ALCOHOL AND/OR DRUGS AMONG CRASH VICTIMS DYING WITHIN 12 MONTHS OF A CRASH ON A PUBLIC ROAD, BY JURISDICTION: CANADA, 2014

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Introduction

This report provides information on the presence of alcohol and/or drugs in a **subset** of Canadian crash deaths, broken down by jurisdiction. The fatality data in Charts I and II are based on a report prepared by the Traffic Injury Research Foundation (TIRF), entitled *Alcohol and Drug-Crash Problem in Canada: 2014 Report* (*Crash Problem 2014*).[1] This publication relies on the *Fatality Database* developed by TIRF in conjunction with the provincial and territorial coroners, medical examiners and police authorities. The *Database* is subject to several limitations and major qualifications.

First, the latest national data are from 2014, with the exception of the British Columbia data which are only current to 2010.[2] Second, the term "motor vehicle fatality" is limited to deaths occurring within 30 days of a collision. In 2014, these deaths reportedly constituted 83.3% of crash deaths occurring within one year of a collision.[3]

Third, as of 2013, the term "motor vehicle fatality" was also limited to deaths occurring on a "public roadway involving at least one highway vehicle."[4] Consequently, the term does not include anyone dying as result of a crash on private property, Crown land, a military base, or a road administered by a First Nation, or anyone dying in a crash involving only a snowmobile, ATV, farm vehicle, dirt bike, or bicycle. In 2012, the last year in which off-road crashes were included, TIRF data indicated that off-road crashes resulted in 203 deaths in Canada (exclusive of British Columbia), of which 106 were alcohol related.[5] No information was available on the number of drug-related, off-road crash deaths in 2012.

Fourth, the rates of testing for alcohol and drugs varied among the types of victims (drivers, passengers and pedestrians) and among the jurisdictions. For example, while 100% of fatally-injured drivers and 83% of fatally-injured pedestrians were tested for alcohol in Alberta, the comparable testing rates in Québec were 72% and 43%.[6] Detailed drug data were only available for fatally-injured

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1 TIRF, *Alcohol and Drug-Crash Problem in Canada: 2014 Report* (Ottawa: Canadian Council of Motor Transport Administrators (CCMTA), 2018).

2 *Ibid* at 5.

3 *Ibid* at 4.

4 *Ibid*. Given the heavy reliance on ATVs and snowmobiles and the limited number of public roads in the territories, the exclusion of off-road crashes in the *Crash Problem 2014* may significantly understate the total number of crash deaths in these jurisdictions.

5 TIRF, *Alcohol and Drug-Crash Problem in Canada: 2012 Report* (Ottawa, CCMTA, 2015) at 14, "Table 3-1 Deaths in Alcohol-Related Crashes: Canada, 2012."

6 *Crash Problem 2014*, *supra* note 1 at 7 "Figure 2-2 Percent of Fatally Injured Drivers Tested for Alcohol: Canada, 2014;" and at 8, "Figure 2-3 Percent of Fatally Injured Pedestrians Tested for Alcohol: Canada, 2014."

drivers and, as in the case of alcohol, the testing rates for drugs varied among the jurisdictions.[7]

Fifth, the definition of an "alcohol-related crash death" in Québec is narrower than in the rest of Canada. In the absence of blood-alcohol evidence, a crash will only be considered alcohol related in Québec if the police conclude that alcohol, rather than a long list of other factors, was "a probable cause" of the crash.[8]

Perhaps of greatest concern, however, is the fact that the *Fatality Database* likely significantly understates the total number of alcohol-related crash deaths. For example, if an impaired driver crashes into a vehicle, killing that vehicle's sober driver and two occupants, only the dead driver's blood-alcohol concentration (BAC) would be reported in the *Database*. Unless the police are able to obtain BAC evidence from the surviving impaired driver or otherwise conclude that he or she had been drinking, all three deaths would be recorded as being non-alcohol related.[9]

