.

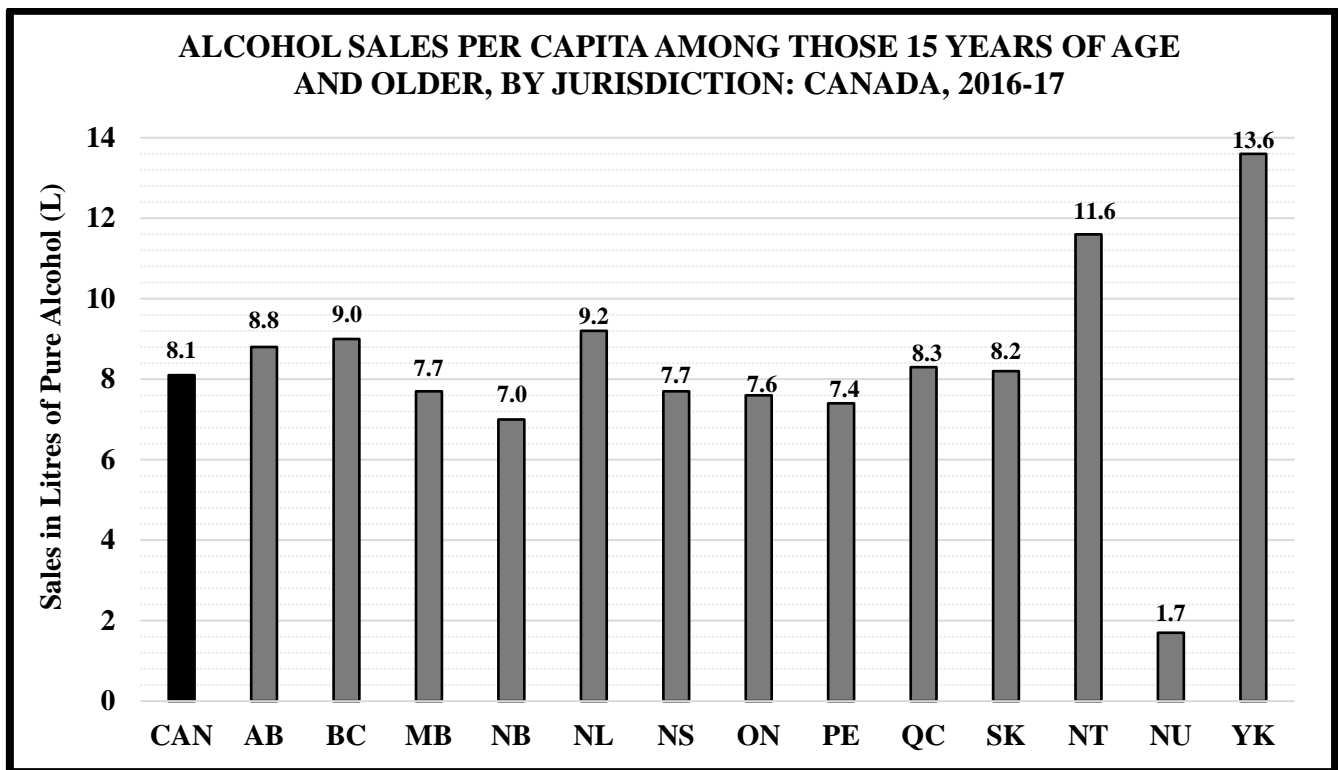
- In a 2014-15 survey, the average age of first drinking among grade 7-12 Canadian students was 13.5 years.

Health Canada, *Canadian Student Tobacco, Alcohol and Drugs Survey, 2014-2015* (Ottawa: Statistics Canada, 2016).

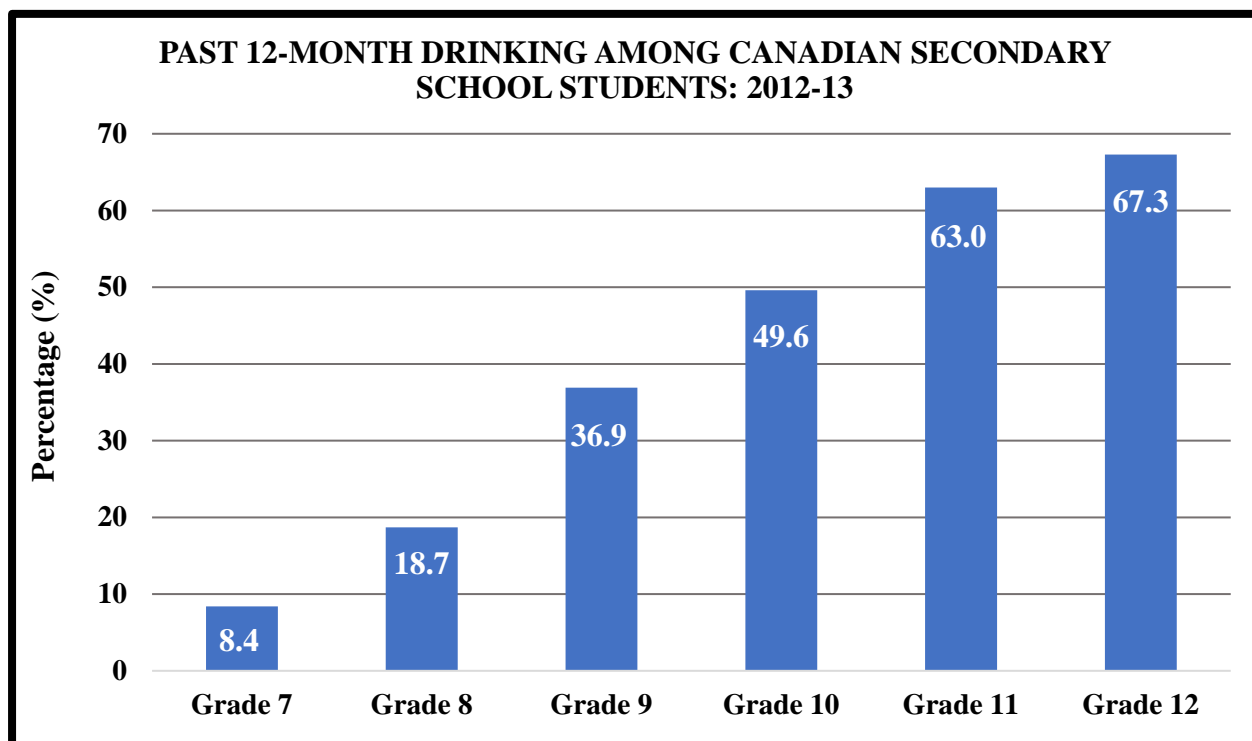
- Starting to drink at an earlier age is associated with greater odds of motor vehicle crash involvement, unintentional injuries and physical fights.

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 at 783.

- As the following chart illustrates, per capita alcohol sales in Canada vary significantly by jurisdiction. It should be noted that the figures in the following charts do not include alcohol brought across the border, or home or assisted alcohol production.



Source: Statistics Canada, *CANSIM Table 10-10-0010-01: Sales of alcoholic beverages by liquor authorities and other retail outlets, by value, volume, and absolute volume* (Ottawa: Statistics Canada, 2018).



Source: Statistics Canada, *Youth Smoking Survey 2012-2013* (Ottawa: Statistics Canada, 2014) at Table 16, online: <<https://www.canada.ca/en/health-canada/services/publications/healthy-living/youth-smoking-survey-2012-2013-supplementary-tables.html#t16>>.

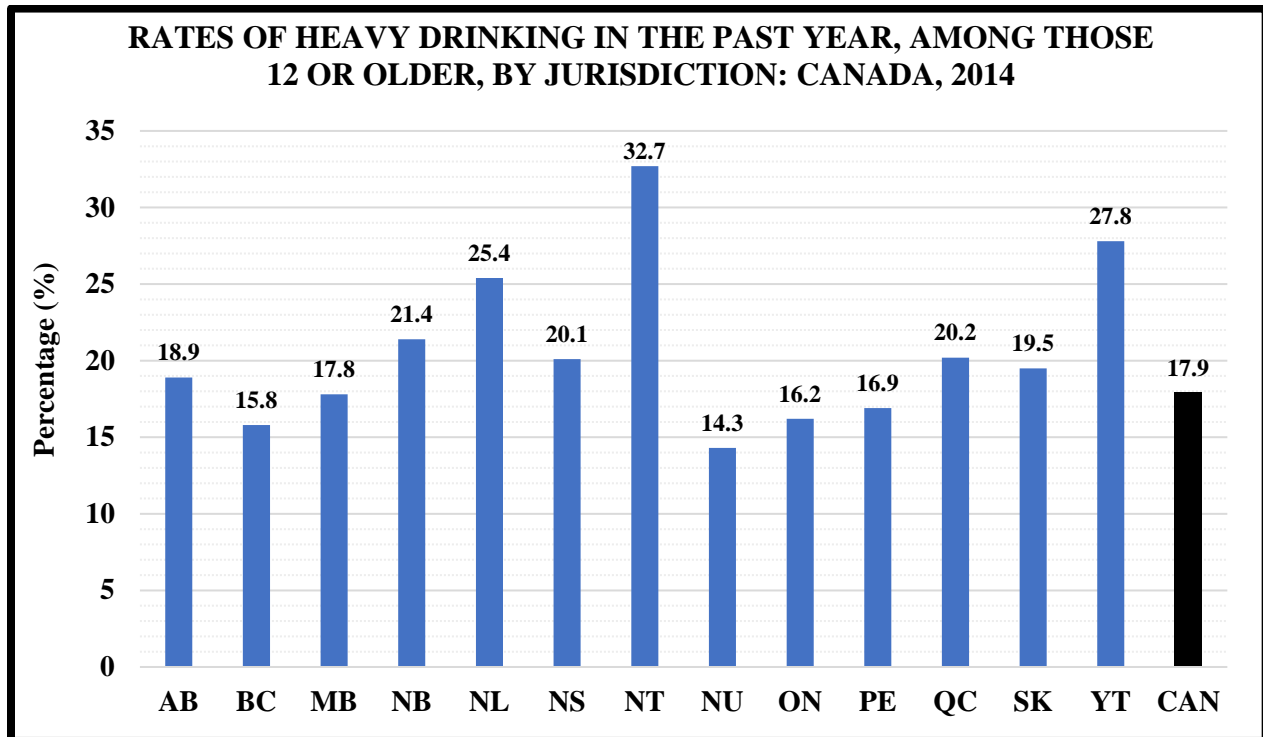
- Almost 70% of Canadian post-secondary students surveyed in 2016 reported drinking on at least one day in the past 30 days.
- 1.0% of the surveyed students drank daily, 3.0% drank on 20-29 days, 10.0% drank on 10-19 days, and 14.7% drank on 6-9 days.
- In terms of the number of drinks consumed at their last social event, 19.7% of the students reported having 3-4 drinks, 17.2% reported having 5-6 drinks, 5.5% reported having 9-10 drinks, 2.1% reported having 11-12 drinks, and 2.6% reported having more than 12 drinks.

American College Health Association (ACHA), *American College Health Association-National College Health Assessment II: Canadian Reference Group Data Report Spring 2016* (Hanover, MD: ACHA, 2016) at 11 and 18.

- In a 2009/10 survey, almost a third of Canadian male past-year drinkers and a fifth of female past-year drinkers, aged 15 and over, reported “risky” drinking. Similar rates of risky drinking were reported in surveys conducted in 2003, 2005 and 2007/08. “Risky” drinking was defined as consuming five or more drinks for males, or four or more drinks for females, **at least once each month in the past year** (p. 8).
- In the 2009/10 survey, over 50% of young male (18/19-24 year olds) past-year drinkers and 45% of young female past-year drinkers reported “risky” drinking (p. 9).
- Approximately 30% of underage past-year drinkers engaged in risky drinking at least once a month in 2010 (p. 2).

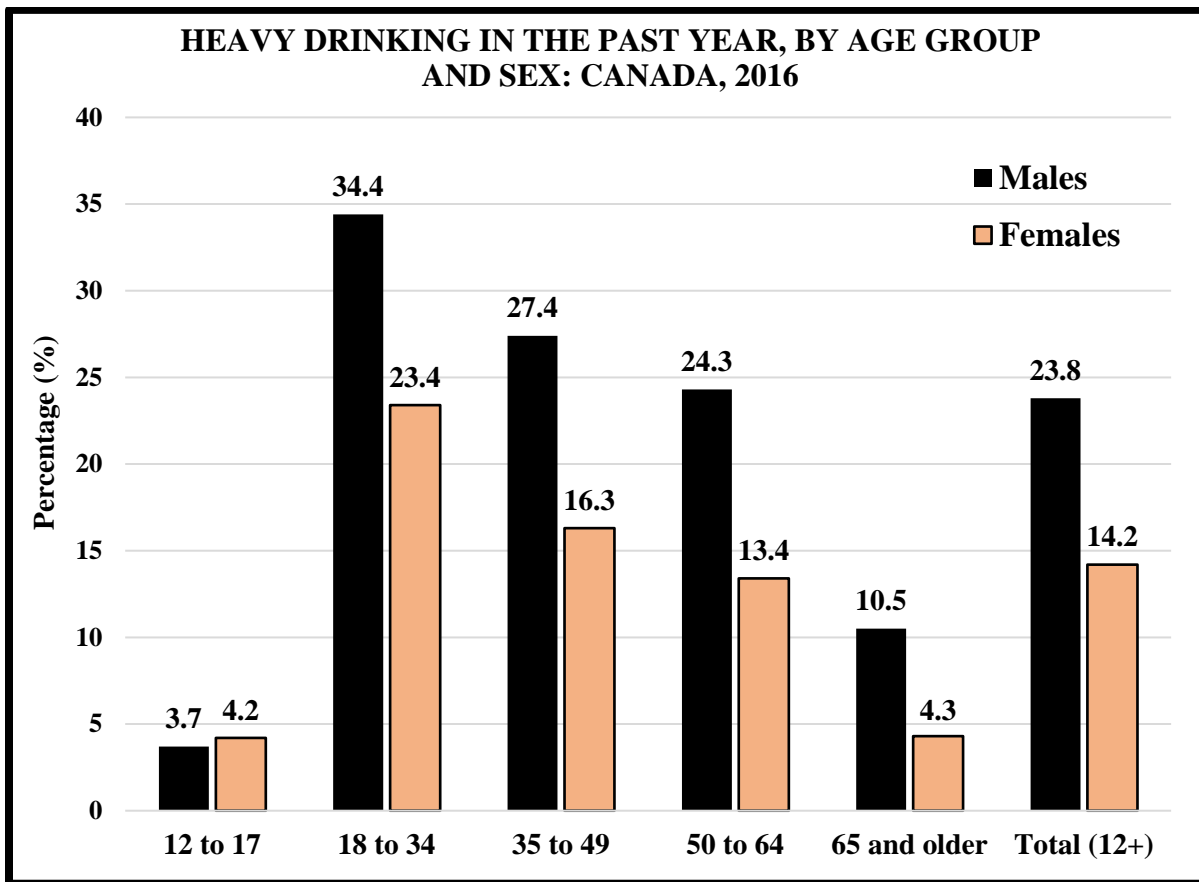
G. Thomas, *Levels and Patterns of Alcohol Use in Canada, Alcohol Price Policy Series, Report 1 of 3* (Ottawa: Canadian Centre on Substance Abuse, 2012).

- As the following chart illustrates, rates of “heavy drinking” varied significantly among jurisdictions in Canada. “Heavy drinking” was defined as consuming 5 or more drinks for males, or 4 or more drinks for females **at least once each month in the past year**.



Source: G. Taylor, *The Chief Public Health Officer’s Report on the State of Public Health in Canada 2015: Alcohol Consumption in Canada* (Ottawa: Public Health Agency of Canada, 2016) at 26.

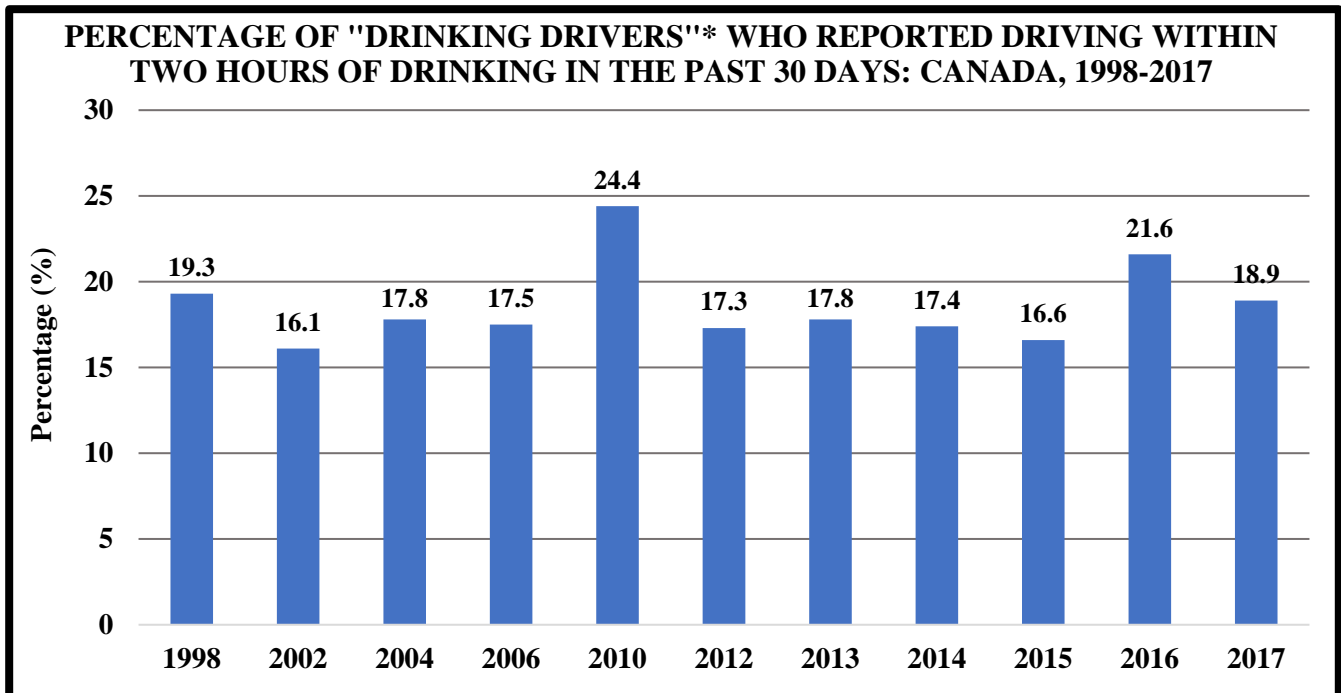
- More than 19% of Canadians (not including residents of the territories), aged 12 and older, were classified as “heavy” drinkers in 2016. A “heavy” drinker was defined as a male who consumed 5 or more drinks, or a female who consumed 4 or more drinks **at least once a month in the past year**. A larger percentage of males than females were “heavy” drinkers in all age categories except among 12-17 year olds.
- As the following chart illustrates, approximately 4% of Canadians aged 12-17 were classified as “heavy drinkers” in 2016.
- The highest proportion of “heavy” drinking for both sexes was among 18-34 year olds. Within this age category, 34.4% of males and 23.4% of females were “heavy” drinkers.



Source: Statistics Canada, *Health Fact Sheets: Heavy Drinking, 2016* (Ottawa: Statistics Canada, 2017) at 3, online: <<https://www.statcan.gc.ca/pub/82-625-x/2017001/article/54861-eng.htm>>.

