

**Estimated Number and Percentage of Alcohol and Impairment-
Related Crash Fatalities and Injuries, by Jurisdiction,
Age and Population: Canada, 2009**

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Chart I: Estimated Number of Alcohol and Impairment-Related Crash Fatalities, by Jurisdiction and Age Distribution: Canada, 2009¹

Jurisdiction	Alcohol-Related Fatalities by Age ²				Total Alcohol-Related Crash Fatalities	Total Impairment-Related Crash Fatalities ³
	<16	16-19	20-25	26+		
AB	7	11	44	128	190	209
BC	3	19	25	99	146	161
MB	4	9	12	30	55	61
NB	0	4	10	24	38	42
NL	0	1	1	12	14	15
NS	1	1	5	33	40	44
NT	No age-based data				3	3
NU	No age-based data				4	4
ON	7	29	40	156	232	255
PE	0	0	1	3	4	4
QC	2	15	36	98	151	166
SK	0	12	20	45	77	85
YK	No age-based data				2	2
CANADA⁴	24	102	195	635	956	1052

Chart II: Estimated Percentage of Total Alcohol-Related Fatalities Relative to Population, by Jurisdiction and Age Distribution: Canada, 2009^{1,5}

Jurisdiction	Age Distribution ²							
	<16		16-19		20-25		26+	
	% of Total A/R Fatalities	% of Total Pop.	% of Total A/R Fatalities	% of Total Pop.	% of Total A/R Fatalities	% of Total Pop.	% of Total A/R Fatalities	% of Total Pop.
AB	3.7	19.7	5.8	5.5	23.2	9.6	67.4	65.4
BC	2.1	16.6	13.0	5.2	17.1	8.5	67.8	69.7
MB	7.3	20.3	16.4	5.9	21.8	8.5	54.5	65.3
NB	0.0	16.5	10.5	5.2	26.3	7.5	63.2	70.7
NL	0.0	16.1	7.1	5.1	7.1	7.3	85.7	71.4
NS	2.5	16.3	2.5	5.3	12.5	7.9	82.5	70.5
ON	3.0	18.2	12.5	5.5	17.2	8.3	67.2	67.9
PE	0.0	17.9	0.0	6.0	25.0	7.8	75.0	68.3
QC	1.3	17.0	9.9	5.2	23.8	7.5	64.9	70.2
SK	0.0	20.3	15.6	6.0	26.0	8.8	58.4	64.9
CANADA⁴	2.5	17.9	10.7	5.4	20.4	8.3	66.4	68.4

Chart III: Estimated Number of Alcohol and Impairment-Related Crash Injuries, by Jurisdiction and Age Distribution: Canada, 2009^{1, 5, 6}

Jurisdiction	Alcohol-Related Injuries by Age ²				Total Alcohol-Related Injuries	Total Impairment-Related Injuries ³
	<16	16-19	20-25	26+		
AB	430	650	2,584	7,553	11,217	12,339
BC	148	1,121	1,479	5,842	8,590	9,449
MB	236	531	680	1,742	3,189	3,508
NB	0	236	590	1,387	2,213	2,434
NL	0	59	79	719	857	943
NS⁷	133 (< 20)		266	1,927	2,326	2,559
NT	No age-based data				177	195
NU	No age-based data				236	260
ON	419	1,704	2,380	9,206	13,709	15,080
PE⁷	No age-based data		236 (20-35)	177 (≥ 36)	413	454
QC	136	861	2,149	5,804	8,950	9,845
SK	0	708	1,157	2,679	4,544	4,998
YK	No age-based data				118	130
CANADA⁴	1,369	5,870	11,364	36,859	56,539	62,194

Chart IV: Estimated Percentage of Total Alcohol-Related Injuries Relative to Population, by Jurisdiction and Age: Canada, 2009^{1, 5, 6}