Canadian research indicates that the police frequently fail to detect or report the presence of alcohol in crashes in which they are unable to obtain the driver's BAC. Moreover, even if the police strongly suspect that a surviving driver is impaired by alcohol, it is extremely difficult for them to obtain BAC evidence, particularly if the driver is taken to a hospital. As a result, relatively few hospitalized impaired drivers are charged with, or convicted of, a federal impaired driving offence. For instance, a 2004 British Columbia study involving six hospitals found that only 11% of hospitalized drivers with BACs greater than .08% were convicted of any *Criminal Code* impaired driving offence, despite the fact that the average BAC of the alcohol-positive drivers was .156%.[10] Similarly, only 16% of alcohol-impaired drivers admitted to an Alberta tertiary care trauma centre following a crash between 1995 and 2003 were convicted of any federal impaired driving offence, even though their average BAC was .19%, or almost 2½ times the *Criminal Code* limit.[11]

The authors of *Crash Problem 2014* stated that the *Fatality Database* is "supplemented with any other evidence of alcohol … identified from either the coroner's report or from the police collision report."[12] However, it is difficult to see how consideration of this supplemental evidence would

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7 For example, drug-testing rates among fatally-injured drivers ranged from 100% in Prince Edward Island and the Yukon to 36% in Newfoundland and Labrador. *Ibid* at 13, "Figure 2-4 Percent of Fatally Injured Drivers Tested for Drugs: Canada, 2014."

8 *Ibid* at 10.

9 Similar problems arise if impaired drivers survive a crash in which they kill a sober passenger, pedestrian or bicyclist.

10 R. Purssell *et al*., "Proportion of injured alcohol-impaired drivers subsequently convicted of an impaired driving criminal code offence in British Columbia" (2004) 6(2) Canadian Journal of Emergency Medicine 80 at 80.

11 M. Goecke *et al.*, "Characteristics and conviction rates of injured alcohol-impaired drivers admitted to a tertiary care Canadian Trauma Centre" (2007) 30(1) Clinical and Investigative Medicine 26 at 26.

12 *Crash Problem 2014*, *supra* note 1 at 10-11.

significantly ameliorate the underreporting problem. In contrast, American researchers have undertaken studies to develop "multipliers" to more fully account for the underreporting of alcohol involvement in crashes.[13]

The Charts

The Charts provide information on the presence of alcohol and/or drugs, and not whether the person causing the crash was impaired. Nevertheless, the available BAC evidence indicates that most alcohol-positive deceased drivers and pedestrians were likely very impaired. For example, 58% of the alcohol-positive drivers of highway vehicles dying within 30 days of a crash in 2014 had BACs in excess of .16%, and 26% had BACs between .081% and .160%.[14] Similarly, 71% of alcohol-positive dead pedestrians had BACs in excess of .16%, and 18% had BACs between .081% and .160%.[15] Unfortunately, there is no comparable information on the percentage of drug-positive drivers who were impaired or otherwise adversely affected by drugs at the time of the crash.[16]

The crash death numbers in Charts I and II are considerably higher than those reported in the *Crash Problem 2014* at Figure 2-1 and Table 3-15.[17] These discrepancies are due to three factors. First, as indicated, the term "motor vehicle fatality" only included crash deaths occurring within 30 days of a collision on a public roadway involving at least one principal highway vehicle. In order to estimate the presence of alcohol and/or drugs among all crash victims dying within 12 months, we relied on TIRF's statement that total traffic deaths within 30 days of a collision in 2014 constituted 83.3% of the traffic

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[13] T. Miller *et al.*, "Underreporting of Driver Alcohol Involvement in United States Police and Hospital Records: Capture-Recapture Estimates" (2012) 56 Annals of Advances in Automotive Medicine 87; and E. Zaloshnja *et al.*, "Costs of Alcohol-Involved Crashes, United States, 2010" (2013) 57 Annals of Advances in Automotive Medicine 3.

[14] *Crash Problem 2014*, *supra* note 1 at 18, "Table 3-2 Alcohol Use Among Fatally Injured Drivers of Highway Vehicles: Canada, 2014."

[15] *Ibid* at 27, "Table 3-4 Alcohol Use Among Fatally Injured Pedestrians: Canada, 2013."