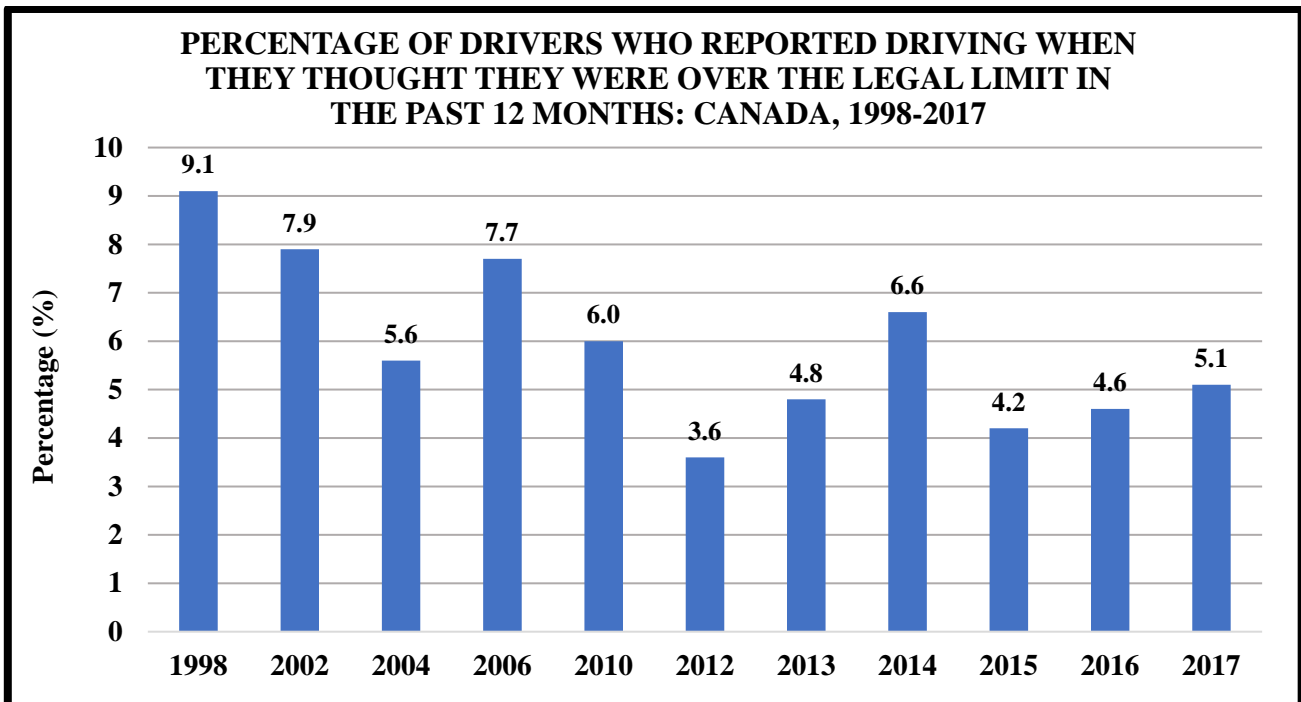
PART II: IMPAIRED DRIVING IN CANADA

SECTION 1: RATES OF DRIVING AFTER ALCOHOL CONSUMPTION

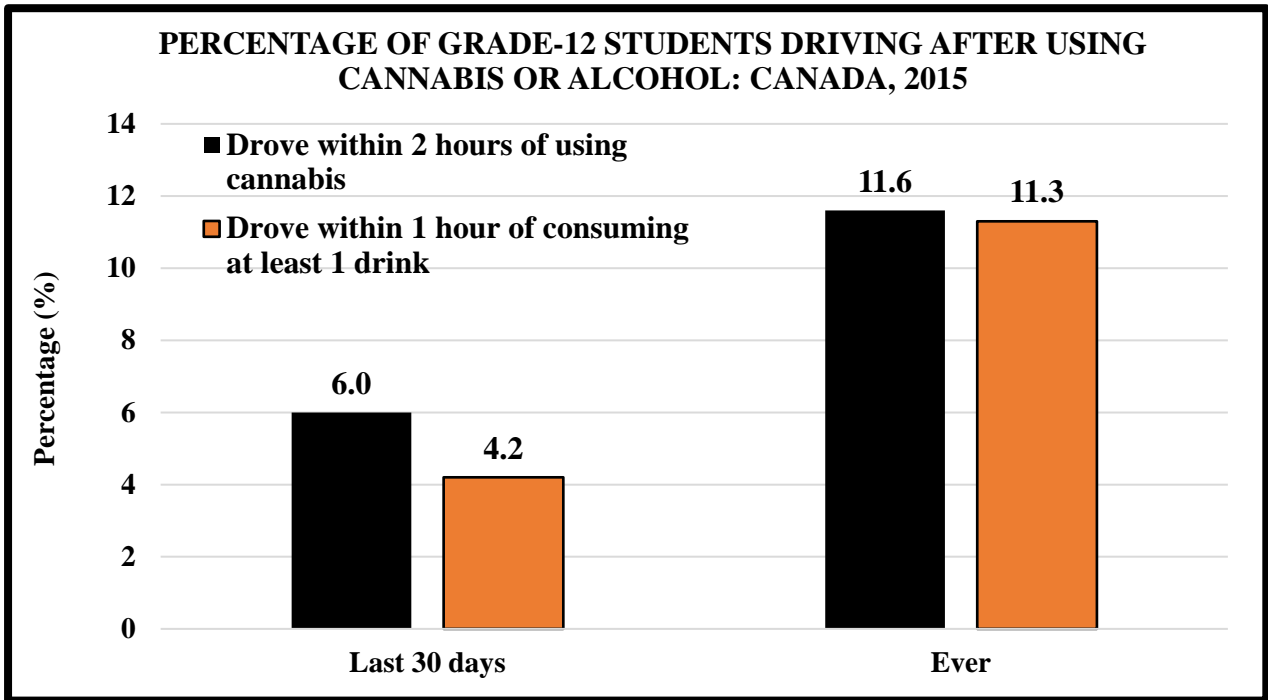


* Individuals who had driven in the past 30 days and had also consumed alcohol sometime within this period.

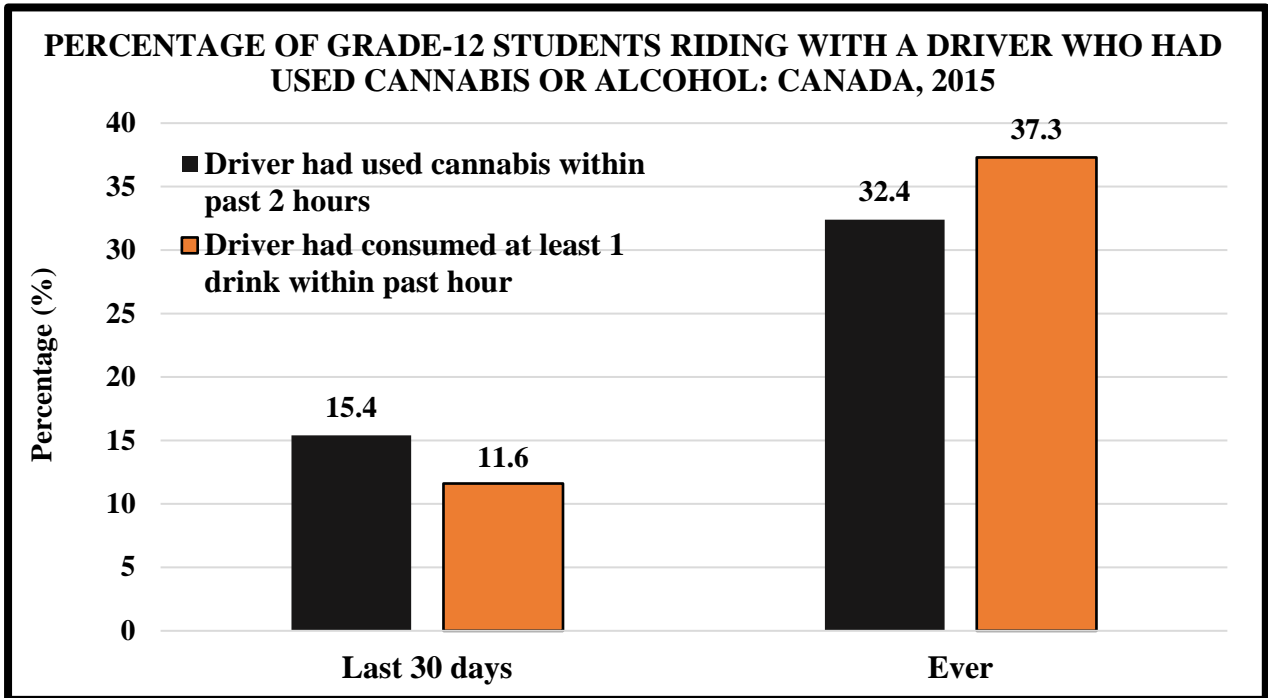
Source: S. Brown *et al.*, *Road Safety Monitor 2017: Drinking and Driving in Canada* (Ottawa: Traffic Injury Research Foundation, 2017) at 2.



Source: S. Brown *et al.*, *Road Safety Monitor 2017: Drinking and Driving in Canada* (Ottawa: Traffic Injury Research Foundation, 2017) at 3.



Source: L. Minaker *et al.*, “Under the influence: examination of prevalence and correlates of alcohol and marijuana consumption in relation to youth driving and passenger behaviours in Canada. A cross-sectional study” (2017) 5(2) Canadian Medical Association Journal Open E386 at E389 and E390.



Source: L. Minaker *et al.*, “Under the influence: examination of prevalence and correlates of alcohol and marijuana consumption in relation to youth driving and passenger behaviours in Canada. A cross-sectional study” (2017) 5(2) Canadian Medical Association Journal Open E386 at E391 and E392.

- Among Canadian post-secondary students surveyed in 2016, 11.2% reported driving after drinking at least once in the past 30 days.
 - 0.6% reported driving after drinking 5 or more drinks on at least one occasion in the past 30 days.
- American College Health Association (ACHA), *American College Health Association-National College Health Assessment II: Canadian Reference Group Data Report Spring 2016* (Hanover, MD: ACHA, 2016) at 19 and 20.**

SECTION 2: IMPAIRED DRIVING CRASHES

(a) A Note on the Impaired Driving Crash Data

The fatality data in this section are largely based on a report prepared by S. Brown, W. Vanlaar & R. Robertson, entitled *The Alcohol and Drug-Crash Problem in Canada: 2014 Report* (Ottawa: Canadian Council of Motor Transport Administrators, 2017). In turn, this publication relies on the *Fatality Database* developed by the Traffic Injury Research Foundation in conjunction with the provincial and territorial coroners, medical examiners and police authorities. The *Database* is limited in scope and subject to several limitations.

For example, the *Database* is only current to 2014, with the exception of the British Columbia data which are from 2010. Similarly, the *Database* is largely limited to the presence of alcohol and/or drugs among fatally-injured drivers and pedestrians dying within 30 days of a crash on a public road involving at least one principal highway vehicle. Several assumptions had to be made in attempting to provide more comprehensive estimates of the total number of impairment-related crash deaths in Canada. These assumptions are discussed in the listed sources, not in the text of the present report.

The following subsection contains several slightly different estimates of the number of alcohol-related crash deaths in Canada. This is due to variations in how the estimates were calculated and the sources upon which the authors relied.

(b) Alcohol-Related Crash Deaths and Injuries

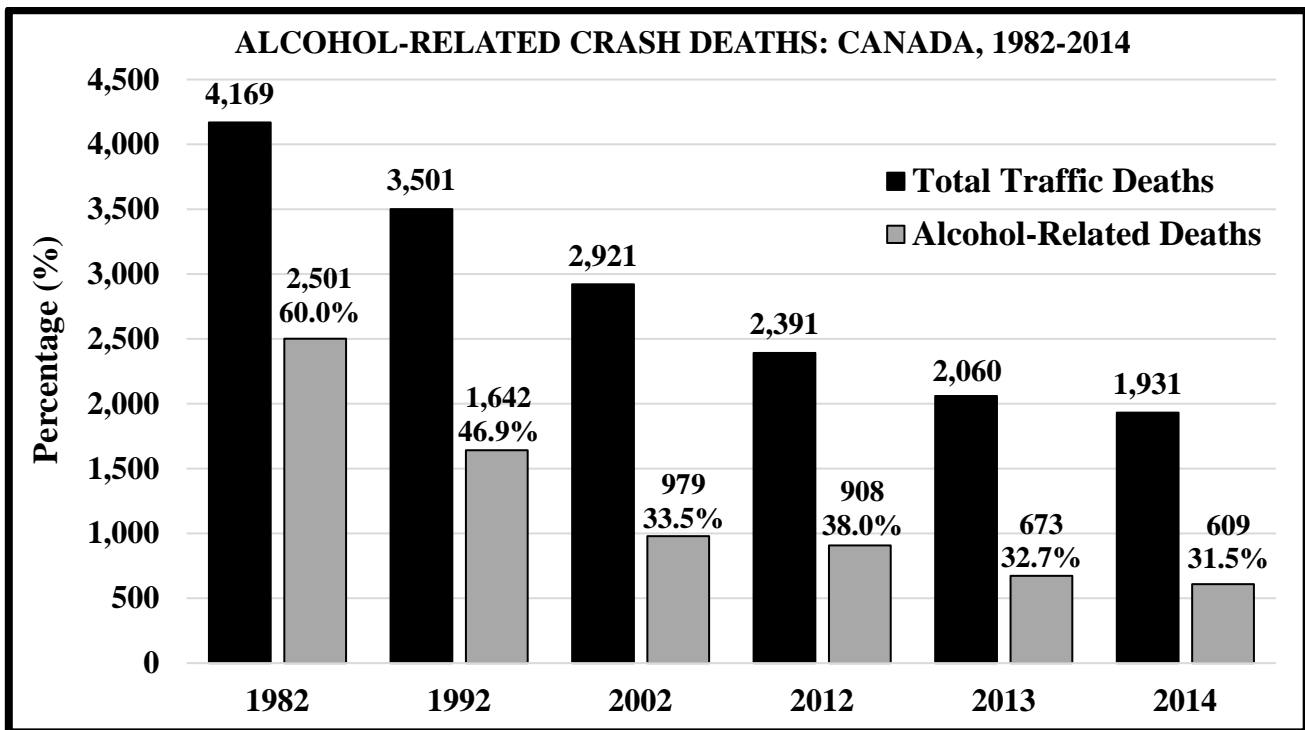
- In 2014, an estimated 2,297 Canadians died in motor vehicle crashes. Unfortunately, there is no specific information on the number or percentage of these deaths that were alcohol and/or drug-related.
- However, there is data on the presence of alcohol and/or drugs among drivers dying within 30 days of a crash on a public road involving at least one principal highway vehicle. In total, 55.4% of these drivers were positive for alcohol and/or drugs (13% were positive for alcohol alone, 26.9% were positive for drugs alone and 15.5% were positive for both).
- Assuming that alcohol and/or drug involvement in total crash deaths were the same as that among these fatally-injured drivers, there would be an estimated 1,273 (55.4% x 2,297) alcohol and/or drug-related motor vehicle crash deaths in 2014.
- The fact that alcohol and/or drugs were present, does not necessarily mean that an individual was impaired or that these substances played a causative role in the crash. However, the available blood-alcohol evidence indicates that most alcohol-positive drivers and pedestrians were likely very impaired. There are no comparable data on drug-positive individuals.
- The 1,273 figure does not include alcohol and/or drug-related deaths in off-road crashes, crashes involving only non-highway vehicles (e.g. snowmobiles, ATV and bicycles), crashes on private

property or roads administered by First Nations, or crashes involving boats and other vessels or railroad equipment.

- Given these offsetting variables, MADD Canada has estimated that approximately 1,000 Canadians die and another 60,000 are injured each year in all categories of impairment-related transportation crashes. Based on this estimate, impairment-related crashes constitute a major criminal cause of death, claiming almost twice as many lives in 2014 as all categories of homicide combined (522).

R. Solomon, C. Ellis & C. Zheng, *Alcohol and/or Drugs Among All Categories of Crash Victims Dying Within 12 Months, by Jurisdiction: Canada, 2014* (Oakville, ON: MADD Canada, 2018); and Statistics Canada, *CANSIM Table 35-10-0068-01: Homicide victims, number and rates (per 100,000 population)* (Ottawa: Statistics Canada, 2018).

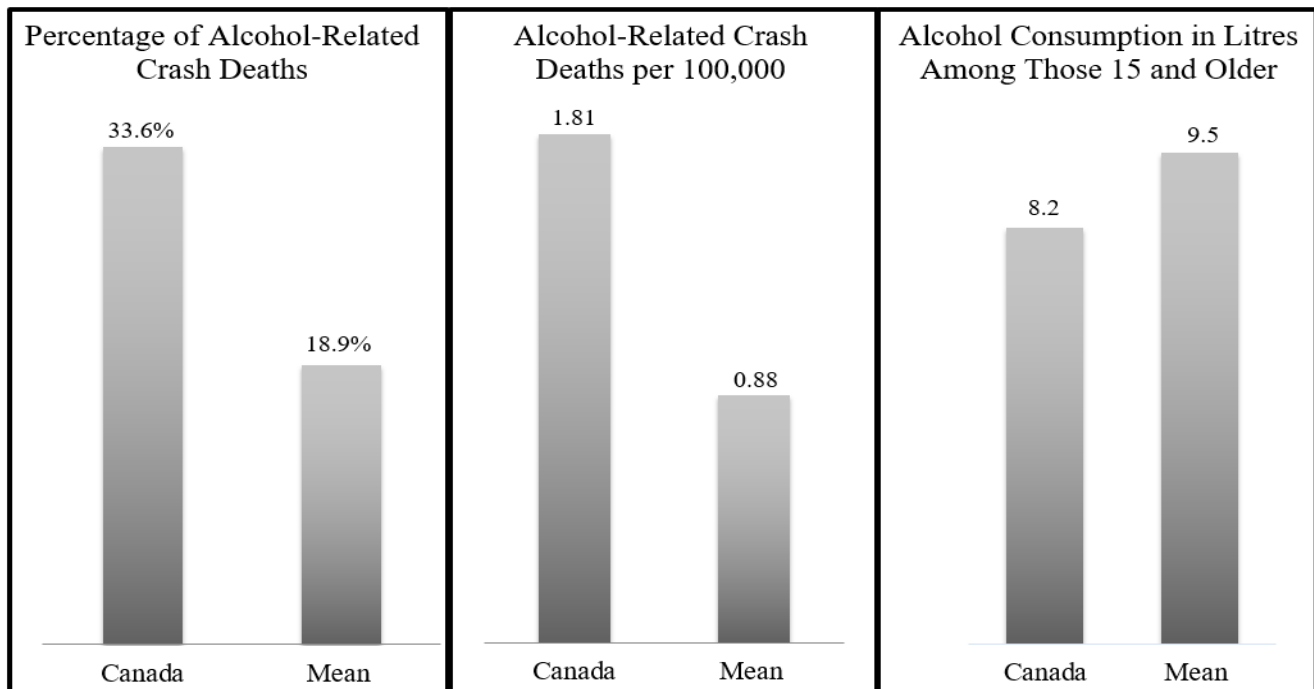
- As illustrated below, the number and percentage of alcohol-related crash deaths in Canada have fallen since the record high levels of the early 1980s.
- The traffic deaths in the chart are based on deaths occurring within 30 days of a collision. In 2014, deaths occurring within 30 days of a crash constituted only 83.3% of the crash deaths occurring within 12 months.
- It should be noted that the percentage of alcohol-related deaths for 2014 (31.5%) in the following chart differs from that used in the immediately preceding source (28.5%). Unlike the preceding estimate, the 31.5% figure is not based on simply extrapolating from fatally-injured drivers. Rather, the 31.5% figure includes alcohol-positive pedestrians killed in crashes involving a sober driver, and other drivers and passengers killed by an alcohol-positive driver.
- Deaths resulting from on-road and off-road crashes were included from 1982 to 2012, but only on-road crashes were included for 2013 and 2014. Had off-road crash deaths been included in these latter years, the reported traffic deaths would have been considerably higher. For example, off-road crashes in 2012 accounted for 203 deaths in Canada (excluding British Columbia), of which approximately 106 were alcohol-related.



Source: R. Solomon, C. Ellis & C. Zheng, *Lives Saved in Canada due to Reductions in Alcohol-Related Crash Deaths, 1982-2014: 43,247* (Oakville, ON: MADD Canada, 2017).

- Despite the progress that has been made, Canada continues to have a poor impaired driving record as the following chart illustrates. The United States Centers for Disease Control and Prevention reported that Canada had the highest percentage of alcohol-related crash deaths among 20 high-income countries in 2013 and the second highest rate of per capita alcohol-related crash deaths.
- Per capita alcohol consumption in Canada is considerably lower than that in most of these other high-income countries.
- Thus, while Canadians drink considerably less than residents of these other countries, they are much more likely to die in an alcohol-related crash. For example, Canada's per capita rate of alcohol-related crash deaths in 2013 was almost 5 times that of Germany, even though Canadians consumed 33% less alcohol per capita.

IMPAIRED DRIVING AND ALCOHOL CONSUMPTION IN CANADA, AND THE MEAN AMONG 19 COMPARABLE HIGH-INCOME COUNTRIES: 2013



Sources: E. Sauber-Schatz *et al.*, “Vital Signs: Motor Vehicle Injury Prevention – United States and 19 Comparison Countries” (2016) 65(26) *Morbidity and Mortality Weekly Report* 672 at 675; and Organization for Economic Co-Operation and Development (OECD), *OCED.Stat, Non-Medical Determinants of Health: Alcohol Consumption*, online: OECD <http://stats.oecd.org/Index.aspx?DataSetCode=HEALTH_STAT>.

- In 2014, among those who died within 30 days of an alcohol-related crash on a public road involving a principal highway vehicle, 64.7% were drivers/operators, 19.0% were passengers and 15.6% were pedestrians.
- Alcohol was involved in 32.9% of these pedestrian deaths and 30.1% of these passenger deaths. **S. Brown, W. Vanlaar & R. Robertson, *The Alcohol and Drug-Crash Problem in Canada: 2014 Report* (Ottawa: Canadian Council of Motor Transport Administrators, 2017) at 17.**

- As will be discussed, the presence of drugs in crash deaths has been increasing, as the presence of alcohol has been declining.
- As the following table illustrates, the percentage of crash victims who were positive for drugs alone in 2014 was double or more than the percentage who were positive for alcohol alone in Canada as a whole, and in five of the provinces.
- Saskatchewan was the only province in which the percentage of crash victims who were positive for alcohol alone exceeded the percentage who were positive for drugs alone.