Jurisdiction	Age Distribution ²							
	<16		16-19		20-25		26+	
	% Total A/R Inj.	% Total Pop.	% Total A/R Inj.	% Total Pop.	% Total A/R Inj.	% Total Pop.	% Total A/R Inj.	% Total Pop.
AB	3.8	19.7	5.8	5.5	23.0	9.6	67.3	65.4
BC	1.7	16.6	13.1	5.2	17.2	8.5	68.0	69.7
MB	7.4	20.3	16.7	5.9	21.3	8.5	54.6	65.3
NB	0.0	16.5	10.7	5.2	26.7	7.5	62.7	70.7
NL	0.0	16.1	6.9	5.1	9.2	7.3	83.9	71.4
NS⁷	5.7% inj. & 21.6% pop. <20				11.4	7.9	82.8	70.5
ON	3.1	18.2	12.4	5.5	17.4	8.3	67.2	67.9
PE⁷	No age-based data				57.1% inj. & 19.1% pop. 20-35		42.9% inj. & 57.1% pop. ≥36	
QC	1.5	17.0	9.6	5.2	24.0	7.5	64.8	70.2
SK	0.0	20.3	15.6	6.0	24.5	8.8	59.0	64.9
CANADA⁴	2.4	17.9	10.4	5.4	20.1	8.3	65.2	68.4

¹ The fatality data in Charts I and II are largely based on the Traffic Injury Research Foundation (TIRF), *Alcohol-Crash Problem in Canada: 2009* (Ottawa: Canadian Council of Motor Transport Administrators (CCMTA), 2011) [*Crash Problem 2009*]. This publication relies on the Fatality and Serious Injury Databases developed by TIRF in conjunction with the provincial and territorial coroners, medical examiners and police authorities. As explained elsewhere, these databases are subject to several major limitations and qualifications. For example, Québec's definition of an "alcohol-related crash death" is far narrower than that of the other jurisdictions. See R Solomon *et al.*, *The 2012 Provincial and Territorial Legislative Review* (Oakville: MADD Canada, 2012) at 15-17.

Perhaps of greatest concern is that these databases likely significantly understate the total number of alcohol-related crash deaths and injuries. For example, if an impaired driver crashes into a vehicle, killing its sober driver and two occupants, it is only the dead driver's blood-alcohol concentration (BAC) that would be reported in the Fatality Database. Unless the police are able to obtain BAC evidence from the surviving impaired driver or record the crash as being due to the surviving driver's impairment, all three deaths will be recorded as being non-alcohol-related. Similar problems arise when impaired drivers survive crashes in which they kill sober passengers, pedestrians or bicyclists.

Canadian research indicates that the police frequently fail to detect or otherwise report the presence of alcohol in crashes in which there is no BAC evidence. Moreover, even if the police strongly suspect that a surviving driver is impaired by alcohol, it is extremely difficult to obtain BAC evidence, particularly if the driver is taken to hospital. Thus, relatively few hospitalized impaired drivers are charged with or convicted of a federal impaired driving offence. For example, a 2004 British Columbia study reported that only 11% of drivers with BACs above .08% who were hospitalized following a crash were convicted of any *Criminal Code* impaired driving offence, even though the mean BAC of the alcohol-positive drivers was .15%. See R Pursell *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. While the reluctance of the police to report a crash as alcohol-related in the absence of BAC evidence is understandable, it further contributes to underreporting the total number of alcohol-related crash fatalities.

² The *Crash Problem 2009* only includes age-based fatality data for crashes in which it is known whether alcohol use was involved. For example, assume that there were 50 crash fatalities in a jurisdiction and that in 40 of the crashes a determination was made about whether alcohol was involved. Assume as well that alcohol was a factor in 12 (or 30%) of these 40 crash deaths. In terms of the age-based data, the *Crash Problem 2009* would report that there were 12 known alcohol-related crash fatalities in the jurisdiction. In other words, it does not extrapolate from the percentage of known alcohol-positive fatalities to provide an estimate of the total age-based, alcohol-related fatalities.

In order to provide a more comprehensive estimate of the total number of alcohol-related crash fatalities by age distribution in each jurisdiction, we have applied the percentage of alcohol-positive fatalities in the known cases to the unknown cases. Consequently, in the preceding example, we would report the jurisdiction's total alcohol-related crash fatalities to be 15 (*i.e.* 30% (percentage of known alcohol-related cases) x 50 (the total number of crash fatalities)). For ease of reference, the numbers in Chart I were rounded to the nearest whole number, and these whole numbers were used as the basis for the percentage calculations of total alcohol-related fatalities in Chart II.