[16] However, there are some limited data on the drug concentrations among fatally-injured drivers and drivers subject to roadside oral fluid testing in some provinces. See respectively, M. Brault *et al*., "The Contribution of Alcohol and Other Drugs Among Fatally Injured Drivers in Quebec: Final Results" in P. Williams & A. Clayton, eds., *Proceedings of the 17th International Conference on Alcohol, Drugs and Traffic Safety*, Glasgow, 8-13 August 2004, CD-ROM (Glasgow: International Council on Alcohol, Drugs and Traffic Safety, 2004); and D. Beirness & E. Beasley, *Alcohol and Drug Use Among Drivers: British Columbia Roadside Survey 2010* (Ottawa: Canadian Centre on Substance Abuse, 2011). The authors of the last study indicated that the vast majority of cannabis-positive drivers had THC levels that would impair "their ability to operate a motor vehicle safely." *Ibid* at 12 and 13.

[17] See respectively, *Crash Problem 2014*, *supra* note 1 at 6, "Figure 2-1 Number of Fatalities Reported by Official Sources and TIRF Fatality Database: 2014;" and at 47, "Table 3-15 Alcohol and Drug Use Among Fatally Injured Drivers of Highway Vehicles: Canada 2014."

deaths within 12 months.[18]

Second, Table 3-15 only included the number of deaths in which it was **known** that the driver was positive for alcohol and/or drugs. For example, assume that 20 drivers died in crashes in which it was unknown whether alcohol was involved and that 80 died in crashes in which it could be determined if alcohol was involved. Assume as well that alcohol was a factor in half of the 80 deaths. Table 3-15 would report the number of alcohol-related driver fatalities to be 40 (*i.e.* 80 deaths x 50%), not 50 (*i.e.* 100 deaths x 50%). In other words, the authors did not extrapolate from the percentage of known alcohol-positive driver deaths to estimate of the total number of alcohol-related driver deaths. In order to provide a more comprehensive estimate, we have applied the percentage of **known** alcohol and/or drug positive cases to the **unknown** cases.

Third, Figure 2-1 and Table 3-15 did not include alcohol and/or drug-related crash deaths in British Columbia, because the provincial data were not available at the time of publication. In order to make up for this missing data, we included the latest British Columbia statistics, which were from 2010. Moreover, the 2010 British Columbia data were not broken down in terms of the number or percentage of dead drivers who were positive for alcohol alone, drugs alone, and both alcohol and drugs. In order to address this gap, we have assumed that the presence of alcohol and/or drugs among crash victims in British Columbia dying within 12 months of a collision in 2010 was the same as that among drivers of highway vehicles in the rest of Canada dying within 30 days of a collision in 2014.[19]

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[18] *Ibid* at 4.

[19] Although Charts I and II are based on this assumption, it should be noted that the percentage of fatally-injured drivers in British Columbia who were positive for alcohol in 2014 was likely somewhat lower than the percentage in the rest of Canada. In 2010, British Columbia enacted comprehensive alcohol-related roadside administrative licence suspension and vehicle impoundment legislation which significantly reduced alcohol-related crashes, deaths and injuries. See S. Macdonald *et al.*, "The impact on alcohol-related collisions of the partial decriminalization of impaired driving in British Columbia, Canada" (2013) 59 Accident Analysis and Prevention 200; and D. Beirness & E. Beasley, "An Evaluation of Immediate Roadside Prohibitions for Drinking Drivers in British Columbia: Findings from Roadside Surveys" (2014) 15 Traffic Injury Prevention 228. The percentage of fatally-injured drivers who were positive for alcohol also fell in the rest of Canada during this period, but probably by not as much as in British Columbia. *Crash Problem 2014*, *supra* note 1 at 39.

In contrast to alcohol, the percentage of fatally-injured drivers in British Columbia who were positive for drugs in 2014 was likely higher than the percentage in the rest of Canada. In a national post-mortem study, 45.1% of British Columbia drivers who died in 2008 were positive for drugs, compared to 36.7% for Canada as a whole. E. Beasley & D. Beirness, *Drug Use by Fatally Injured Drivers in Canada (2000-2008)* (Ottawa: Canadian Centre of Substance Abuse, 2011) at 6. Similarly, a 2013 survey indicated that 11.9% of respondents in British Columbia reported using non-prescription drugs and driving in the past 30 days, compared to the national average of 8.6% of respondents. B. Jonah, *CCMTA Public Opinion Survey of Drugs and Driving in Canada: Summary Report* (Ottawa: CCMTA, 2013) at 17. British Columbia also had the highest per capita rate of police-reported drug offences among the provinces in 2013, as well as the highest average per capita rate of police-reported drug offences from 2003 to 2012. A. Cotter, J. Greenland & M. Karam, *Drug-related offences in Canada, 2013* (Ottawa: Juristat Statistics Canada, 2015) at 10.