THE PRESENCE OF ALCOHOL AND/OR DRUGS IN CRASH DEATHS OCCURRING WITHIN 12 MONTHS OF A COLLISION ON A PUBLIC ROAD, INVOLVING A PRINCIPAL HIGHWAY VEHICLE, BY JURISDICTION: CANADA, 2014*

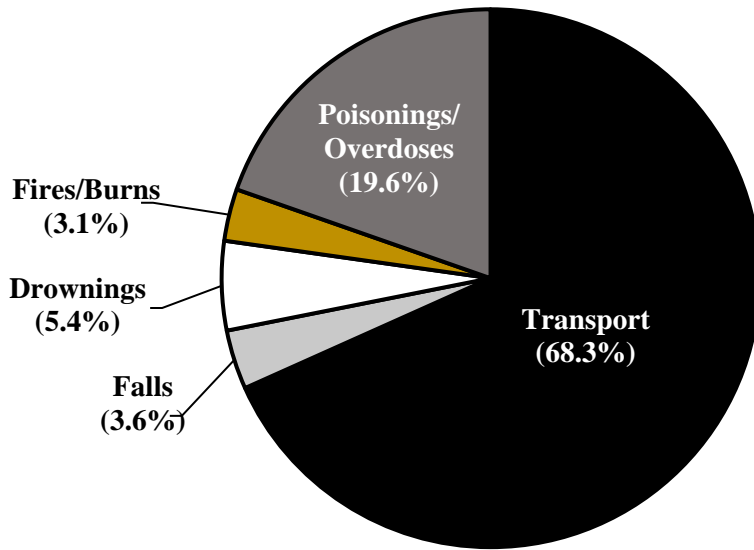
	Crash Victims Dying Within 12 Months of the Collision						
	Total No. of Crash Deaths	% & No. of Crash Deaths Involving Alcohol Alone		% & No. of Crash Deaths Involving Drugs Alone		% & No. of Crash Deaths Involving Alcohol & Drugs	
CAN	2,297	13.0%	299	26.9%	618	15.5%	356
AB	414	12.3%	51	24.9%	103	19.1%	79
BC	427	13.0%	56	26.9%	115	15.5%	66
MB	79	21.9%	17	37.5%	30	12.5%	10
NB	61	6.2%	4	52.0%	32	16.0%	10
NL	40	8.2%	3	14.3%	6	28.6%	11
NS	62	3.4%	2	13.4%	8	23.3%	14
ON	678	10.2%	69	31.6%	214	12.0%	81
PE	6	33.3%	2	33.3%	2	0.0%	0
QC	381	14.8%	56	19.6%	75	15.3%	58
SK	139	27.4%	38	20.7%	29	16.1%	22
NT	5	13.0%	1	26.9%	1	15.5%	1
NU	0	0.0%	0	0.0%	0	0.0%	0
YK	5	13.0%	1	26.9%	1	15.5%	1

* The British Columbia data are from 2010.

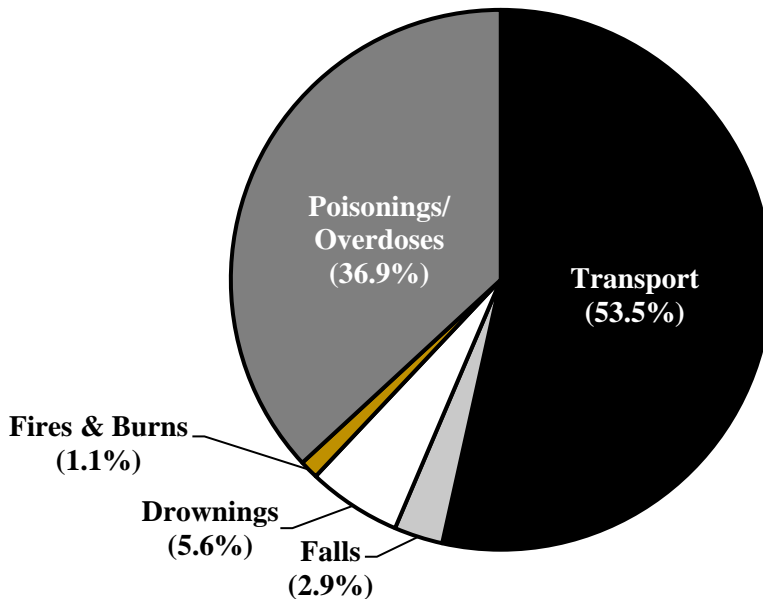
Source: R. Solomon, C. Ellis & C. Zheng, *Alcohol and/or Drugs Among Crash Victims Dying Within 12 Months of a Crash on a Public Road, By Jurisdiction: Canada, 2014* (Oakville, ON: MADD Canada, 2018) at 6.

- In 2005, transportation incidents accounted for 81% of external causes of “accidental deaths” among 15-19 year olds, and 74% of deaths among 20-24 year olds. However, with the recent increases in drug overdose deaths among teenagers and young adults, the percentage of deaths attributable to transportation incidents has fallen.
- Nevertheless, as the following pie charts illustrate, transportation incidents have remained the largest external cause of death among 15-19 year olds and 20-24 year olds in Canada. Males dominated all categories of accidental death among 16-19 year olds except fires and burns, and all categories of accidental deaths among 20-24 year olds.

**SELECTED EXTERNAL CAUSES OF ACCIDENTAL DEATHS
AMONG 15-19 YEAR OLDS IN CANADA, 2015**



**SELECTED EXTERNAL CAUSES OF ACCIDENTAL DEATHS AMONG
20-24 YEAR OLDS IN CANADA, 2015**



Source: Statistics Canada, *Deaths, by cause, Chapter XX: External causes of morbidity and mortality (V01 to Y89), age group and sex, Canada* (Ottawa: Statistics Canada, 2018).

- In 2014, despite all of the public awareness programs, alcohol was involved in 32.5% of 16-19 year old crash deaths, 45.1% of 20-25 year old crash deaths and 47.6% of 26-35 year old crash deaths.

S. Brown, W. Vanlaar & R. Robertson, *The Alcohol and Drug-Crash Problem in Canada: 2014 Report* (Ottawa: Canadian Council of Motor Transport Administrators, 2017) at 17.

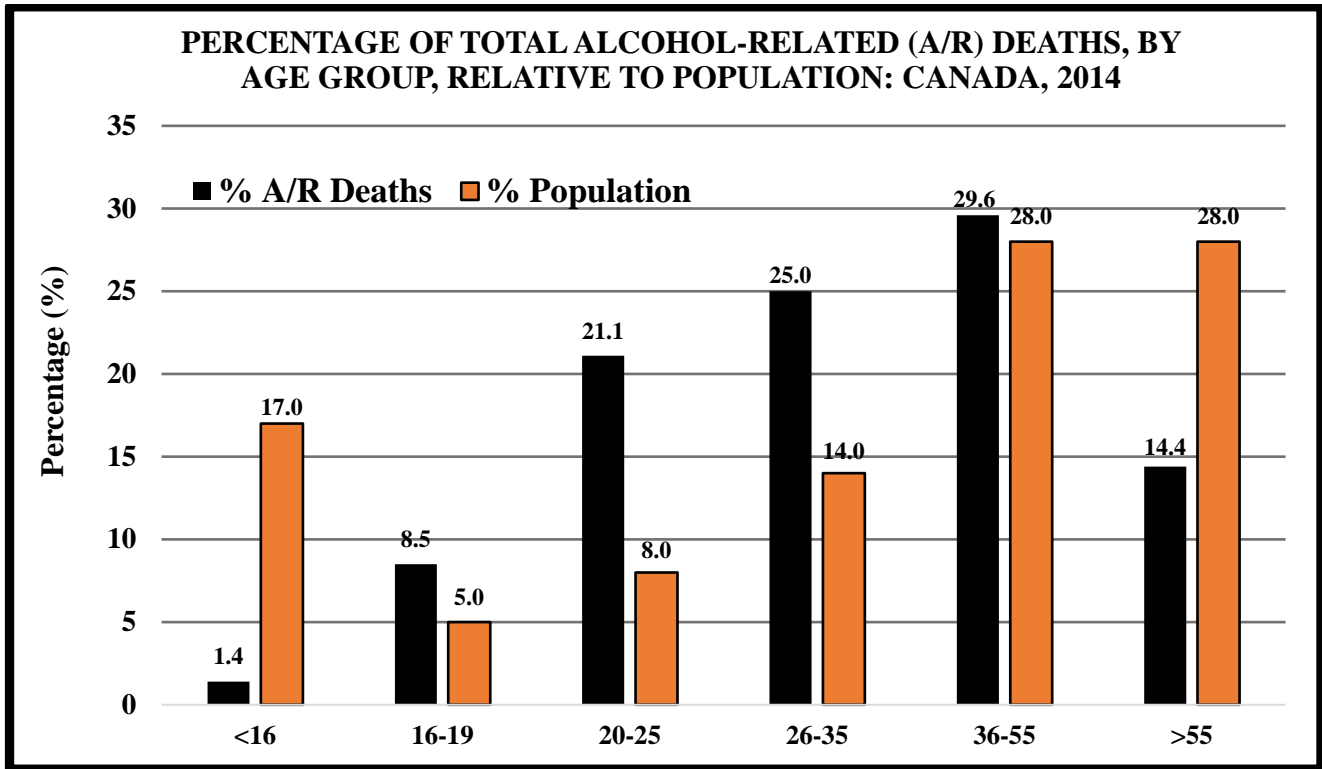
- As the following table based on American fatality data illustrates, young drivers are at a dramatically increased risk of crash death at all blood-alcohol concentrations (BACs). The higher the BAC level, the greater the overrepresentation of 16-20 year olds.

RELATIVE RISK OF A DRIVER FATALITY IN A SINGLE-VEHICLE CRASH, AS A FUNCTION OF BAC AND AGE, RELATIVE TO SOBER DRIVERS OF THE SAME AGE: U.S.A., 2006-07

Age	.050-.079%	.080-.099%	.100-.149%	≥.150%
16-20	12.18	31.86	122.43	4,727.95
21-34	9.68	23.18	78.68	2,171.46
≥35	8.98	20.89	68.12	1,684.92

Source: R. Voas *et al.*, “Alcohol-Related Risk of Driver Fatalities: An Update Using 2007 Data” (2012) 73(3) *Journal of Studies on Alcohol & Drugs* 341 at 346.

- As the following chart illustrates, 16-19, 20-25 and 26-35 year olds were overrepresented in alcohol-related crash deaths in 2014, and those under the age of 16 or over the age of 55 were underrepresented.



Source: R. Solomon, C. Ellis & C. Zheng, *Alcohol-Related Fatalities Occurring Within 30 Days of a Crash on a Public Road Involving a Highway Vehicle, by Jurisdiction and Age: Canada, 2014* (Oakville, ON: MADD Canada, 2018) at 4.

- The overrepresentation of 16-19 year olds in alcohol-related crash deaths has fallen since 2006, most likely due to the enactment of comprehensive graduated licensing programs and .00% BAC limits for drivers under the age of 21 in most provinces and territories.
- As the preceding chart illustrates, 16-19 year olds made up 5% of the population and 8.5% of the total alcohol-related crash deaths in 2014. In comparison, this age group accounted for 5.4% of the population and 12% of the alcohol-related crash deaths in 2006.

Traffic Injury Research Foundation (TIRF), *The Alcohol-Crash Problem in Canada: 2006* (Ottawa: TIRF, 2009) at 14; and Statistics Canada, *CANSIM Table 17-10-0005-01: Population estimates on July 1st, by age and sex* (Ottawa: Statistics Canada, 2018).

- While 16-25 year olds accounted for approximately 14% of the Canadian population, they made up more than 27% of motorcyclist fatalities from 1995 to 2012.

W. Vanlaar *et al.*, “Fatal and serious injuries related to vulnerable road users in Canada” (2016) 58 *Journal of Safety Research* 67 at 73 and 74.

- On average, there were 464 drownings in Canada each year from 2010 to 2014, of which 40% involved boating, or land, ice or air transportation (p. 2 and 9). Approximately 30% (139) of the total drowning deaths involved 15-34 year olds (p. 3).
- Alcohol was involved in approximately 33.3% of the total drowning deaths, and 39% of the boating-related drownings. This latter percentage rose to 41% among 15-19 year olds and 51% among 20-34 year olds (p. 10).

Drowning Prevention Research Centre Canada, *Canadian Drowning Report 2017 Edition* (Ottawa: Lifesaving Society, 2017).

- In 2014, 24.1% of the tested, fatally-injured motorcyclists were positive for alcohol. Among these alcohol-positive motorcyclists, 71% had a BAC above .08% and 25.7% had a BAC above .16%, which is twice the *Criminal Code* limit for driving.

S. Brown, W. Vanlaar & R. Robertson, *The Alcohol and Drug-Crash Problem in Canada: 2014 Report* (Ottawa: Canadian Council of Motor Transport Administrators, 2017) at 18.

- Of the 1,185 Canadian ATV/dirt bike fatalities from 1995 to 2010, 17.2% involved those under the age of 16, 23.5% involved those between the ages of 16 and 25, and 16.2% involved those aged 26-35.
- Among tested, fatally-injured ATV/dirt bike operators, 55.2% were positive for alcohol. Among these alcohol-positive ATV/dirt bike operators, almost 80% had a BAC above .08% and 54% had a BAC above .16%.

W. Vanlaar *et al.*, “Injuries related to off-road vehicles in Canada” (2015) 75 *Accident Analysis & Prevention* 264 at 268 and 270.

- Of the 1,343 Canadian snowmobile fatalities from 1995 to 2010, 5.4% involved those under the age of 16, 22.5% involved those between the ages of 16 and 25, and 25.2% involved those aged 26-35.
- Among tested, fatally-injured snowmobile operators, 65.9% were positive for alcohol. Among these alcohol-positive snowmobile operators, almost 80% had a BAC above .08% and 47.5% had a BAC above .16%.

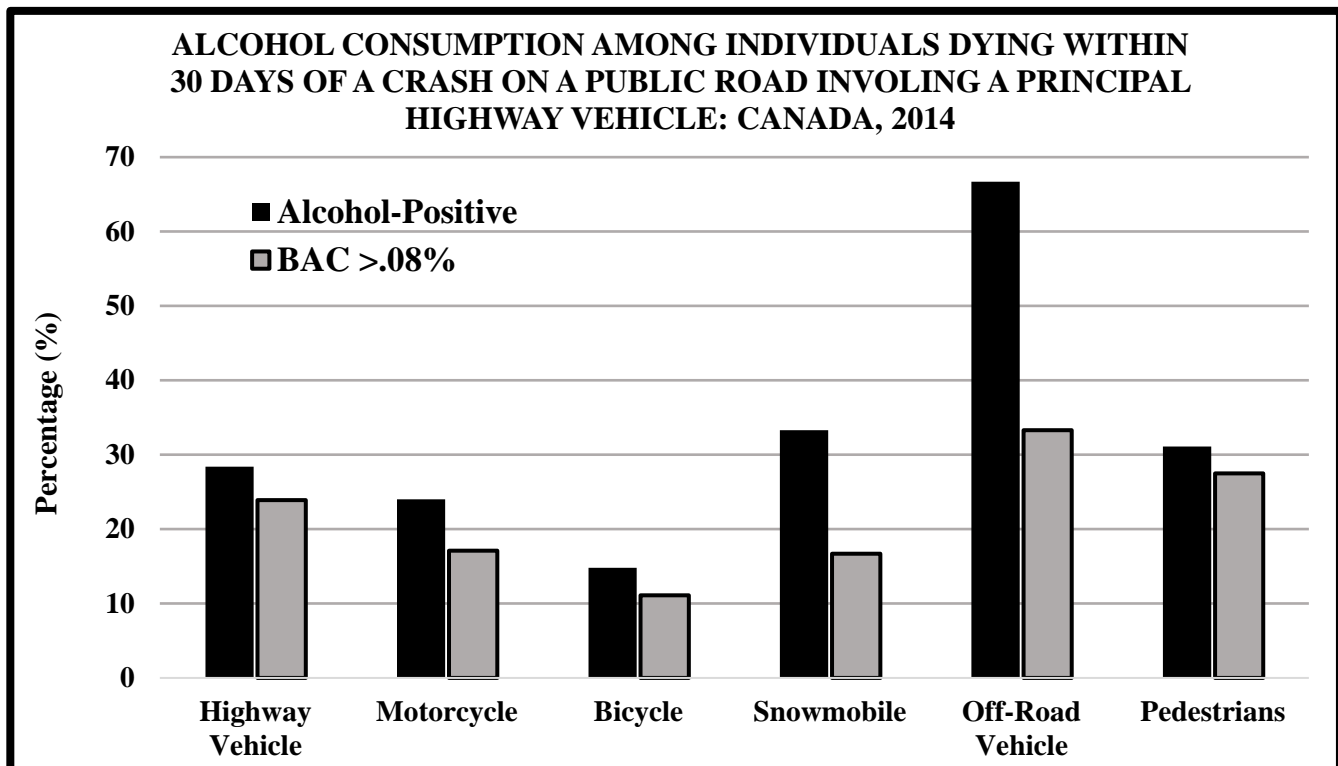
W. Vanlaar *et al.*, “Injuries related to off-road vehicles in Canada” (2015) 75 *Accident Analysis & Prevention* 264 at 267 and 270.

- Of the 1,125 Canadian bicycle fatalities from 1995 to 2012, 23.3% involved those under the age of 16, 15.5% involved those between the ages of 16 and 25, and 10.6% involved those aged 26-35.
- Among tested, fatally-injured bicyclists, 22.7% were positive for alcohol. Among these alcohol-positive bicyclists, 75.6% had a BAC above .08% and 52.0% had a BAC above .16%.

W. Vanlaar *et al.*, “Fatal and serious injuries related to vulnerable road users in Canada” (2016) 58 Journal of Safety Research 67 at 72 and 74.

- It was reported that 230 pedestrians were fatally-injured in Canada (excluding British Columbia) in 2014. This figure was limited to pedestrians dying within 30 days of a crash on a public road involving at least one principal highway vehicle.
- Among tested, fatally-injured pedestrians, 31.1% were positive for alcohol. This figure rose to 41.2% for 16-19 year olds, and 52.6% for 20-25 year olds.
- Among these alcohol-positive pedestrians, 88.4% had a BAC above .08%, and 70.7% had a BAC above .16%.

S. Brown, W. Vanlaar & R. Robertson, *The Alcohol and Drug-Crash Problem in Canada: 2014 Report* (Ottawa: Canadian Council of Motor Transport Administrators, 2017) at 27.



Source: S. Brown, W. Vanlaar & R. Robertson, *The Alcohol and Drug-Crash Problem in Canada: 2014 Report* (Ottawa: Canadian Council of Motor Transport Administrators, 2017) at 19, 25 and 27.

SECTION 3: IMPAIRED DRIVING CHARGES AND CONVICTIONS

(a) A Note on Canadian Impaired Driving Charge and Conviction Data

Unless otherwise stated, the statistics in this section include adults and youth, and cases involving motor vehicles, vessels and aircraft. The impaired driving charge and conviction data do not fully capture the role of impairment in other *Criminal Code* traffic offences. For example, there were more than 35,400 criminal “incidents” of failing to remain at the scene of a crash in 2016, a significant percentage of which are generally believed to involve impaired drivers.

There are several problems with the Canadian charge and conviction data. For example, charges are reported by calendar year and convictions are reported by fiscal year. Moreover, no conviction data are available for 1977 to 1993, and there are numerous limitations in the conviction data in subsequent years. These limitations are discussed in the listed sources and not in the text of the present report.

R. Solomon, C. Ellis & C. Zheng, *Persons Charged with, and Persons Convicted of, an Impaired Driving Offence: Canada, 1977-2015/16* (Oakville, ON: MADD Canada, 2018).

(b) Impaired Driving Charges and Convictions

- As the following table illustrates, the number of impaired driving charges has fallen sharply since 1977. This largely reflects the decline in impaired driving. However, legal challenges in enforcing the federal impaired driving law have contributed to the reluctance of the police to lay *Criminal Code* impaired driving charges.
- For example, in a national survey, 30% of officers reported that impaired drivers are “sometimes” or “frequently” released with a short-term provincial licence suspension, rather than being charged criminally. Similarly, 29% reported that they “sometimes” or “frequently” took no legal action against impaired drivers, but rather arranged for them to be taken home by taxi or a sober licensed passenger, or took similar steps to safeguard them.
- In Canada, the percentage of impaired driving incidents known to the police that resulted in a person being charged fell from 83% in 1998 to 69% in 2016.
- In British Columbia, the percentage of impaired driving incidents that resulted in a criminal charge fell from 80% in 1998 to 29% in 2016. This sharp decline reflected both the reluctance to lay federal impaired driving charges and the increasing reliance on the province’s 2010 roadside administrative licence suspension legislation.
- Survey and criminal justice data indicated that in 2006 a person could drive impaired once a week for more than three years before being charged with an impaired driving offence, and for more than six years before being convicted. Another national study suggested that even these figures greatly overestimated Canada’s actual charge and conviction rates.

R. Solomon & E. Chamberlain, “The Road to Traffic Safety: Mandatory Breath Screening and Bill C-46” (2018) 23 *Canadian Criminal Law Review* 1 at 15-17; and Statistics Canada, *CANSIM Table 35-10-0177-01: Incident-based crime statistics, by detailed violations* (Ottawa: Statistics Canada, 2018).