It should also be noted that while Table 3-15 indicated the number of fatally-injured drivers who were positive for alcohol alone, drugs alone, and both alcohol and drugs,[20] no comparable data was provided for other categories of fatally-injured crash victims. In preparing Charts I and II, we assumed that the presence of alcohol alone, drugs alone, and both alcohol and drugs among all categories of crash victims was the same as that in crashes involving drivers dying within 30 days of a crash on a public road. This assumption underestimates the presence of alcohol and/or drugs among some categories of victims and overestimates the presence of alcohol and/or drugs among others. For example, 33% of fatally-injured snowmobile operators, 67% of fatally-injured drivers of other off-road vehicles, 33% of fatally-injured pedestrians and 15% of fatally-injured cyclists in 2014 were positive for alcohol, in contrast to 28.5% of fatally-injured drivers of highway vehicles.[21]

Given the limits in the underlying data and the number of assumptions upon which the Charts are based, they should be seen as providing a general estimate of the presence of alcohol and/or drugs among all crash victims dying within 12 months of a collision on a public road involving at least one principal highway vehicle.

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[20] *Crash Problem 2014*, *supra* note 1 at 47.

[21] *Ibid* at 25, "Figure 3-6d Alcohol Use Among Drivers of Different Vehicle Types: Canada, 2014;" "Figure 3-6e Alcohol Use Among Drivers of Different Vehicle Types: Canada, 2014;" and at 27, "Table 3-4 Alcohol Use Among Fatally Injured Pedestrians: Canada, 2013."

Chart I: Alcohol and/or Drugs in Crash Deaths Occurring Within 12 Months of a Collision on a Public Road Involving a Highway Vehicle: Canada, 2014[22]

	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[23]	5	13.0%	1	26.9%	1	15.5%	1
NU	0	0.0%	0	0.0%	0	0.0%	0
YK[23]	5	13.0%	1	26.9%	1	15.5%	1

[22] Chart I is based on *Crash Problem 2014, ibid* at 6, "Figure 2-1 Number of Fatalities Reported by Official Sources and TIRF Fatality Database: 2014;" at 58, "Table 4-1 Deaths in Alcohol-Related Crashes: British Columbia, 2010;" and at 47, "Table 3-15 Alcohol and Drug Use Among Fatally Injured Drivers of Highway Vehicles: Canada, 2014." Note that the numbers in the Chart have been rounded.

[23] Only a limited number of the crash victims in the Northwest Territories and the Yukon were tested for alcohol and/or drugs. Consequently, we have assumed that the presence of alcohol and/or drugs among crash victims in these territories dying within 12 months of a crash in 2014 was the same as that among drivers of highway vehicles in the rest of Canada dying within 30 days of a crash in 2014.

Chart II: The Presence of Drugs in Fatal Crashes on Public Roads Involving a Highway Vehicle: Canada, 2014[24]

	Total No. of Crash Deaths	% and No. of Fatalities Involving Drugs Alone or Drugs & Alcohol		No. and % of Fatalities Involving the Most Prevalent Drug[25]	
CAN	2,297	42.4%	974	Cannabis	
				436	19.0%
AB	414	44.0%	182	Cannabis	
				83	20.0%
BC	427	42.4%	181	Cannabis	
				81	19.0%
MB	79	50.0%	40	Central Nervous System (CNS) Depressants	
				30	37.5%
NB	61	68.0%	41	CNS Depressants	
				24	40.0%
NL	40	42.9%	17	Cannabis	
				17	42.9%
NS	62	36.7%	23	Cannabis	
				14	23.3%
ON	678	43.6%	296	Cannabis	
				138	20.4%
PE	6	33.3%	2	Narcotic Analgesics	
				2	33.3%
QC	381	34.9%	133	Cannabis	
				75	19.8%
SK	139	36.8%	51	CNS Depressants	
				22	15.8%
NT[26]	5	42.4%	2	--	
				--	--
NU	0	0.0%	0	--	
				--	--
YK[26]	5	42.4%	2	--	
				--	--

[24] Chart II is based on the *Crash Problem 2014*, *supra* note 1 at 6, "Figure 2-1 Number of Fatalities Reported by Official Sources and TIRF Fatality Database: 2014;" at 58, "Table 4-1 Deaths in Alcohol-Related Crashes: British Columbia, 2010;" and at 47, "Table 3-15 Alcohol and Drug Use Among Fatally Injured Drivers of Highway Vehicles: Canada, 2014." Note that the numbers in the Chart have been rounded.