**PERSONS CHARGED WITH, AND PERSONS CONVICTED OF AN
IMPAIRED DRIVING OFFENCE: CANADA, 1977-2015/16**

Year	Number of Drivers Charged (Calendar Year)	Number and Percentage of Drivers Convicted (Fiscal Year)
1977	148,824	N/D
1980	157,492	N/D
1983	148,040	N/D
1986	128,797	N/D
1989	118,722	N/D
1992	105,805	N/D
1995	84,085	43,655 – 52% (95/96)
1998	72,579	36,033 – 50% (98/99)
2001	68,986	37,602 – 55% (01/02)
2004	63,317	33,438 – 53% (04/05)
2007	62,826	35,160 – 56% (07/08)
2010	65,188	40,965 – 63% (10/11)
2011	60,164	35,643 – 59% (11/12)
2012	60,261	34,994 – 58% (12/13)
2013	54,107	36,045 – 67% (13/14)
2014	51,784	32,025 – 62% (14/15)
2015	50,931	28,695 – 56% (15/16)*
2016	48,966	N/A

N/A – Not yet available N/D – No data

* This total will be revised upwards to reflect the late reporting of the remaining 2015/16 convictions.

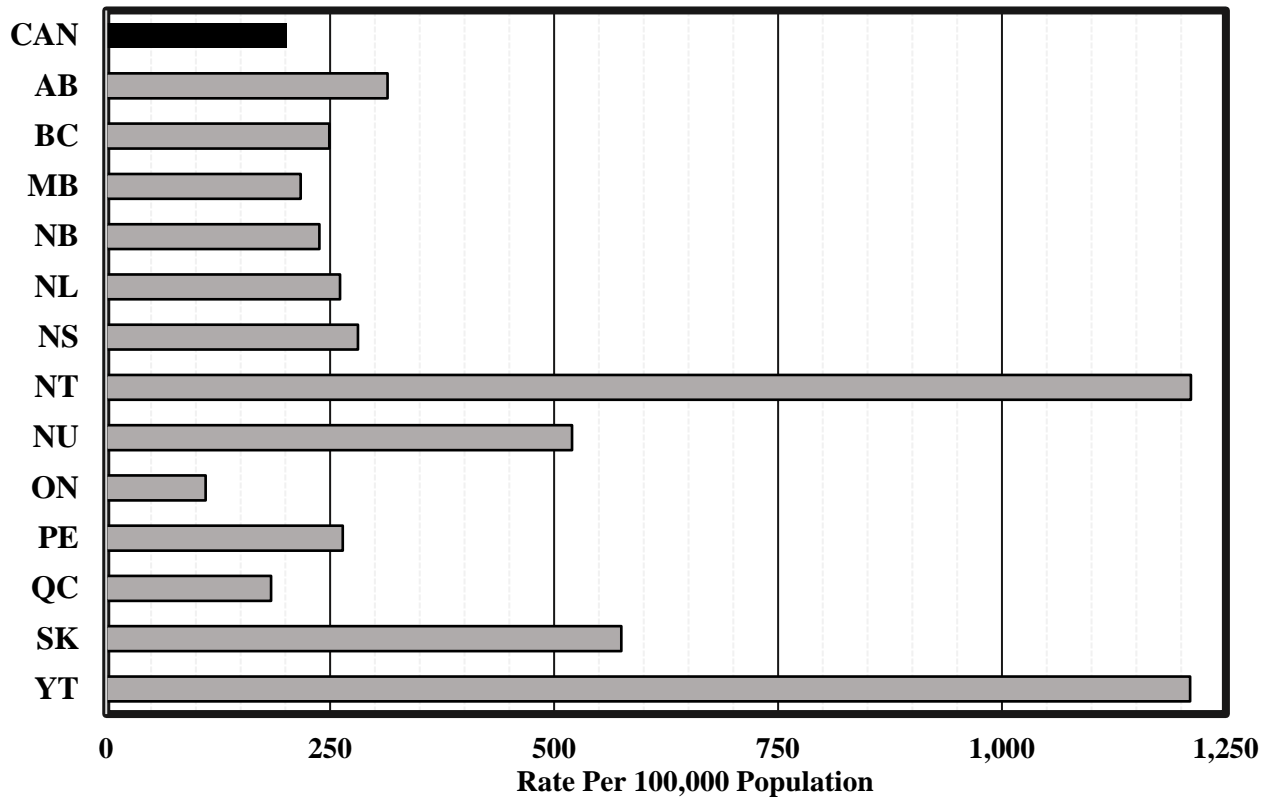
**Source: R. Solomon, C. Ellis & C. Zheng, *Persons Charged with, and Persons
Convicted of, an Impaired Driving Offence: Canada, 1977-2015/16*
(Oakville, ON: MADD Canada, 2018) at 5.**

- In 2015, Canada’s charge rate for impaired driving offences per 100,000 licensed drivers was only 40% of the American rate. In recent years, roughly 60% of those charged with an impaired driving offence in Canada were convicted, whereas the American conviction rate was approximately 80%.
- Approximately 1 in 880 licensed drivers in Canada are convicted of an impaired driving offence per year, whereas the comparable figure in the United States is 1 in 250 licensed drivers.
- In 2015, only 39.9% of the impaired driving incidents known to the police in Canada led to a conviction, and only 56.3% of drivers charged with an impaired driving offence were convicted.

R. Solomon, C. Ellis & C. Zheng, *Persons Charged With, and Persons Convicted of, an Impaired Driving Offence: Canada, 1977-2015/16* (Oakville, ON: MADD Canada, 2017) at 4 and 5.

- As the chart below illustrates, the rate of police-reported impaired driving incidents varied dramatically across Canada.

POLICE-REPORTED IMPAIRED DRIVING INCIDENTS, BY JURISDICTION AND POPULATION: CANADA, 2015



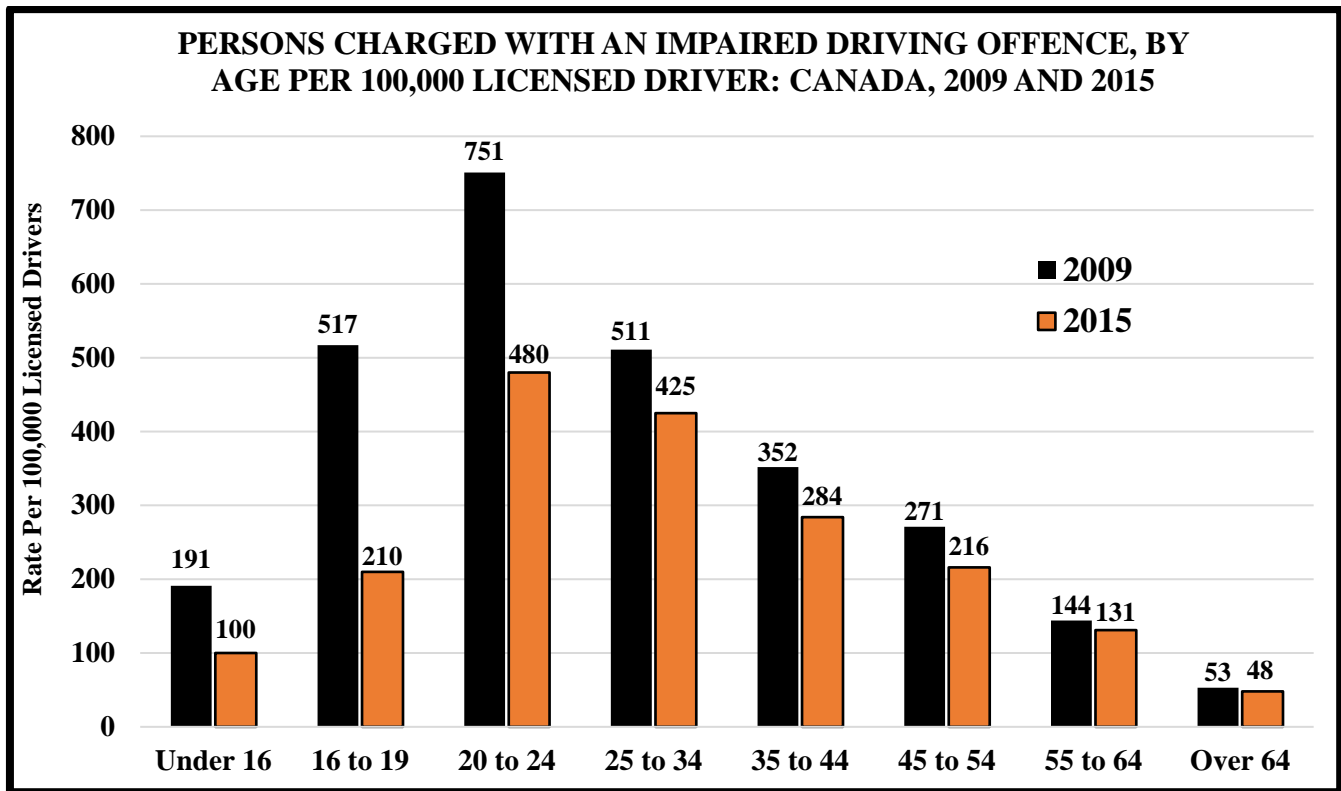
Source: S. Perreault, *Impaired Driving in Canada, 2015* (Ottawa: Statistics Canada, 2016) at 7.

POLICE-REPORTED IMPAIRED DRIVING INCIDENTS, BY SUBSTANCE AND OFFENCE: CANADA, 2015

Offence	Alcohol	Drugs	Total
Impaired Operation of a Motor Vehicle	64,962	2,727	67,689
Impaired Driving Causing Death	115	7	122
Impaired Driving Causing Bodily Harm	577	19	596
Failure to Submit to a Required Test	3,599	33	3,632
Total	69,253	2,786	72,039

Source: S. Perreault, *Impaired Driving in Canada, 2015* (Ottawa: Statistics Canada, 2016) at 33.

- As the following chart illustrates, the charge rate for impaired driving has fallen sharply among those under the age of 24. As indicated earlier, there was a parallel decrease in alcohol-related crash deaths among this constituency. These decreases are most likely due to the enactment of comprehensive graduated licensing programs and .00% BAC limits for drivers under the age of 21 or 22 in most provinces and territories.



Source: S. Perreault, *Impaired Driving in Canada, 2015*
(Ottawa: Statistics Canada, 2016) at 12.

- Charge rates for impaired driving vary sharply among jurisdictions. For example, in 2015, the per capita charge rate for the federal impaired driving offences in British Columbia was only 36% of that in Alberta.
- Similarly, as the following table illustrates, the conviction rate for the federal impaired charges vary sharply ranging from 25.4% in British Columbia to 74.4% in Prince Edward Island.
- The legal challenges in enforcing the federal impaired driving offences have prompted British Columbia and other provinces to forego federal criminal charges in lieu of imposing provincial administrative licence suspensions.

PERSONS CHARGED WITH, AND PERSONS CONVICTED OF, AN IMPAIRED DRIVING OFFENCE, BY JURISDICTION: CANADA, 2015/16*

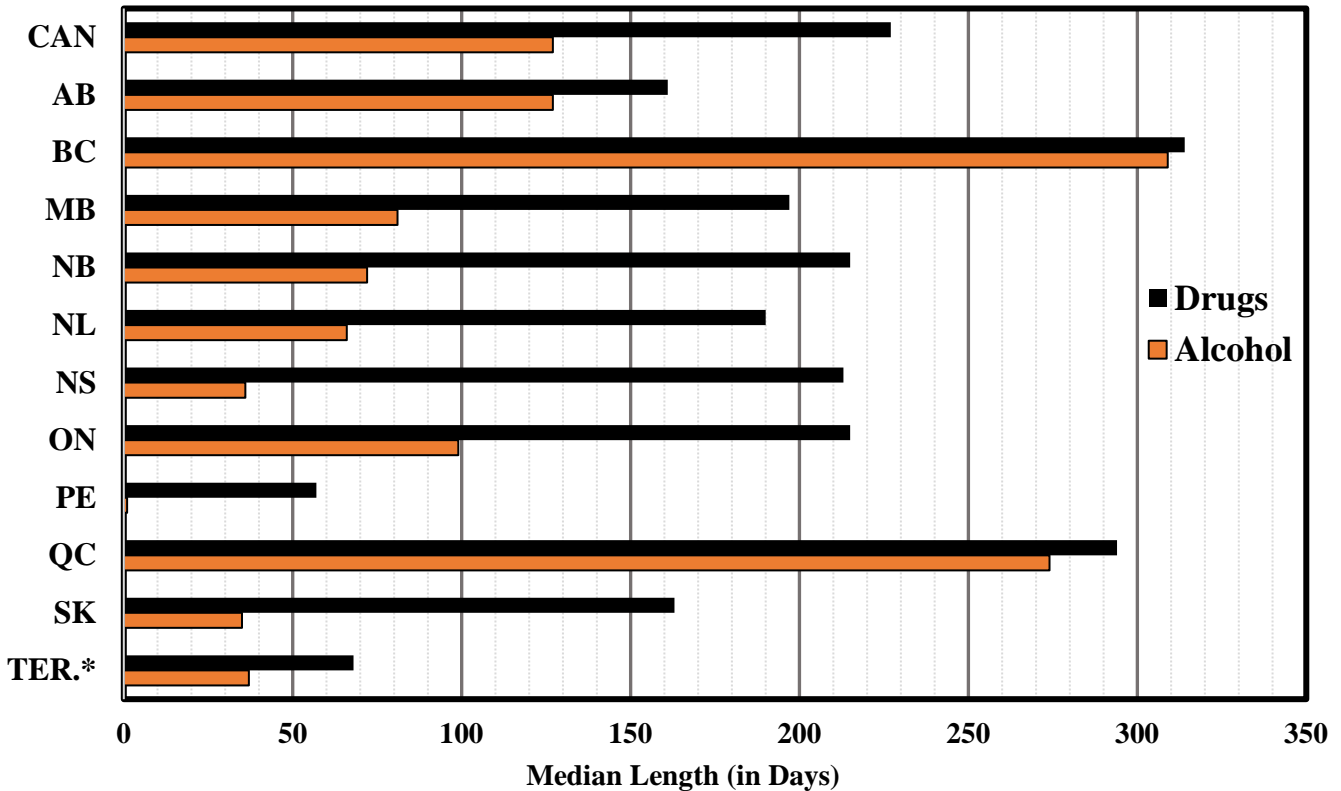
Jurisdiction	Persons Charged 2015	Persons Convicted 2015/16
AB	8,521	4,627 (54.3%)
BC	3,399	862 (25.4%)
MB	2,140	1,406 (65.7%)
NB	1,252	834 (66.6%)
NL	735	422 (57.4%)
NT	292	141 (48.3%)
NS	1,779	1,269 (71.3%)
NU	103	65 (63.1%)
ON	14,242	9,283 (65.2%)
PE	289	215 (74.4%)
QC	13,604	6,665 (49.0%)
SK	4,351	2,763 (63.5%)
YK	224	143 (63.8%)
CAN	50,931	28,695 (56.3%)

* The conviction total for 2015/16 will be revised upwards to reflect the late reporting of the remaining 2015/16 convictions.

Source: R. Solomon, C. Ellis & C. Zheng, *Persons Charged With, and Persons Convicted of, An Impaired Driving Offence, By Jurisdiction: Canada, 2012-2015/16* (Oakville, ON: MADD Canada, 2018) at 5.

- As the following chart illustrates, the median length of time it takes to resolve an alcohol-impaired driving case that gets to court is 127 days. This figure includes cases in which the accused pleads guilty on a first or second appearance. The length of time it takes to resolve a case that goes to trial would far exceed 127 days.
- The median length of time it takes to resolve a drug-impaired driving case is 227 days, which is almost 80% longer than an alcohol-impaired driving case.

MEDIAN LENGTH OF IMPAIRED DRIVING CASES IN CRIMINAL COURTS, BY SUBSTANCE AND JURISDICTION: CANADA, 2010/11 to 2014/15



* The Northwest Territory, Nunavut and the Yukon data have been combined.

Source: S. Perreault, *Impaired Driving in Canada, 2015*
(Ottawa: Statistics Canada, 2016) at 16.

(c) Impaired Driving Causing Death: Charges, Convictions and Sentences

- As indicated earlier, MADD Canada has estimated that approximately 1,000 Canadians are killed in impairment-related crashes a year. Even discounting for multi-fatality crashes and crashes in which the impaired driver is killed, the charge rate for impaired driving causing death is extremely low.
- Similarly, a sizeable majority of those charged with impaired driving causing death are not convicted of that offence.

IMPAIRED DRIVING CAUSING DEATH CHARGES, COMPLETED CASES AND CONVICTIONS: CANADA, 1994-2015/16

Year	Total Persons Charged (Calendar Year)	Completed Court Cases (Fiscal Year)	Total Persons Convicted	
			Persons Convicted (Fiscal Year)	% of Those Charged
1994	N/D	48 (94/95)	29 (94/95)	N/D
1998	111	81 (98/99)	54 (98/99)	49%
2002	100	57 (02/03)	42 (02/03)	42%
2006	150	76 (06/07)	56 (06/07)	37%
2010	123	64 (10/11)	48 (10/11)	39%
2011	132	50 (11/12)	35 (11/12)	27%
2012	121	66 (12/13)	48 (12/13)	40%
2013	104	51 (13/14)	40 (13/14)	38%
2014	103	44 (14/15)	31 (14/15)	30%
2015*	107	36 (15/16)	28 (15/16)	26%
2016	94	N/A	N/A	N/A

N/D – No Data

N/A – Not Available

* The completed cases, convictions and the percentage convicted for 2015/16 will be revised upwards to reflect the late reporting of the remaining 2015/16 cases and convictions.

Source: R. Solomon, C. Ellis & C. Zheng, *Impaired Driving Causing Death: Charges, Cases and Convictions: Canada, 1994-2015/16* (Oakville, ON: MADD Canada, 2017) at 6.

- The percentage of offenders receiving custodial sentences for impaired driving causing death fell after conditional sentences of imprisonment were introduced in 1996. A judge imposing imprisonment for less than two years may allow the sentence to be served in the community if he or she is satisfied that it would not endanger public safety and would be consistent with the “fundamental purpose and principles of sentencing.” By 2006/07 and 2007/08, less than 60% of those convicted of impaired driving causing death received a custodial sentence.
- In 2008, amendments were enacted precluding conditional sentences for specified categories of criminal offences, including impaired driving causing death. As a result, the percentage of custodial sentences rose to 75% or higher since 2010/11 with the exception of 2014/15.

**MEAN LENGTH OF CUSTODIAL SENTENCES FOR IMPAIRED DRIVING
CAUSING DEATH: CANADA, 1994/95-2015/16**

Year	Persons Convicted	Custodial Sentences	Mean Length (Days)
1994/95	29	28	756
1998/99	54	43	815
2002/03	42	26	721
2006/07	56	32	802
2010/11	48	41	1,021
2011/12	35	29	912
2012/13	48	40	1,055
2013/14	40	35	1,053
2014/15	31	22	1,079
2015/16*	28	21	1,205

* Convictions for 2015/16 will be revised upwards to reflect the late reporting of the remaining 2015/16 convictions.

Source: R. Solomon, C. Ellis & C. Zheng, *Sentencing for Impaired Driving Causing Death: Canada, 1994-2015/16* (Oakville, ON: MADD Canada, 2017) at 8 and 9.

(d) Impaired Driving Causing Bodily Harm: Charges, Convictions and Sentences

- As indicated earlier, MADD Canada has estimated that approximately 60,000 Canadians are injured in impairment-related crashes a year. Even discounting for multi-injury crashes and crashes in which only the impaired driver is injured, the charge rate for impaired driving causing bodily harm is very low.
- Similarly, a sizeable majority of those charged with impaired driving causing bodily harm are not convicted of that offence.

**IMPAIRMENT-RELATED CRASH INJURIES, CHARGES, CASES,
AND CONVICTIONS: CANADA, 1994-2015/16**

Year	Total Persons Charged (Calendar Year)	Completed Court Cases (Fiscal Year)	Total Persons Convicted	
			Persons Convicted (Fiscal Year)	% of Those Charged
1994	914	450 (94/95)	316 (94/95)	35%
1998	905	484 (98/99)	340 (98/99)	38%
2002	960	492 (02/03)	368 (02/03)	38%
2006	847	414(06/07)	303 (06/07)	36%
2010	747	434 (10/11)	321 (10/11)	43%
2011	778	380 (11/12)	289 (11/12)	37%
2012	697	411 (12/13)	283 (12/13)	41%
2013	559	339 (13/14)	246 (13/14)	44%
2014	555	317 (14/15)	234 (14/15)	42%
2015*	525	295 (15/16)	220 (15/16)	42%
2016	502	N/A	N/A	N/A

N/A – Not Available

* The completed cases, convictions and the percentage convicted for 2015/16 will be revised upwards to reflect the late reporting of the remaining 2015/16 convictions.

Source: R. Solomon, C. Ellis & C. Zheng, *Impaired Driving Causing Bodily Harm: Charges, Cases and Convictions: Canada, 1994-2015/16* (Oakville, ON: MADD Canada, 2018) at 5.

- The percentage of offenders receiving custodial sentences for impaired driving causing bodily harm fell with the introduction of conditional sentences of imprisonment in 1996. A judge imposing imprisonment for less than two years may allow the sentence to be served in the community if he or she is satisfied that it would not endanger public safety and would be consistent with the “fundamental purpose and principles of sentencing.” By 2002/03, only 42% of those convicted of impaired driving causing bodily harm received a custodial sentence.
- In 2008, amendments were enacted precluding conditional sentences for specified categories of criminal offences, including impaired driving causing bodily harm. As a result, the percentage of custodial sentences rose, exceeding 70% since 2012/13.

**MEAN LENGTH OF CUSTODIAL SENTENCES FOR IMPAIRED DRIVING
CAUSING BODILY HARM: CANADA, 1994/95-2015/16**

Year	Persons Convicted	Custodial Sentences	Mean Length (Days)
1994/95	316	240	188
1998/99	340	191	232
2002/03	368	153	286
2006/07	303	148	304
2010/11	321	197	245
2011/12	289	181	281
2012/13	283	200	243
2013/14	246	178	235
2014/15	234	168	215
2015/16*	220	162	222

* The convictions for 2015/16 will be revised upwards to reflect the late reporting of the remaining 2015/16 convictions.

Source: R. Solomon, C. Ellis & C. Zheng, *Sentencing for Impaired Driving Causing Bodily Harm: Canada, 1994/95-2015/16* (Oakville, ON: MADD Canada, 2017) at 9.

PART III: ADDITIONAL ALCOHOL-IMPAIRED DRIVING DATA

- Mandatory alcohol screening (MAS) is generally recognized to be the most effective enforcement-related impaired driving countermeasure.
- As the table below illustrates, 47 out of 56 selected countries (84%) were reported to have a MAS program of some kind.

REPORTED MANDATORY ALCOHOL SCREENING PROGRAMS IN SELECTED COUNTRIES

WITH MAS			WITHOUT MAS
Argentina	Germany	New Zealand	Canada
Austria	Greece	Norway	Dominican Republic
Australia	Guatemala	Peru	Ecuador
Belgium	Honduras	Poland	El Salvador
Brazil	Hungary	Portugal	Panama
Bulgaria	Iceland	South Korea	South Africa
Chile	Ireland	Romania	United Kingdom
China	Italy	Russia	United States
Colombia	Japan	Slovakia	Venezuela
Costa Rica	Latvia	Slovenia	
Cyprus	Lithuania	Spain	
Czech Republic	Luxembourg	Sweden	
Denmark	Malta	Switzerland	
Estonia	Mexico	Turkey	
Finland	Moldova	Ukraine	
France	The Netherlands		

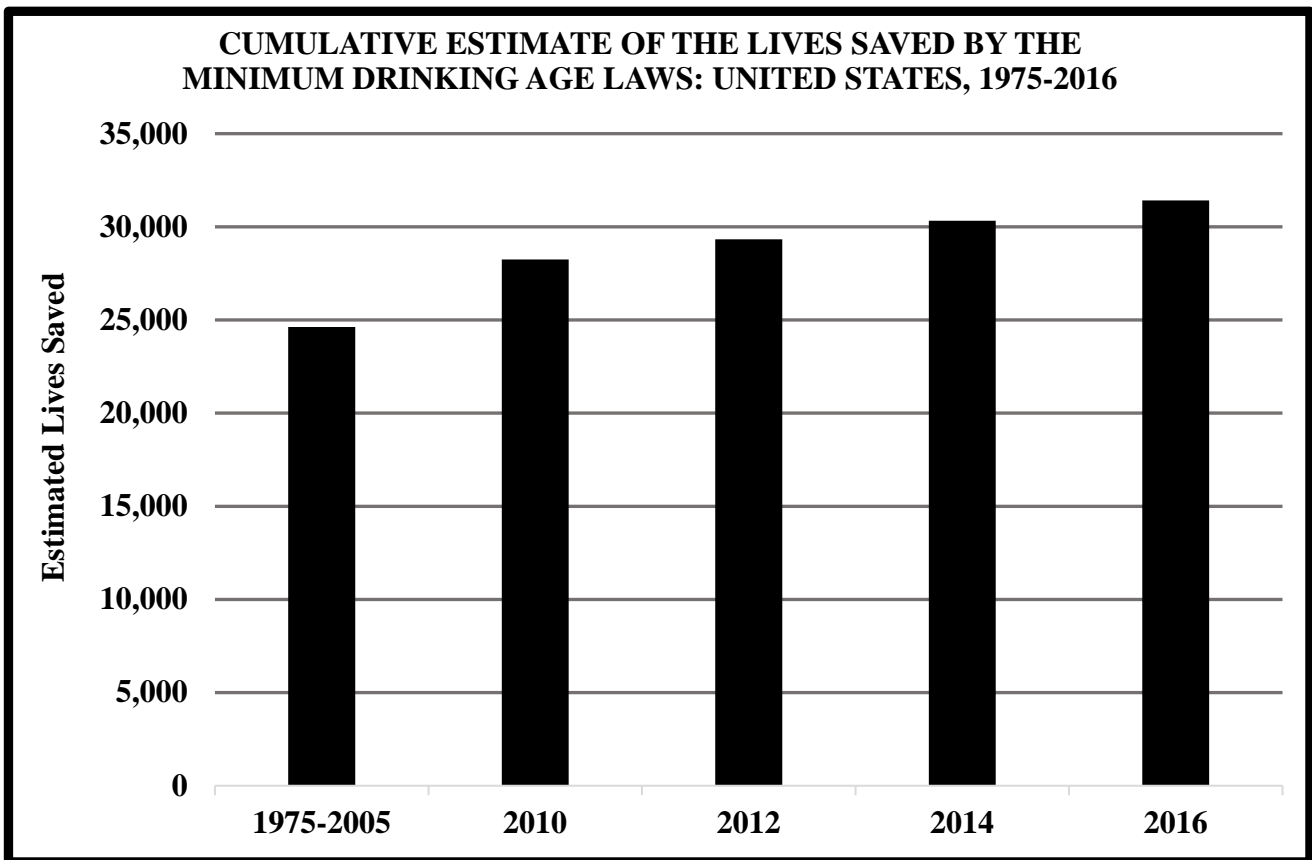
Source: R. Solomon & E. Chamberlain, “The Road to Traffic Safety: Mandatory Breath Screening and Bill C-46” (2018) 23 Canadian Criminal Law Review 1 at 20.

- In its *Global Status Report on Road Safety 2015*, the World Health Organization (WHO) stated that 121 out of 180 countries (67%) had MAS programs of some kind.
WHO, *Global Status Report on Road Safety 2015* (Geneva: WHO, 2015) at 32.

- The implementation of a minimum drinking age of 21 in the American states has significantly reduced alcohol consumption and related crash deaths among young people, despite the legislation’s less than rigorous enforcement.
- Conversely, research indicates that lowering the drinking age increases alcohol-involved crashes among young people.

A. McCartt, L. Hellinga & B. Kirley, “The effects of minimum legal drinking age 21 laws on alcohol-related driving in the United States” (2010) 41 Journal of Safety Research 173; and K. Kypri *et al.*, “Minimum Purchasing Age for Alcohol and Traffic Crash Injuries Among 15- to 19-Year-Olds in New Zealand” (2006) 96(1) American Journal of Public Health 126.

- As the following chart illustrates, the United States National Highway Traffic Safety Administration (NHTSA) has estimated that the minimum drinking age laws saved almost 31,500 lives.



Source: NHTSA, *Traffic Safety Facts, 2016 Data, Young Drivers* (Washington, DC: NHTSA, 2018) at 7.

- As the following table illustrates, the current *Criminal Code* .08% blood-alcohol concentration (BAC) limit allows individuals to drive after consuming large quantities of alcohol. Given the margin of error accepted by the Canadian courts, most police will not lay criminal charges unless the driver’s evidentiary BAC readings are above .10%. Thus, an average 200-pound man can drink six bottles of regular-strength beer in two hours, on an empty stomach, and then drive largely immune from criminal liability. It is unlikely that he would even be charged.

R. Solomon & E. Chamberlain, “Federal Impaired Driving Policy: Moving Beyond Half Measures” (2014) 40(1) Canadian Public Policy 15 at 17.

**BACS (%) FOR MALES IN RELATION TO TIME, WEIGHT AND
STANDARD CANADIAN DRINKS***

Standard Drinks	2 hours					3 hours					4 hours				
	165 lbs.	180 lbs.	195 lbs.	210 lbs.	225 lbs.	165 lbs.	180 lbs.	195 lbs.	210 lbs.	225 lbs.	165 lbs.	180 lbs.	195 lbs.	210 lbs.	225 lbs.
2	.020	.016	.012	.009	.007	.005	.001	.000	.000	.000	.000	.000	.000	.000	.000
3	.045	.039	.034	.029	.025	.030	.024	.019	.014	.010	.015	.009	.004	.000	.000
4	.070	.062	.055	.049	.043	.055	.047	.040	.034	.028	.040	.032	.025	.019	.013
5	.095	.085	.076	.068	.062	.080	.070	.061	.053	.047	.065	.055	.046	.038	.032
6	.120	.108	.097	.088	.080	.105	.093	.082	.073	.065	.090	.078	.067	.058	.050
7	.145	.130	.118	.108	.098	.130	.115	.103	.093	.083	.115	.100	.088	.078	.068
8	.170	.153	.139	.127	.117	.155	.138	.124	.112	.102	.140	.123	.109	.097	.087

**BACS (%) FOR FEMALES IN RELATION TO TIME, WEIGHT AND
STANDARD CANADIAN DRINKS***

Standard Drinks	2 hours					3 hours					4 hours				
	115 lbs.	130 lbs.	145 lbs.	160 lbs.	175 lbs.	115 lbs.	130 lbs.	145 lbs.	160 lbs.	175 lbs.	115 lbs.	130 lbs.	145 lbs.	160 lbs.	175 lbs.
1	.013	.008	.004	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
2	.055	.045	.037	.031	.026	.040	.030	.022	.016	.011	.025	.015	.007	.001	.000
3	.097	.083	.071	.062	.054	.082	.068	.056	.047	.039	.067	.053	.041	.032	.024
4	.140	.120	.105	.092	.082	.125	.105	.090	.077	.067	.110	.090	.075	.062	.052
5	.182	.158	.138	.123	.110	.167	.143	.123	.108	.095	.152	.128	.108	.093	.080
6	.225	.195	.172	.153	.137	.210	.180	.157	.138	.122	.195	.165	.142	.123	.107
7	.267	.233	.206	.184	.165	.252	.218	.191	.169	.150	.237	.203	.176	.154	.135

 Provincial infraction

 Criminal offence

* A Canadian “standard drink” is equivalent to a 12-imperial ounce beer containing 5% alcohol by volume, a 5-imperial ounce glass of wine containing 12% alcohol by volume, or a 1½-imperial ounce serving of liquor containing 40% alcohol by volume. These drinks each contain 13.46 grams of pure alcohol.

Source: MADD Canada, *Information Sheet: Blood Alcohol Concentration (BAC)*,
Revised July 2014 (Oakville, ON: MADD Canada, 2014) at 7 and 8.

- Jurisdictions that lowered their permissible BAC limits for driving have experienced significant and sustained reductions in impaired driving deaths and injuries. Lower BAC limits reduce impaired driving among all categories of drinking drivers, including those who routinely drive with high BAC levels.

R. Solomon & E. Chamberlain, “Federal Impaired Driving Policy: Moving Beyond Half Measures” (2014) 40(1) Canadian Public Policy 15 at 18.

- As the following table illustrates, the majority of high and middle-income countries have a criminal blood-alcohol concentration limit of .05% or lower.

BLOOD-ALCOHOL CONCENTRATION (BAC) LIMITS IN SELECTED COUNTRIES

BAC	Countries
.00% - .049%	Algeria, Australia, Belarus, Bosnia and Herzegovina, Brazil, Chile, China, Columbia, Cuba, Czech Republic, Colombia, Ecuador, Estonia, Georgia, Greece, Hungary, India, Japan, Lithuania, Moldova, Mongolia, Montenegro, Morocco, Norway, Paraguay, Poland, Russian Federation, Saudi Arabia, Serbia, Slovakia, Sweden, Turkmenistan, United Arab Emirates, and Uruguay.
.05% - .059%	Albania, Argentina, Austria, Belgium, Bolivia, Botswana, Bulgaria, Cambodia, Costa Rica, Croatia, Cyprus, Denmark, El Salvador, Finland, France, Germany, Iceland, Ireland, Israel, Italy, Republic of Korea, Laos, Latvia, Lebanon, Luxembourg, Macedonia, Monaco, Mauritius, Netherlands, New Zealand, Nicaragua, Panama, Peru, Philippines, Portugal, San Marino, Slovenia, South Africa, Spain, Suriname, Swaziland, Switzerland, Syria, Taiwan, Thailand, Tunisia, Turkey, and Viet Nam.
.06% - .10%	Armenia, Bahamas, Belize, Cameroon, Canada, Congo, Ethiopia, Fiji, Ghana, Guyana, Honduras, Jamaica, Jordan, Malaysia, Malta, Namibia, Nigeria, Romania, Rwanda, Saint Lucia, Seychelles, Singapore, Sri Lanka, Tanzania, Trinidad and Tobago, United Kingdom, Uganda, United States, and Zimbabwe.

Source: World Health Organization (WHO), *Global Status Report on Road Safety 2015* (Geneva: WHO, 2015) at 280-86.

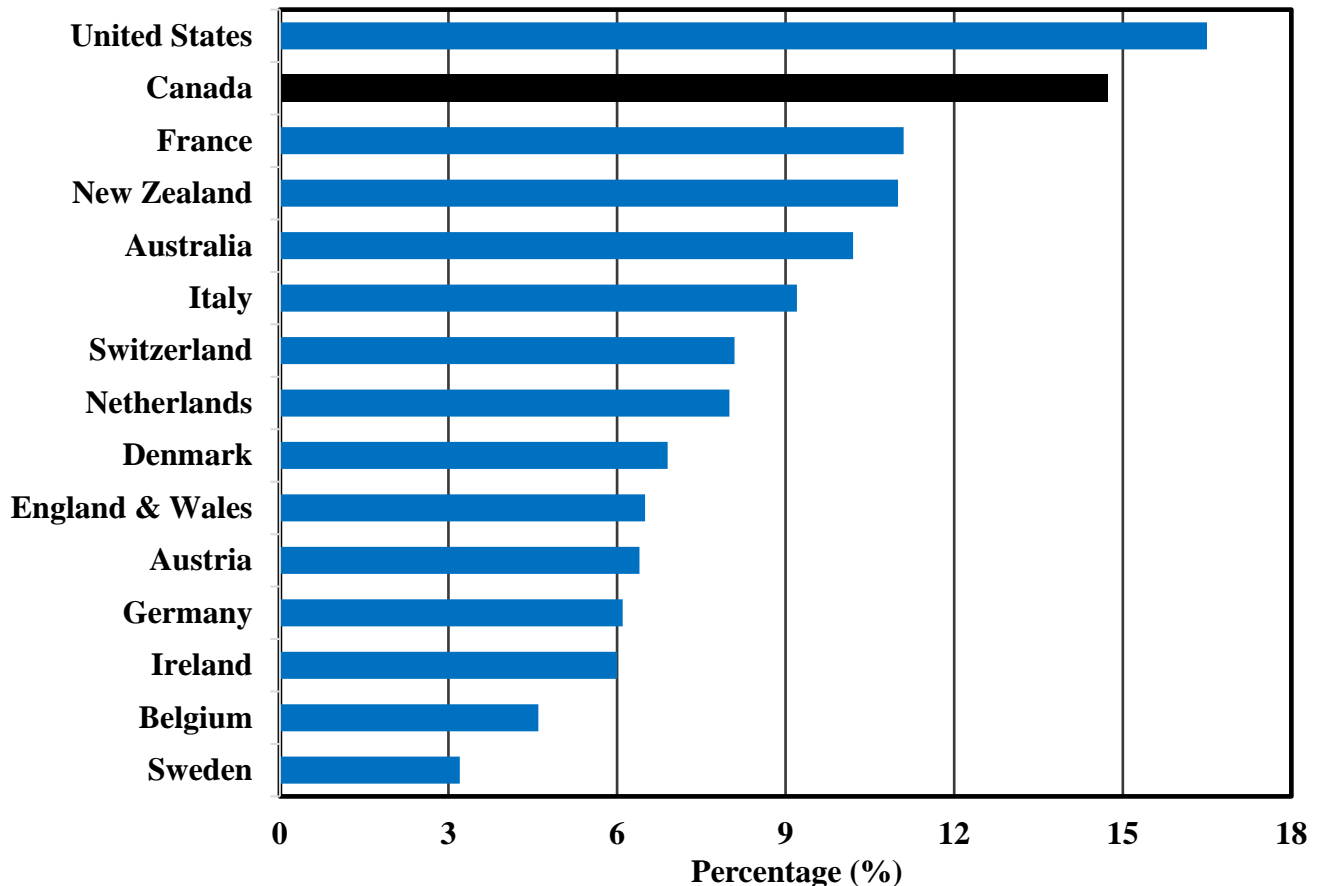
CANNABIS

PART I: CANNABIS CONSUMPTION

SECTION 1: GLOBAL

- In recent years, Canada has had among the highest percentage of past-year cannabis users in the world.
- In the 2018 databank of 121 countries maintained by the United Nations Office on Drugs and Crime (UNODC), Canada had the second highest percentage of past-year cannabis use among those aged 15 to 64.
- The following chart illustrates the patterns of use among 15 of these countries. The survey dates and age ranges varied slightly. However, in most of these countries, the data was based on a 2015 survey of 15 to 64 year olds.

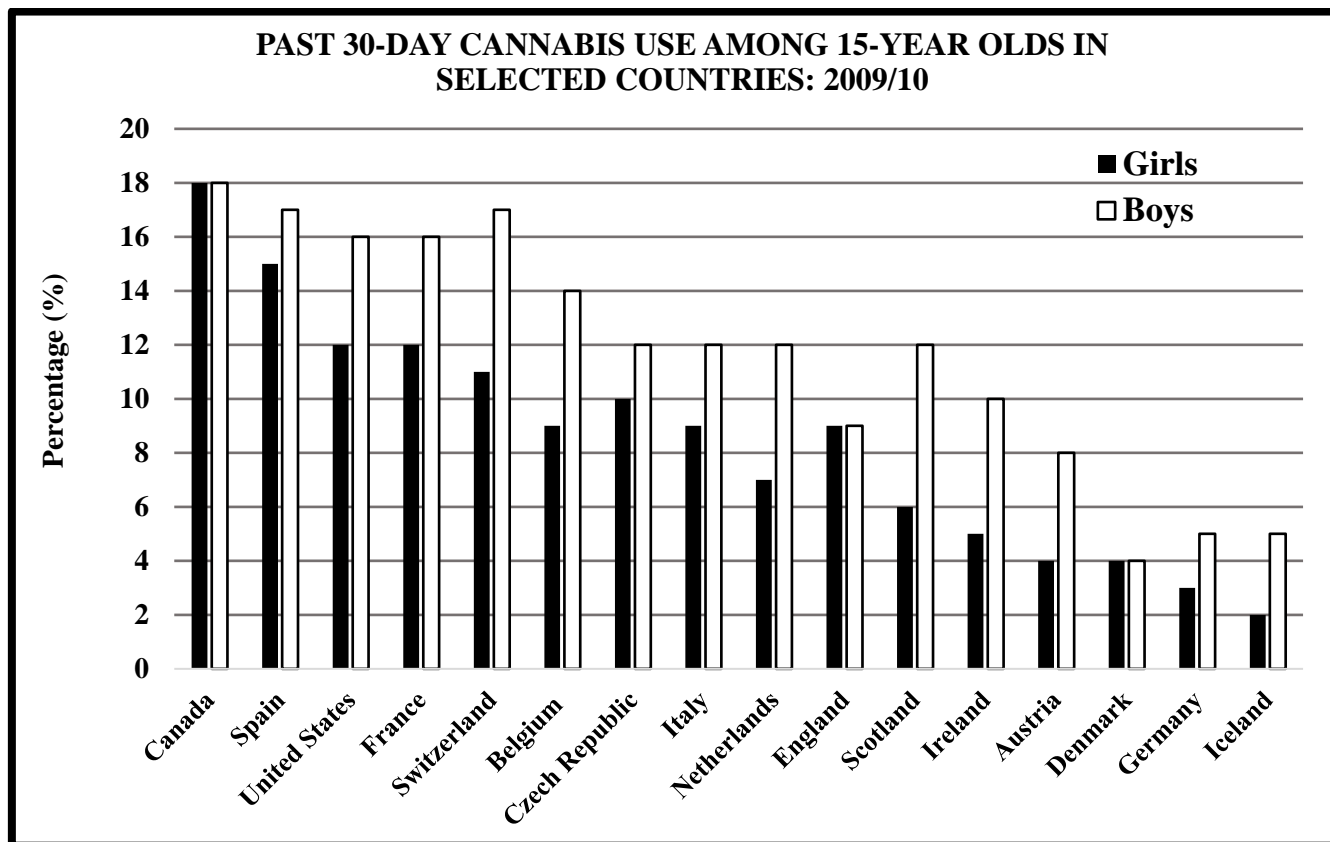
PERCENTAGE OF PAST-YEAR CANNABIS USE AMONG SPECIFIED AGE RANGES IN SELECTED COUNTRIES*



* See the source below for the specific survey date and age range for each country.