[25] For Canada as a whole, see *Crash Problem 2014*, *ibid* at 34, "Table 3-7 Drug Use Among Fatally Injured Drivers of Highway Vehicles: Canada, 2014;" and for the provinces and territories, see the corresponding table in **AB** (p. 80); **BC** (p. 65); **MB** (p. 112); **NB** (p. 160); **NL** (p. 208); **NS** (p. 176); **ON** (p. 128); **PE** (p. 192); **QC** (p. 144); **SK** (p. 96); **NT** (p. 225); **NU** (p. 227); and **YK** (p. 219).

[26] See *supra* note 23.

Discussion

As outlined in the Charts, there were an estimated 2,297 motor vehicle fatalities on public roads involving a highway vehicle in 2014, and alcohol and/or drugs were involved in 55.4% (1,273) of the fatalities. As in recent years, the percentage of alcohol-related fatalities has continued to decline. Based on the driver data, it may be estimated that roughly 13% of crash victims were positive for alcohol alone, 26.9% were positive for drugs alone and 15.5% were positive for both.

As indicated, 19% of all fatally-injured drivers tested positive for cannabis in 2014. This figure, as well as cannabis-related crash deaths among other categories of victims, will likely rise, given the ongoing increases in cannabis use[27] and the pending federal cannabis legalization legislation.[28]

Granted, the Charts only provide information on the number of crash deaths that involved alcohol and/or drugs, and not whether one of the parties was impaired. However, as indicated, the great majority of alcohol-positive, fatally-injured drivers and pedestrians were impaired or extremely impaired.[29] Moreover, the Charts do not account for off-road crash deaths, crash deaths involving only non-highway vehicles, and deaths involving boats and other vessels, railroad equipment and aircraft. Taking these variables into account, MADD Canada has estimated that approximately 1,000 Canadians die each year in all categories of impairment-related transportation crashes. This estimate appears to be reasonably consistent with the available 2014 crash data.

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[27] The number of Canadian past-year cannabis users 15 years of age or older rose by 44%, from 3.4 million in 2012 to 4.9 million by 2015.[1] See respectively, M. Rotermann & K. Langlois, "Prevalence and correlates of marijuana use in Canada, 2012" (2015) 26(4) *Health Reports* at 11; and Statistics Canada, "Study: Experimental Estimates of Cannabis Consumption in Canada, 1960 to 2015," *The Daily* (18 December 2017) 1, online: <http://www.statcan.gc.ca/daily-quotidien/17218/dq171218b-eng.pdf>.

[28] Canada, Bill C-45, *Cannabis Act*, 1st Sess., 42nd Parl., 2016 (First reading: 13 April 2017). The Bill, which was initially scheduled to come into force on July 1, 2018, would establish a minimum lawful purchase and possession age of 18 and legalize cannabis possession, home cultivation, public use, and retail distribution.

Preliminary results from Colorado and Washington State indicate that legalizing recreational use increased cannabis-related driving problems. In Colorado, fatalities involving THC-positive drivers increased 44% in the year after recreational cannabis use was legalized. Similarly, a Washington State study reported that the number and percentage of THC-positive drivers in fatal crashes approximately doubled in the year after recreational cannabis use was legalized. Granted, the fact that a driver is positive for cannabis does not mean that his or her driving ability was impaired, or that he or she was at fault in the fatal crash. Nevertheless, the results of these studies are alarming. See respectively, J. Reed, *Marijuana Legalization in Colorado: Early Findings* (Denver: Colorado Department of Public Safety, 2016) at 6; and B. Tefft, L. Arnold & J. Grabowski, *Prevalence of Marijuana Involvement in Fatal Crashes: Washington, 2010-2014* (Washington, DC: AAA Foundation for Traffic Safety, 2016) at 1.

[29] See above text at p. 3 and the accompanying notes.