Source: UNODC, *Drug Indicators: Drug Use and Health Consequences, Cannabis* (Vienna: UNODC, 2018), online: <<https://data.unodc.org/#state:1>>.

- In a 2009/10 survey of 37 countries, Canada had the highest percentage of past-30-day cannabis users among 15-year old males and females. The following chart illustrates the patterns of use among 16 of these countries.



Source: World Health Organization (WHO), *Social Determinants of Health and Well-Being Among Young People* (Copenhagen: WHO, 2012) at 167, online: <http://www.euro.who.int/__data/assets/pdf_file/0003/163857/Social-determinants-of-health-and-well-being-among-young-people.pdf>.

- A 2013 report examining 29 “rich” countries found that Canadian 11, 13 and 15-year olds had the highest rate of past-12-month cannabis use (28%). In Switzerland, the country with the second highest rate, 24% of children reported being past-12-month cannabis users.

United Nations Children’s Fund (UNICEF) Office of Research, *Child Well-Being in Rich Countries: A Comparative Overview* (Florence: UNICEF, 2013) at 25, Figure 4.2d Cannabis, online: <https://www.unicef-irc.org/publications/pdf/rc11_eng.pdf>.

SECTION 2: CANNABIS CONSUMPTION IN CANADA

(a) Background Information

- The percentage of tetrahydrocannabinol (THC), the major psychoactive ingredient in cannabis, has increased in dried cannabis from an average of 3% in the 1980s to approximately 15% currently, with some strains containing up to 30% THC. Some of the cannabis derivatives and concentrates (e.g. hash oil, “shatter,” “budder,” and “wax”) may contain up to 90% THC.

Government of Canada, *About Cannabis*, online: <<https://www.canada.ca/en/health-canada/services/drugs-medication/cannabis/about.html>>.

- A 2014/15 national survey reported the average age of first cannabis use among grade 7-12 students was 14.2 years.
- A 2015 national survey reported that the mean age of cannabis initiation was 15.4 years among 16-19 year olds and 16.5 years among 20-24 year olds.
- The age of cannabis initiation roughly coincides with the age at which many Canadian youth begin learning to drive.

Government of Canada, *Canadian Student Tobacco, Alcohol and Drugs Survey: detailed tables for 2014-15*, online: <<https://www.canada/en/health--canada/services/canadian-student-tobacco-alcohol-drugs-survey/2014-2015-supplementary-tables.html>>; and Government of Canada, *Canadian Tobacco, Alcohol and Drugs (CTADS): 2015 supplementary tables* at Table 11, online: <<https://www.canada.ca/en/health-canada/services/canadian-tobacco-alcohol-drug-survey/2015-supplementary-tables.html>>.

- The estimated lifetime rate of cannabis dependence among all users is 9%. This figure increases to over 16% for those who begin using in adolescence.
- In Canada, Australia and the United States, cannabis dependence is the most commonly-treated drug dependency after alcohol and tobacco.

W. Hall & L. Degenhardt, “The Adverse Health Effects of Chronic Cannabis Use” (2013) 6 Drug Testing and Analysis 39 at 40.

- In Canada, the economic cost of substance use increased by 14% from \$33.7 billion in 2007 to \$38.4 billion (excluding Quebec) in 2014 (p. 11). Cannabis accounted for \$2.8 billion (7.3%), compared to \$14.6 billion (38.1%) for alcohol and \$12.0 billion (31.2%) for tobacco (p. 8).
- The per capita cost of cannabis use in Canada was \$79, compared to \$412 for alcohol, \$337 for tobacco, \$98 for opioids, and \$63 for cocaine (p. 10).
- Of the \$2.8 billion in cannabis-related costs, criminal justice accounted for \$1.76 billion (62.5%), other direct costs accounted for \$481 million (17.1%), lost productivity accounted for \$368 million (13.1%), and healthcare accounted for \$209 million (7.4%).
- The cost breakdown for cannabis differs widely from that for alcohol and tobacco. For example, almost 70% of the alcohol costs were for lost productivity and healthcare, whereas these factors accounted for only 21% of the cannabis costs.
- There were an estimated 851 cannabis-attributable premature deaths in 2014, resulting in approximately 18,301 potential years of life lost (p. 25).

Canadian Substance Use Costs and Harms Scientific Working Group, *Canadian Substance Use Costs and Harms: 2007-2014* (Ottawa: Canadian Centre on Substance Use and Addiction, 2018).

- The estimated motor vehicle damage costs attributable to substance use was \$1.69 billion in 2014. Of these costs, 25.5% were attributable to cannabis, compared to 42.3% for alcohol, 11.7% for opioids and 18.4% for other central nervous system depressants (p. 126).

Canadian Substance Use Costs and Harms Scientific Working Group, *Canadian Substance Use Costs and Harms (2007-2014): Technical Report* (Ottawa: Canadian Centre on Substance Use and Addiction, 2018).

- In contrast to the general crime rate, the drug offence rate has risen since 1990. Cannabis offences constituted 57.6% (46.4% possession and 11.2% other) of the 95,417 police-reported drug offences in 2016.
- However, of the cannabis incidents that were cleared, 57.1% of the cannabis possession cases and 19.6% of the cannabis trafficking and production cases were cleared by issuing a warning or by some other exercise of departmental discretion.

- In terms of 12-17 year olds, 77.7% of the cannabis possession cases and 36.1% of the cannabis trafficking and production cases were cleared by means other than laying a charge.

Statistics Canada, *CANSIM Table 35-10-0177-01: Incident-based crime statistics, by detailed violations* (Ottawa: Statistics Canada, 2018).

- In 2013, 18-24 year olds had the highest charge rate for drug offences, approximately 75% of which involved cannabis.
- Those 12-17 years of age had the second highest charge rate for drug offences, 90% of which were for cannabis.
- However, even when cannabis charges were laid, they were dropped or withdrawn in 55% of the adult court cases. No information was provided on the percentage of cannabis charges that were dropped or withdrawn in regard to 12-17 year olds.

A. Cotter, J. Greenland & M. Karam, *Drug-related offences in Canada, 2013* (Ottawa: Statistics Canada, 2015) at 3 and 16.

- Despite the potentially severe penalty provisions in the *Controlled Drugs and Substances Act*, very few cannabis possession offenders are sentenced to imprisonment.
- The sentencing data for drug possession are not broken down by drug category. Nevertheless, in 2015/16, custodial sentences were imposed in only 13.0% of the **total adult drug possession convictions** and 57.0% of the **trafficking and other drug convictions**. The relevant percentages for 18-24 year olds were 6.5% and 50.9%, respectively.
- In terms of young offenders, only 1.2% of the **total drug possession convictions** and 4.7% of the **trafficking and other drug convictions** resulted in a custodial sentence.

Statistics Canada, *CANSIM Table 35-10-0030-01: Adult criminal courts, guilty cases by type of sentence* (Ottawa: Statistics Canada, 2018); and *CANSIM Table 35-10-0041-01: Youth courts, guilty cases by type of sentence* (Ottawa: Statistics Canada, 2018).

(b) Rates and Patterns of Cannabis Consumption

- A 2012 survey indicated that more than 3.4 million Canadians, 15 years of age or older, used cannabis at least once in the past year. This figure did not include residents in the territories.
- The percentage of past-year cannabis users among 15-17 (20.0%) and 18-24 year olds (33.3%) was substantially higher than that among older Canadians (8.7%).
- While 15-24 year olds constituted 13% of the population, they accounted for almost 38% of the past-year cannabis users.

M. Rotermann & K. Langlois, “Prevalence and correlates of marijuana use in Canada, 2012” (2015) 26(4) *Health Reports* 10 at 11; and Statistics Canada, *CANSIM Table 17-10-0005-01: Population estimates on July 1st, by age and sex* (Ottawa: Statistics Canada, 2018).

- Past-year cannabis use among females 15 years of age and older increased by more than 31% from 2013 (7.4%) to 2015 (9.7%).

Statistics Canada, *Canadian Tobacco Alcohol and Drugs (CTADS): 2013 Summary* (Ottawa: Statistics Canada, 2013); and Statistics Canada, *Canadian Tobacco Alcohol and Drugs (CTADS): 2015 Summary* (Ottawa: Statistics Canada, 2017).

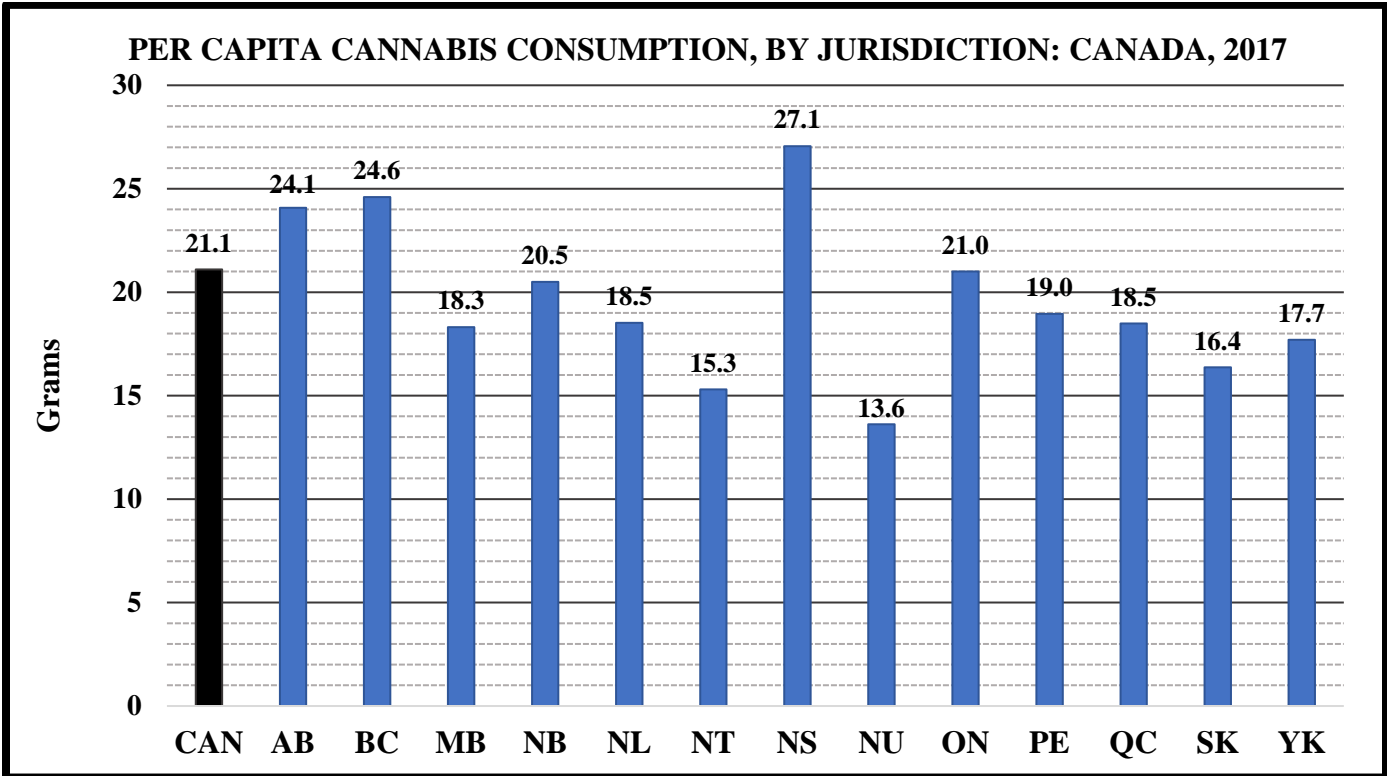
- A 2015 study estimated that the total number of past-year cannabis users, 15 years of age and older, was 4.9 million. Approximately a third of the users were 15-24 year olds (p. 1).
- Based on this estimate, the total number of past-year users had risen 44% since 2012.
- As in 2012, the percentage of 15-17 and 18-24 year old past-year users in 2015 was substantially higher than that among older Canadians.

Statistics Canada, *Study: Experimental Estimates of Cannabis Consumption in Canada, 1960 to 2015* (Ottawa: Statistics Canada, 2017), online: <<https://www150.statcan.gc.ca/n1/daily-quotidien/171218/dq171218b-eng.htm>>; and R. Macdonald & M. Rotermann, *Experimental Estimates of Cannabis Consumption in Canada, 1960 to 2015* (Ottawa: Statistics Canada, 2017), online: <<https://www.statcan.gc.ca/pub/11-626-x/11-626-x2017077-eng.htm>>.

- In 2015, a third of Canadians 15 years of age or older who had used cannabis in the **past 3 months** reported that they were daily or almost daily users.
- Among the **past-3-month** cannabis users, 32.6% of 15-19 year olds, 27.4% of 20-24 year olds, and 34.5% of those 25 years of age or older were daily or almost daily users.

Canadian Centre on Substance Use and Addiction (CCSA), *August 2017 Canadian Drug Summary: Cannabis* (Ottawa: CCSA, 2017) at 3, online: <<http://www.ccsa.ca/Resource%20Library/CCSA-Canadian-Drug-Summary-Cannabis-2017-en.pdf>>.

- In 2017, approximately 4.9 million Canadians aged 15-64 spent a total of \$5.6 billion on medical and recreational cannabis (p. 1).
- In Canada as a whole, only 10.4% of the total cannabis consumed was obtained legally pursuant to a medical authorization (p. 2). However, there was substantial variation in this rate across the provinces, ranging from 2.4% in Quebec to 25.1% in Alberta (p. 3).
- British Columbia (36.6%), Quebec (31.0%) and Ontario (22.7%) were the largest producers of cannabis for the industry as a whole.
- As the following chart illustrates, the amount of cannabis consumed per capita among 15-64 year olds varied significantly.



Source: Statistics Canada, *Provincial and Territorial Cannabis Economic Accounts, 2017* (Ottawa: Statistics Canada, 2018) at Chart 1, online: <<https://www.statcan.gc.ca/daily-quotidien/180430/dq180430b-eng.htm>>.

- Based on 2011 to 2015 data provided anonymously by cannabis users, a recent study reported that the price of illicit cannabis was “rather inelastic,” in that a 10% decrease in the price could cause a 4-6% increase in the amount of cannabis consumed.
- The price of illicit cannabis during this period was reported to be nearly \$2 less per gram than cannabis purchased from authorized medical sources.

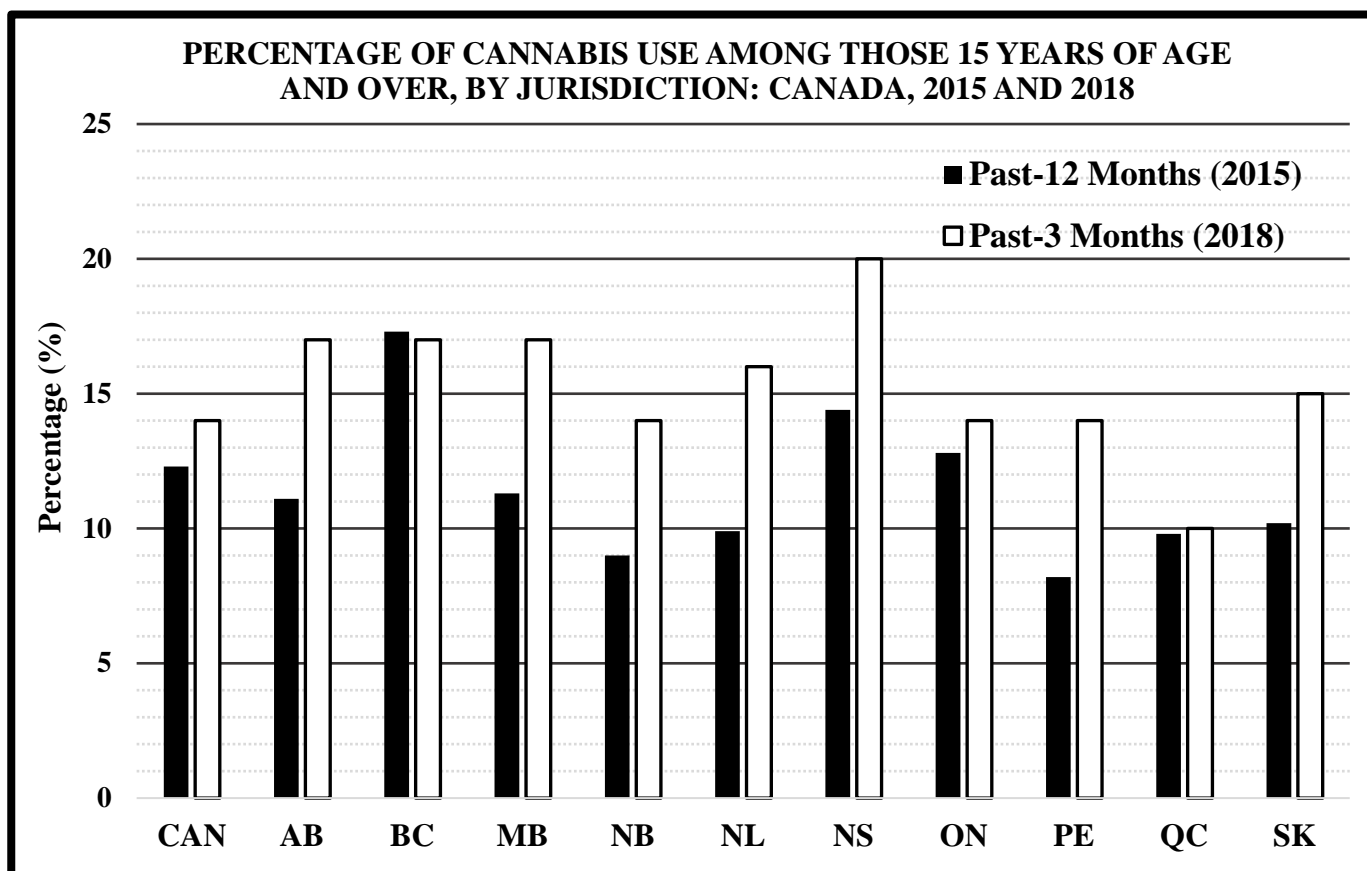
Canada, Department of Public Safety, *Research Summary: Price of Cannabis in Canada* (Ottawa: Government of Canada, 2018), online: <<https://www.publicsafety.gc.ca/cnt/rsrscs/pblctns/2017-s005/2017-s005-en.pdf>>.

- The retail price of cannabis has generally gone down since 2004.
- The average price of cannabis in the first half of 2018 (\$6.77 per gram) was 25% lower than that in 2012 (\$9.09 per gram).
- Average prices in the first half of 2018 ranged from \$5.82 per gram in Quebec to \$10.50 per gram in the territories.
- Prices varied significantly with the amount purchased. For example, the average per gram cost ranged from \$8.17 for purchases of less than 5 grams to \$4.99 for purchases of 28 grams or more.

Statistics Canada, *Provincial and Territorial Cannabis Economic Accounts, 2017* (Ottawa: Statistics Canada, 2018) at 2, online: <<https://www.statcan.gc.ca/daily-quotidien/180430/dq180430b-eng.htm>>; and Statistics Canada, *StatsCannabis data availability: Crowdsourced cannabis prices, second quarter 2018* (Ottawa: Statistics Canada, 2018) at 1 and 2, online: <<https://www150.statcan.gc.ca/n1/daily-quotidien/180706/dq180706c-eng.htm>>.

- In a 2018 national survey, approximately 4.2 million (14%) of Canadians aged 15 years of age and older reported using cannabis **in the past 3 months**.
- As the following chart illustrates, the 2018 rates of **past-3-month** cannabis use are significantly higher than the 2015 rates of **past-year** use in every province except British Columbia and Quebec.
- Moreover, almost 40% of the past-3-month cannabis users reported consuming the drug daily and 17% reported consuming the drug weekly.
- Based on the three-month timeframe used in the 2018 survey, it is reasonable to assume that the percentage of past-year cannabis use in 2018 will greatly exceed that in 2015.
- Unlike in the 2012 survey and the 2015 study referred to above, the reported rate of cannabis use among 15-24 year olds was second to that of 25-34 year olds.
- Among Canadians who did not use cannabis in the previous 3 months, 6% reported that they would likely try or increase their consumption after legalization.
- Among those who had used cannabis in the last 3 months, 24% stated that they would likely increase consumption after legalization.

Statistics Canada, *National Cannabis Survey, first quarter 2018* (Ottawa: Statistics Canada, 2018), online: <<https://www150.statcan.gc.ca/n1/daily-quotidien/180418/dq180418b-eng.htm>>.



Note: The Canadian average did not include the territories.

Sources: Statistics Canada, *National Cannabis Survey, First Quarter 2018* (Ottawa: Statistics Canada, 2018), online: <<https://www.statcan.gc.ca/daily-quotidien/180418/cg-b001-eng.htm>>; and Statistics Canada, *Canadian Tobacco Alcohol and Drugs (CTADS): 2015 Summary* (Ottawa: Statistics Canada, 2017).

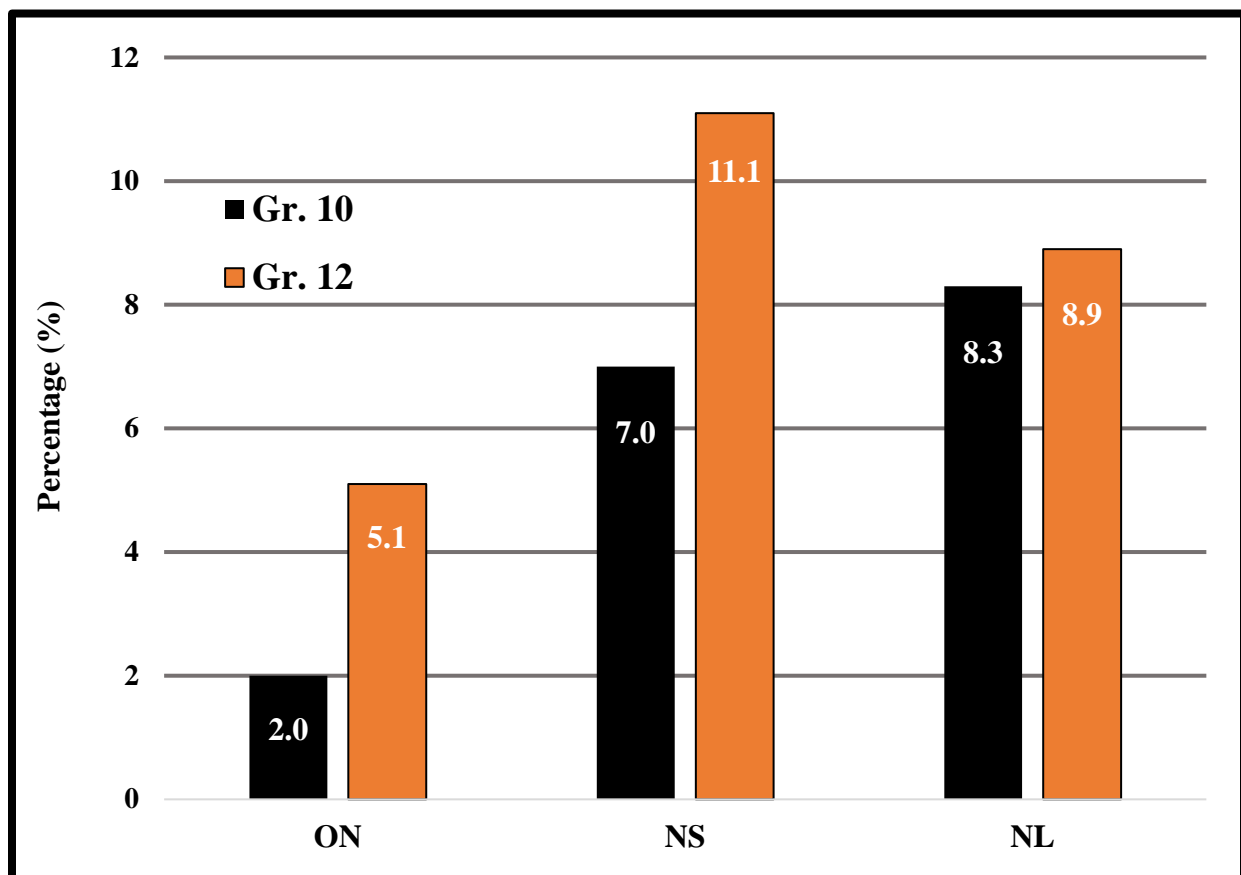
- The number of medically-authorized users increased faster than the number of illegal recreational users, rising from less than 29,000 at the beginning of 2013 to 130,000 by the end of 2016.
- This number more than doubled to almost 270,000 by the end of 2017. It is difficult to predict the impact that legalizing recreational cannabis use will have on demand for medical authorizations.

Health Canada, “ARCHIVED – Marihuana Medical Access Program (MMAR) Statistics 2013” (22 August 2014) at 2, online: <<http://www.hc-sc.gc.ca/dhp-mps/marijuana/about-apropos/supply-approvis-eng.php>>; and Government of Canada, *Market Data* (Ottawa: Statistics Canada, 2018), online: <<https://www.canada.ca/en/health-canada/services/drugs-medication/cannabis/licensed-producers/market-data.html>>.

- In a 2016 survey about past-30-day cannabis use, 2.5% of Canadian post-secondary students reported daily use, 1.6% reported smoking on 20-29 days, 2.0% reported smoking on 10-19 days and 2.0% reported smoking on 6-9 days.

American College Health Association (ACHA), *American College Health Association-National College Health Assessment II: Canadian Reference Group Data Report Spring 2016* (Hanover, MD: ACHA, 2016) at 11.

FREQUENCY OF DAILY OR ALMOST DAILY CANNABIS USE AMONG GRADE 10 AND 12 STUDENTS: ONTARIO, NOVA SCOTIA AND NEWFOUNDLAND, 2012/13



Source: Canadian Centre on Substance Abuse (CCSA), *Substance Abuse in Canada: The Effects of Cannabis Use During Adolescence* (Ottawa: CCSA, 2015) at 7, online: <<http://www.ccsa.ca/Resource%20Library/CCSA-Effects-of-Cannabis-Use-during-Adolescence-Report-2015-en.pdf>>.

PART II: CANNABIS AND IMPAIRED DRIVING

SECTION 1: RATES OF DRIVING AFTER CANNABIS USE

(a) Survey Data

- In a 2007 national survey, 39.8% of 15-24 year olds who had used cannabis in the past 12 months reported driving under the influence of the drug during that time, compared to 20.9% of past-year drinkers who reported driving under the influence of alcohol.
- The mean number of times that these respondents admitted to driving “under the influence of cannabis” in the past year was 10, compared to 1.6 for past-year drinkers.
- Similarly, 40% of 15-24 year olds reported being a passenger in the past 12 months of a driver who was under the influence of cannabis, compared to 33% who reported being a passenger in a vehicle driven by someone who was under the influence of alcohol.

Health Canada, *Canadian Addiction Survey (CAS): Substance Use by Canadian Youth* (Ottawa: Health Canada, 2007) at 95.

- A 2012 national survey indicated that 18-19 year olds had the highest reported rate of driving after using cannabis, followed by 15-17 year olds.
- While 6% to 8% of youth reported driving after cannabis use, 15.8% reported being a passenger of a driver who had recently used cannabis.

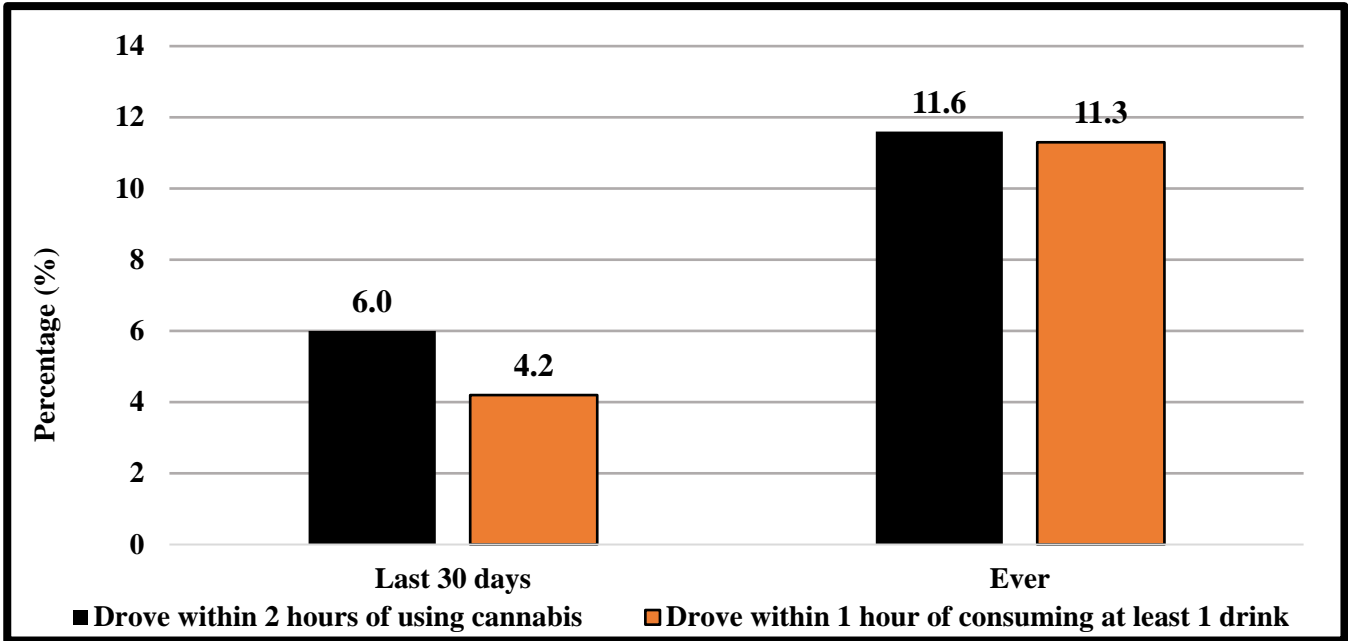
D. Beirness & A. Porath-Waller, *Clearing the Smoke on Cannabis: Cannabis Use and Driving – An Update* (Ottawa: Canadian Centre on Substance Abuse, 2015) at 2 and 3.

- In a 2017 survey, almost 28% of 16-19 year old and 43% of 20-24 year old past-12-month cannabis users reported driving at least once within 2 hours of using the drug within this period (Table 38).
- Among those who had driven after using cannabis in the past 12 months, 46% reported having done so between 1 and 10 time(s) and 29% reported having done so more than 10 times during this period. (p. 9).
- Only half of the past-12 month cannabis users who were 16 years of age or older believed that the drug impairs one’s ability to drive (Table 13).
- 78% of those who had used cannabis in the past 12 months reported riding in a vehicle driven by someone who had used cannabis within two hours. The comparable figure for respondents who had **not** used cannabis in the past 12 months was 27% (Table 41).

Statistics Canada, *Canadian Cannabis Survey 2017*, (Ottawa: Statistics Canada, 2017), online: <<https://www.cpha.ca/sites/default/files/uploads/resources/cannabis/tables-e.xlsx>>.

- As the following chart illustrates, in a 2015 national survey, the percentage of grade-12 students who reported driving after using cannabis exceeded the number who reported driving after drinking.

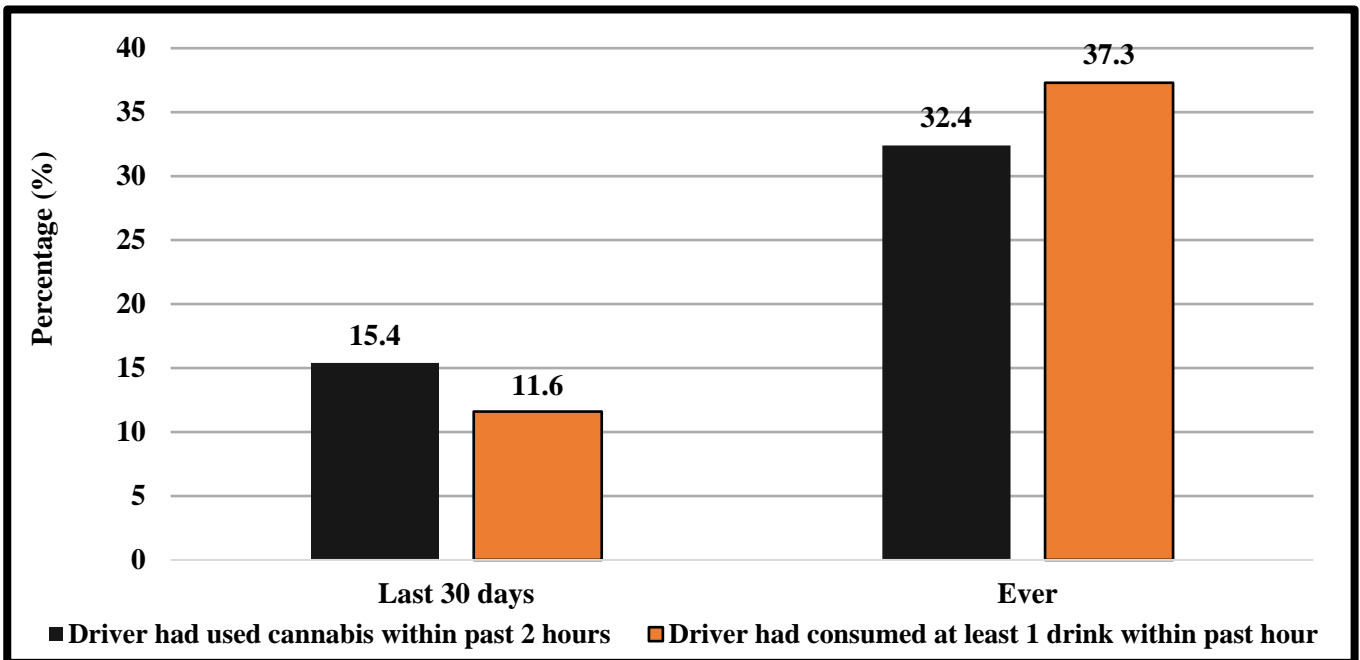
PERCENTAGE OF GRADE-12 STUDENTS DRIVING AFTER USING CANNABIS OR ALCOHOL: CANADA, 2015



Source: L. Minaker *et al.*, “Under the influence: examination of prevalence and correlates of alcohol and marijuana consumption in relation to youth driving and passenger behaviours in Canada. A cross-sectional study” (2017) 5(2) Canadian Medical Association Journal Open E386 at E389 and E390.

- The following chart illustrates the percentage of grade-12 students who reported being a passenger of a driver who had used cannabis or alcohol.

PERCENTAGE OF GRADE-12 STUDENTS RIDING WITH A DRIVER WHO HAD USED CANNABIS OR ALCOHOL: CANADA, 2015



Source: L. Minaker *et al.*, “Under the influence: examination of prevalence and correlates of alcohol and marijuana consumption in relation to youth driving and passenger behaviours in Canada. A cross-sectional study” (2017) 5(2) Canadian Medical Association Journal Open E386 at E391 and E392.

(b) Roadside Screening Tests

- Recent roadside screening studies indicate that the percentage of drivers positive for drugs exceeds the percentage positive for alcohol, particularly among young drivers. For example, a 2012 British Columbia roadside screening study reported that, while 6.5% of randomly-screened drivers were positive alcohol, 7.4% were positive for drugs (p. v and 11).
- The percentage of drug-positive male drivers (8.0%) exceeded the percentage of drug-positive female drivers (6.5%) (p. 25).
- Among the drug-positive drivers, 83% were positive for one drug and the 17% were positive for two or more drugs (p. 22).
- The percentage of drug-positive male drivers (8.0%) exceeded the percentage of drug-positive female drivers (6.5%) (p. 25).
- Cannabis was the most commonly-found drug (43.6%), followed by cocaine (33.0%) (p. 23).
- The mean THC concentration in the 2012 roadside screening study was almost 30 ng/ml, up from a mean of 23 ng/ml in a similar 2010 British Columbia roadside screening study (p. 23).
- In the 2012 study, 61.5% of the samples were over 40 ng/ml compared to 37.7% of the samples in the 2010 survey (p. 23).

E. Beasley & D. Beirness, *Alcohol and Drug Use among Drivers Following the Introduction of Immediate Roadside Prohibitions in British Columbia: Findings from the 2012 Roadside Survey* (Victoria: Office of the Superintendent of Motor Vehicles, 2012).

- In a 2014 Ontario roadside survey, 4% of drivers were positive for alcohol, whereas 10.2% were positive for at least one drug other than alcohol (p. 1).
- Drivers aged 19-24 years old were most likely to test positive for drugs (21%), accounting for 45% of all drug-positive drivers (p. 29).
- Cannabis was the most commonly-found drug in all age groups with the exception of drivers aged 55 and over.
- Cannabis was the only drug found among 16-18 year old drug-positive drivers and was found in 93.4% of 19-24 year old drug-positive drivers (p. 29).

D. Beirness, E. Beasley & K. McClafferty, *Alcohol and Drug Use Among Drivers in Ontario: Findings from the 2014 Roadside Survey* (Toronto: Ontario Ministry of Transportation, 2015).

- In a 2016 Manitoba roadside survey, 2.4% of the drivers were positive for alcohol, and 10.1% were positive for drugs.
- Among the drug-positive drivers, 78% were positive for one drug and 22% were positive for two or more drugs.
- Cannabis was the most commonly-found drug (53%), followed by cocaine (31%).
- Drivers aged 35-44 had the highest rate of testing positive for drugs (14%), followed by 19-24 (12%) and 25-34 year olds (12%). Approximately 4% of 16-18 year olds tested positive for drugs.

Manitoba Public Insurance, News Release, “Drug and Alcohol Roadside Survey confirms drug use by drivers” (15 March 2017), online: <<https://www.mpi.mb.ca/en/Newsroom/News-Release/Pages/nr2017march15.aspx>>.

- In a 2017 Ontario roadside survey, 4.4% of the drivers were positive for alcohol, and 10.5% were positive for drugs (p. iv).
- Males were twice as likely to test positive for drugs as females (p. iv).
- Among the drug-positive drivers, 82% were positive for cannabis and 17.8% were positive for stimulants (p. 9).
- Drivers aged 19-24 years were most likely to test positive for drugs (19.2%), accounting for 32.6% of all drug-positive drivers (p. 9).
- While no 16-18 year old drivers tested positive for alcohol, 10.3% were positive for drugs (p. 26).
- Among 16-18 year old, drug-positive drivers, 57.1% were positive for cannabis. The comparable figure for 19-24 year olds was 91.5% (p. 27).
- Among drivers who had been drinking, 25.5% were also positive for drugs (p. 30).
- Among drivers who were positive for drugs, 5.8% had also been drinking (p. 30).

D. Beirness & E. Beasley, *Alcohol and Drug Use by Drivers in Ontario: Findings from the 2017 Roadside Survey* (Ottawa: Beirness & Associates, Inc., 2018).

SECTION 2: CANNABIS AND IMPAIRED DRIVING DEATHS AND INJURIES

- In 2014, an estimated 2,297 Canadians died in motor vehicle crashes, and alcohol and/or drugs was involved in 55.4% (1,273). Alcohol alone was involved in 13% of these fatalities, drugs alone were involved in 26.9%, and both alcohol and drugs were involved in 15.5%.

R. Solomon, C. Ellis & C. Zheng, *Alcohol and/or Drugs Among Crash Victims Dying Within 12 Months of a Crash on a Public Road, by Jurisdiction: Canada, 2014* (Oakville, ON: MADD Canada, 2018) at 6 and 8.

- As will be discussed, the presence of drugs in crash deaths has been increasing, as the presence of alcohol has been decreasing.
- As the following table illustrates, the percentage of crash victims who were positive for drugs alone in 2014 was at least double the percentage who were positive for alcohol alone in Canada as a whole, and in five of the provinces.
- Saskatchewan was the only province in which the percentage of crash victims who were positive for alcohol alone exceeded the percentage who were positive for drugs alone.

**THE PRESENCE OF ALCOHOL AND/OR DRUGS IN CRASH DEATHS OCCURRING
WITHIN 12 MONTHS OF A COLLISION ON A PUBLIC ROAD, INVOLVING A
PRINCIPAL HIGHWAY VEHICLE, BY JURISDICTION: CANADA, 2014**

	Crash Victims Dying Within 12 Months of the Collision						
	Total No. of Crash Deaths	% & No. of Crash Deaths Involving Alcohol Alone		% & No. of Crash Deaths Involving Drugs Alone		% & No. of Crash Deaths Involving Alcohol & Drugs	
CAN	2,297	13.0%	299	26.9%	618	15.5%	356
AB	414	12.3%	51	24.9%	103	19.1%	79
BC	427	13.0%	56	26.9%	115	15.5%	66
MB	79	21.9%	17	37.5%	30	12.5%	10
NB	61	6.2%	4	52.0%	32	16.0%	10
NL	40	8.2%	3	14.3%	6	28.6%	11
NS	62	3.4%	2	13.4%	8	23.3%	14
ON	678	10.2%	69	31.6%	214	12.0%	81
PE	6	33.3%	2	33.3%	2	0.0%	0
QC	381	14.8%	56	19.6%	75	15.3%	58
SK	139	27.4%	38	20.7%	29	16.1%	22
NT	5	13.0%	1	26.9%	1	15.5%	1
NU	0	0.0%	0	0.0%	0	0.0%	0
YK	5	13.0%	1	26.9%	1	15.5%	1

Source: R. Solomon, C. Ellis & C. Zheng, *Alcohol and/or Drugs Among Crash Victims Dying Within 12 Months of a Crash on a Public Road, by Jurisdiction: Canada, 2014* (Oakville, ON: MADD Canada, 2018) at 6.

- As the following table illustrates, the percentage of fatally-injured drivers testing positive for drugs has been increasing, while the percentage testing positive for alcohol has been decreasing.

**ALCOHOL AND DRUGS AMONG FATALLY-INJURED DRIVERS
OF HIGHWAY VEHICLES: CANADA, 1990-2014***

	% of Fatally-Injured Drivers Testing Positive For	
	Alcohol	Drugs
1990	45%	No Data
1992	47%	No Data
1994	44%	No Data
1996	40%	No Data
1998	39%	No Data
2000	35%	34%
2002	33%	41%
2004	34%	37%
2006	36%	35%
2008	38%	39%
2010	38%	37%
2011	34%	41%
2012	33%	40%
2013	32%	45%
2014	29%	42%

* The table does not include British Columbia data.

Source: R. Solomon, C. Ellis & C. Zheng, *Cannabis and Other Drugs Among Drivers of Highway Vehicles Dying Within 30 Days of a Crash on a Public Road: Canada, 2014* (Oakville, ON: MADD Canada, 2018) at 1.

- As illustrated in the table below, cannabis was the most prevalent drug in Canada among drug-positive, fatally-injured drivers of highway vehicles in 2014.

THE CATEGORIES OF DRUGS AMONG DRUG-POSITIVE, FATALLY-INJURED DRIVERS OF HIGHWAY VEHICLES: CANADA, 2014*

Drug Categories		% of Drug-Positive, Fatally-Injured Drivers
Cannabis	<i>e.g.</i> , THC, marijuana, hash and hash oil	45%
Central Nervous System (CNS) Depressants	<i>e.g.</i> , barbiturates, tranquilizers (Valium & Prozac), and anti-depressants (Zoloft & Paxil)	41%
CNS Stimulants	<i>e.g.</i> , cocaine, amphetamines, methamphetamines, and crack	25%
Narcotic Analgesics	<i>e.g.</i> , heroin, Demerol, morphine, methadone, and OxyContin	24%
Dissociative Anesthetics	<i>e.g.</i> , phencyclidine (PCP) and ketamine	2%
Hallucinogens	<i>e.g.</i> , LSD, peyote, psilocybin, and MDMA (Ecstasy)	0%
Inhalants	<i>e.g.</i> , toluene, paint, gasoline, hair spray, and plastic cement	0%

* This table does not include information from British Columbia, because the latest data for the province is from 2010. Nevertheless, the percentages of fatally-injured drivers in British Columbia who were positive for the various drug categories in 2010 are similar to those in this table.

Source: S. Brown, W. Vanlaar & R. Robertson, *The Alcohol and Drug-Crash Problem in Canada: 2014 Report* (Ottawa: Canadian Council of Motor Transport Administrators, 2017) at 34 and 65.

- In 2014, despite all of the public awareness programs, 36.2% of 16-19 year old fatally-injured drivers, 43.0% of 20-25 year old fatally-injured drivers and 47.7% of 26-35 year old fatally-injured drivers were positive for drugs.

S. Brown, W. Vanlaar & R. Robertson, *The Alcohol and Drug-Crash Problem in Canada: 2014 Report* (Ottawa: Canadian Council of Motor Transport Administrators, 2017) at 33.

- From 2000-12, nearly 25% of fatally-injured drivers in Canada who were 24 years of age or younger were positive for cannabis.
- Among all fatally-injured drivers, males were 2.2 times more likely to test positive for cannabis than females.

R. Robertson *et al.*, “Prevalence and Trends of Drugged Driving in Canada” (2017) 99 Accident Analysis & Prevention at 240.

- In 2014, approximately 19% of fatally-injured drivers in Canada dying within 30 days of a crash on a public road involving at least one highway vehicle were positive for cannabis. This figure does not include British Columbia.
- As the following table illustrates, cannabis was the most commonly-found drug among fatally-injured drivers (45%) in Canada as a whole, and in six provinces which together accounted for 90% of the Canadian population in 2014.

THE MOST COMMONLY-FOUND DRUGS AMONG DRUG-POSITIVE, FATALLY-INJURED DRIVERS, BY JURISDICTION: CANADA, 2014

	Most Common Drug	% Positive for Cannabis
CAN	Cannabis	45%
AB	Cannabis	45%
BC	Cannabis	50% (2010 data)
MB	CNS Depressants (75% of drug-positive drivers)	0%
NB	CNS Depressants (59% of drug-positive drivers)	41%
NL	Cannabis	100%
NS	Cannabis	64%
ON	Cannabis	47%
PE	Narcotic Analgesics (100% of drug-positive drivers)	0%
QC	Cannabis	57%
SK	CNS Depressants (43% of drug-positive drivers)	29%

Source: S. Brown, W. Vanlaar & R. Robertson, *The Alcohol and Drug-Crash Problem in Canada: 2014 Report* (Ottawa: Canadian Council of Motor Transport Administrators, 2017) at 34, 65 (BC), 80 (AB), 96 (SK), 112 (MB), 128 (ON), 144 (QC), 160 (NB), 176 (NS), 192 (PE), and 208 (NL); and Statistics Canada, *CANSIM Table 17-10-0005-01: Population estimates on July 1st, by age and sex* (Ottawa: Statistics Canada, 2018).

- It was estimated that cannabis-attributable traffic crashes caused 75 deaths and 4,407 injuries in 2012. Moreover, 7,794 individuals were involved in cannabis-attributable, property-damage-only crashes. The authors estimated that the total costs of all cannabis-attributable crashes in 2012 were \$1.09 to \$1.28 billion.
- The authors of a second study estimated that cannabis-attributable crashes caused 94 deaths in 2012.
- Given that the number of past-year cannabis users increased by 44% from 2012 to 2015, and have continued to increase since 2015, the cannabis-attributable crash deaths, injuries and costs have likely increased substantially.

A. Wettlaufer *et al.*, “Estimating the Harms and Costs of Cannabis-Attributable Collisions in the Canadian Provinces” (2017) 173 *Drug & Alcohol Dependence* 185 at 188; and S. Intiaz *et al.*, “The burden of disease attributable to cannabis use in Canada in 2012” (2016) 111(4) *Addiction* 653 at 656.

- In Colorado, the percentage of cannabis-positive drivers in fatal crashes, which had been falling, increased almost 70% (5.9% to 10%) in the two years following the commercialization of lawful medical cannabis.
- In contrast, the percentage of cannabis-positive drivers involved in fatal crashes remained virtually unchanged in the 34 non-legalization states that were used as a comparator group. The authors also reported that there were no significant changes in the percentage of alcohol-impaired drivers in fatal crashes in either Colorado or the comparator states.
- Another study found that fatalities involving THC-positive drivers increased 44% in 2014, the year after Colorado legalized recreational cannabis use.

S. Salomonsen-Sautel *et al.*, “Trends in fatal motor vehicle crashes before and after marijuana commercialization in Colorado” (2014) 140 *Drug and Alcohol Dependence* 137 at 139-40; and J. Reed, *Marijuana Legalization in Colorado: Early Findings* (Denver: Colorado Department of Public Safety, 2016) at 6.

- A 2016 study reported that the number and percentage of THC-positive drivers in fatal crashes in Washington State more than doubled in the year after recreational cannabis use was legalized.
- A 2018 study reported sharp increases in the percentage of fatally-injured drivers testing positive for alcohol and one or more other drugs, most commonly THC.
- Based on biological results from the state roadside survey, the authors of the 2018 study reported that the percentage of daytime drivers who “may be under the influence of marijuana” approximately doubled to nearly one in five.

B. Tefft, L. Arnold & J. Grabowski, *Prevalence of Marijuana Involvement in Fatal Crashes: Washington, 2010-2014* (Washington, DC: American Automobile Association Foundation for Traffic Safety, 2016) at 1; and D. Grondel, S. Hoff & D. Doane, *Marijuana Use, Alcohol Use, and Driving in Washington State: Emerging Issues With Poly-Drug Use on Washington Roadways* (Olympia, WA: Washington Traffic Safety Commission, 2018) at 1.

- In California, the percentage of cannabis-positive, fatally-injured drivers increased from 11.8% in the pre-decriminalization period to 17.8% in the two years after decriminalization. However, there was no statistically significant change in the prevalence of THC-positive driving among weekend nighttime drivers.
- The authors concluded that “our study generated discrepant findings regarding the impact of decriminalization” on cannabis-related driving in California.

R. Pollini *et al.*, “The impact of marijuana decriminalization on California drivers” (2015) 150 *Drug & Alcohol Dependence* 135.

SECTION 3: CANNABIS-IMPAIRED DRIVING CHARGES

(a) A Note on the Impaired Driving Crash Data

Although drug-impaired driving was first prohibited in 1925, the police were not given any specific authority to gather related evidence until 2008. There are no data on the number of drug-impaired driving charges prior to 2008, because they were not separately recorded. Nevertheless, it appears that very few charges were laid even after the sharp rise in recreational drug use in the mid-1960s. Prior to the 2008 *Criminal Code* amendments, prosecuting drug-impaired driving cases was exceedingly onerous and the outcome was uncertain.

In 2008, the *Criminal Code* was amended, authorizing the police to demand that suspected drug-impaired drivers submit to “physical coordination tests” (*i.e.* Standardized Field Sobriety Testing or

SFST) and drug “evaluations” (*i.e.* Drug Recognition Evaluation or DRE) in specified circumstances. However, the amendments have proven to be costly, time-consuming, and cumbersome to enforce and prosecute, and readily susceptible to legal challenge. Perhaps most importantly, the amendments had no appreciable deterrent impact on drug-impaired driving.

R. Solomon, E. Chamberlain & A. Kus, “Drug-impaired Driving in Canada: Moving Beyond American Enforcement Models” (2013) 60(2) Criminal Law Quarterly 238.

These concerns with the SFST and DRE process prompted the drug-impaired driving changes contained in *Bill C-46 (An Act to amend the Criminal Code (offences relating to conveyances) and to make consequential amendments to other Acts)*.

It should be noted that the drug-impaired driving convictions are still not separately reported from the alcohol-impaired driving convictions. Consequently, the number and percentage of drug-impaired driving charges that result in a conviction cannot be determined.

R. Solomon, E. Chamberlain & N. Al-Azem, *Submission to the Task Force on Marijuana Legalization and Regulation* (Oakville, ON: MADD Canada, 2016) at 20-23.

- The charge rates for drug-impaired driving have remained extremely low, particularly in regard to cannabis. For example, while an estimated 10.4 million trips were made in 2012 by drivers after using cannabis, only 1,140 drivers were charged that year for **any** drug-impaired driving offence. Assuming that half of these charges involved cannabis, a person could drive after using cannabis once a day for about 50 years before being charged with, let alone convicted of, a drug-impaired driving offence.

D. Beirness & A. Porath-Waller, *Clearing the smoke on Cannabis: Cannabis Use and Driving – An Update* (Ottawa: Canadian Centre on Substance Abuse, 2017) at 2; and Statistics Canada, *CANSIM Table 35-10-0177-01: Incident-based crime statistics, by detailed violations* (Ottawa: Statistics Canada, 2018).

- As the following table illustrates, drug-impaired driving charges constituted only 3.9% (1,917 out of 48,966) of total impaired driving charges in 2016.

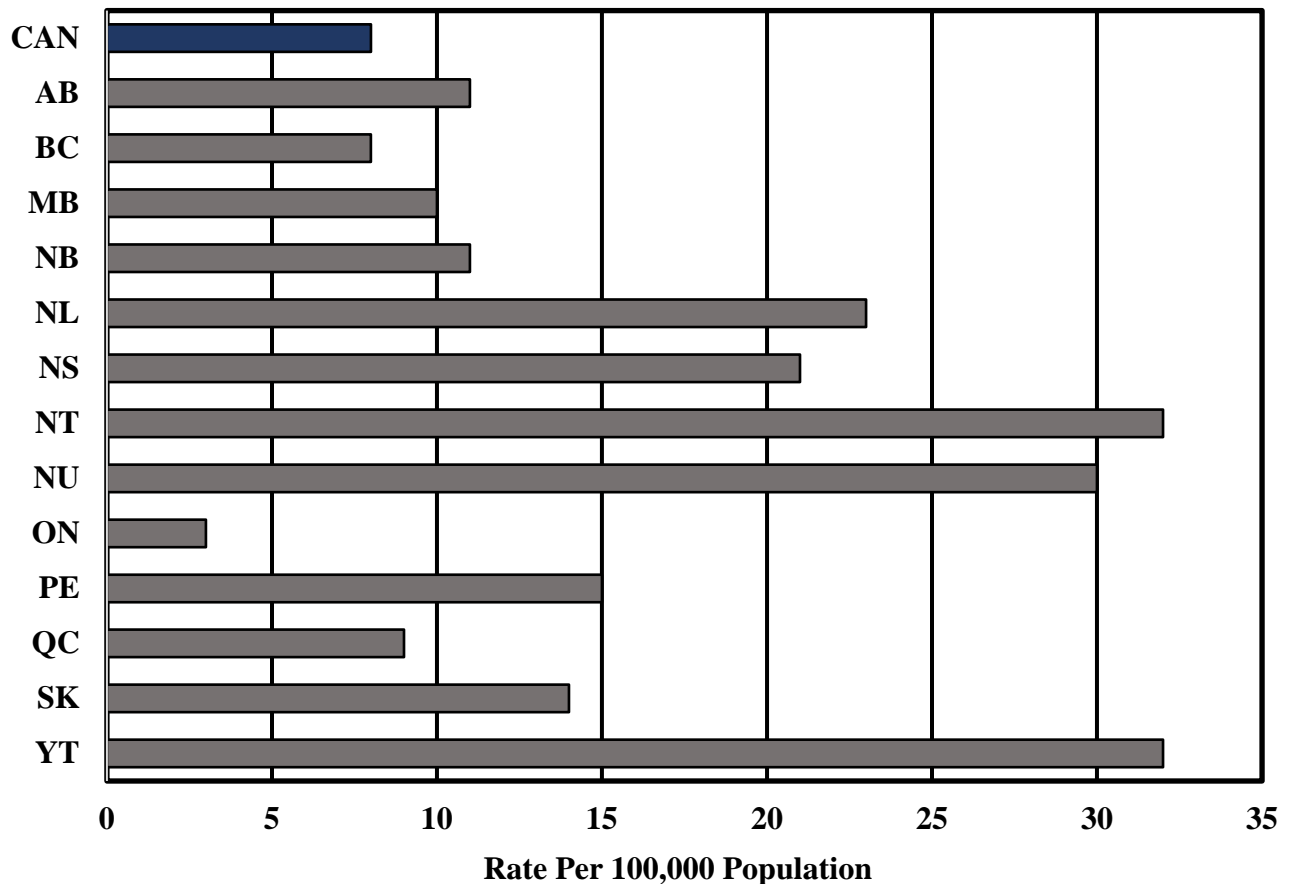
**PERSONS CHARGED WITH DRUG-IMPAIRED DRIVING,
BY OFFENCE: CANADA, 2008-16**

Offence	2008	2009	2010	2011	2012	2013	2014	2015	2016
Total Impaired Driving Charges (Drugs & Alcohol)	65,822	68,338	65,188	60,164	60,261	54,107	51,784	50,931	48,966
Drug-Impaired Charges as % of Total Impaired Driving Charges	0.29%	1.16%	1.43%	1.56%	1.89%	2.21%	2.61%	3.22%	3.91%
Total Drug-Impaired Driving Charges	188	796	929	941	1,140	1,194	1,354	1,638	1,917
Impaired Operation Causing Death	0	2	2	2	3	6	5	5	5
Impaired Operation Causing Bodily Harm	3	11	11	19	11	8	17	17	16
Impaired Operation	180	752	890	892	1,100	1,159	1,308	1,584	1,867
Failure to Comply or Refusal	4	22	23	23	21	15	19	28	24
Failure to Provide Blood Sample	1	9	3	5	5	6	5	4	5

Source: R. Solomon, C. Ellis & C. Zheng, *Persons Charged with Drug-Impaired Driving, By Offence and Jurisdiction: Canada, 2008-2016* (Oakville, ON: MADD Canada, 2017) at 3.

- As the following chart illustrates, the rates of police-reported drug-impaired driving incidents varied sharply among the jurisdictions. For example, the per capita rate of police-reported drug-impaired driving incidents in each of the three territories was more than three times the national average.

**POLICE-REPORTED DRUG-IMPAIRED DRIVING INCIDENTS,
BY JURISDICTION AND POPULATION: CANADA, 2015**



Source: S. Perreault, *Impaired Driving in Canada, 2015* (Ottawa: Statistics Canada, 2016) at 8.

- In 2016, 98.1% of the police-reported, drug-impaired driving incidents involved the drug-impaired operation of a vehicle, vessel or aircraft. Less than 1% of the incidents involved failing to take a required test and less than 1% involved the drug-impaired operation causing bodily harm or death.

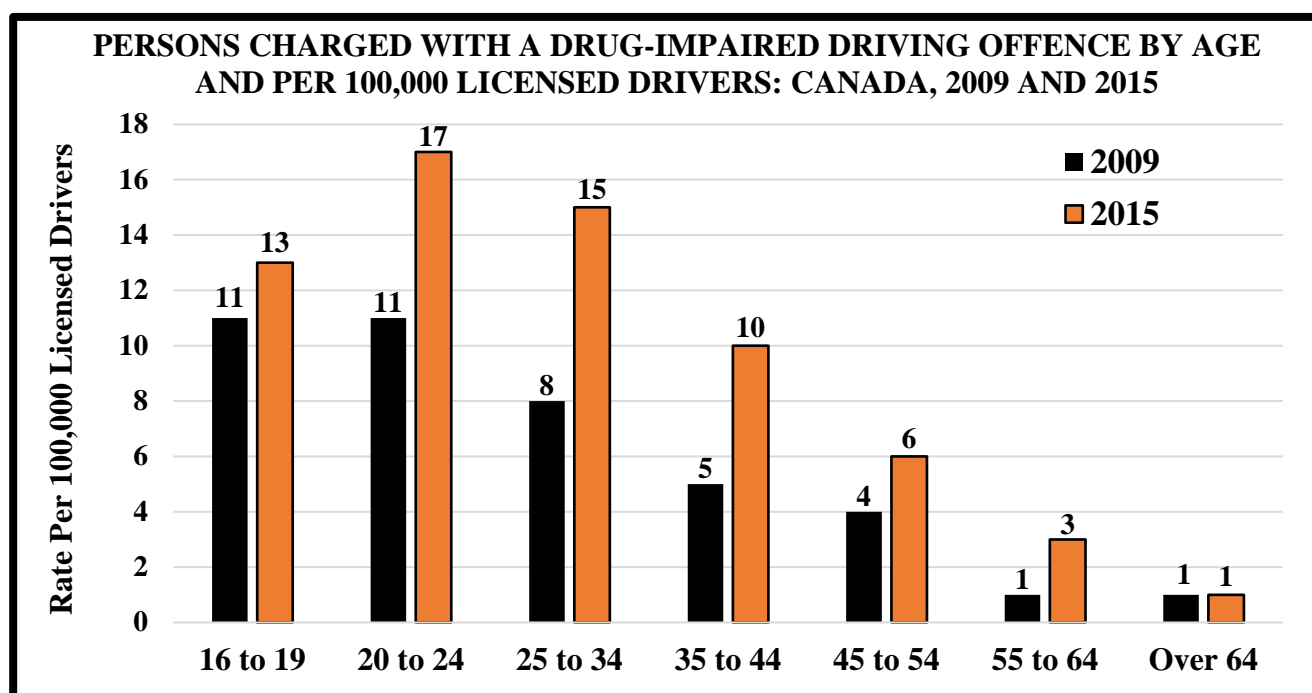
Source: Statistics Canada, *CANSIM Table 35-10-0177-01: Incident-based crime statistics, by detailed violations* (Ottawa: Statistics Canada, 2018).

**PERSONS CHARGED WITH A DRUG-IMPAIRED DRIVING
OFFENCE, BY JURISDICTION: 2008-16**

	2008	2009	2010	2011	2012	2013	2014	2015	2016
AB	29	86	136	133	126	103	159	146	153
BC	23	128	111	118	211	164	126	196	289
MB	7	21	29	41	36	36	57	85	41
NB	13	67	37	43	24	26	26	36	41
NL	19	36	53	34	34	49	49	40	58
NT	0	1	3	3	4	0	2	3	5
NS	18	39	71	63	63	70	120	103	81
NU	1	0	1	0	2	1	3	4	1
ON	66	317	323	284	277	312	328	399	573
PE	1	5	5	5	4	6	18	10	21
QC	3	51	102	169	305	376	391	562	594
SK	8	45	58	47	52	49	72	50	59
YK	0	0	0	1	2	2	2	4	1
CAN	188	796	929	941	1,140	1,194	1,354	1,638	1,917

Source: R. Solomon, C. Ellis & C. Zheng, *Persons Charged with Drug-Impaired Driving, By Offence and Jurisdiction: Canada, 2008-2016* (Oakville, ON: MADD Canada, 2017) at 3.

- As the chart below illustrates, 20-24 year olds had the highest per capita charge rate for drug-impaired driving offences in 2015, followed closely by 25-34 year olds and 16-19 year olds.



Source: S. Perreault, *Impaired Driving in Canada, 2015* (Ottawa: Statistics Canada, 2016) at 13.