³ Neither the CCMTA nor any other agency provides annual statistics on drug-impaired crash deaths. Canadian researchers have estimated that about 75% of the alcohol-positive crashes involve alcohol alone and 25% involve both alcohol and drugs. The researchers also estimated that a number equal to 10% of the total alcohol-positive crashes will involve drugs alone. For example, if a jurisdiction had 50 alcohol-positive crash fatalities, the researchers would assume that there were an additional 5 (50 x 10%) crash fatalities involving drugs alone. See G Mercer & M Marshall, *Estimating the Presence of Alcohol and Drug Impairment in Traffic Crashes and their Cost to Canadians: A Discussion Paper* (Vancouver: ARES, 2002) at 23 [*Estimating the Presence of Alcohol*].

We have adopted this 10% figure in attempting to account for drug-related crash fatalities. In other words, we multiplied the total reported alcohol-related crash fatalities in the *Crash Problem 2009* by 1.1 in order to estimate the total number of impairment-related crash fatalities in Chart I (*i.e.* alcohol-related, both alcohol and drug-related, and drug-related crash fatalities).

Recent reports of substantial increases in drug-impaired driving suggest that the 10% estimate may significantly understate the current number of drug-impaired crash deaths. Given that young people have the highest rates of illicit drug use, the underreporting of drug-impaired driving deaths would be greatest among this population. See generally, M Asbridge, C Poulin & A Donato, “Motor vehicle collision risk and driving under the influence of cannabis: Evidence from adolescents in Atlantic Canada” (2005) 37 *Accid Anal and Prev* 1025; D Beirness & E Beasley, “A Roadside Survey of Alcohol and Drug Use Among Drivers in British Columbia” (2010) 11 *Traffic Inj Prev* 215; F McGuire et al., “Driving under the Influence of Cannabis or Alcohol in a Cohort of High-frequency Cannabis Users: Prevalence and Reflections on Current Interventions” (2011) 53 *Can J Criminology and Criminal Justice* 247; and E Beasley, D Beirness & A Porath-Waller, *A Comparison of Drug- and Alcohol-involved Motor Vehicle Driver Fatalities* (Ottawa: Canadian Centre on Substance Abuse, 2011).

⁴ As indicated in Chart I, the nine alcohol-related crash fatalities in the Northwest Territories, Nunavut and the Yukon are not broken down by age. Consequently, the three Territories have not been listed in Charts II and IV, and their alcohol-related crash and population data have not been included in calculating the Canadian-wide data.

⁵ The population data in Charts II and IV are based on Statistics Canada, *CANSIM Table 051-0001, Estimates of population, by age group and sex for July 1, Canada, provinces and territories, annual (persons)* (Ottawa: Statistics Canada, 2011). Using these data, we were able to calculate the percentage of the total population in the four age categories that were used in the *Crash Problem 2009* to report traffic fatalities and injuries.

⁶ The *Crash Problem 2009* only provides information on serious injuries, and does not include data for British Columbia, the Yukon, and Newfoundland and Labrador. See *supra* note 1 at 7-9. Moreover, the Serious Injury Database relies on police reports which tend to significantly underestimate total crash injuries. In order to provide a more comprehensive estimate of total alcohol-related crash injuries, we have adopted the approach used by Mercer and Marshall in estimating alcohol and drug-impaired traffic injuries in Canada. They base their estimate on insurance data, which is far more comprehensive than the police data. *Estimating the Presence of Alcohol* *supra* note 3 at 7-10.

Based on insurance and other data, Mercer and Marshall have reported that there is a relatively stable relationship between the number of traffic fatalities and the number of traffic injuries. More specifically, they have indicated that for each fatality there appears to be about 118 injuries. *Ibid* at 16. We have used this ratio (1:118) in calculating the total number of injuries in Charts III and IV. Thus, we have multiplied the number of crash fatalities in each jurisdiction by 118 to determine the jurisdiction’s total number of crash injuries.

Mercer and Marshall have used the BAC readings at different levels of injury severity to estimate the percentage of total crash injuries that are alcohol-related. They report that the percentage of total crash injuries that are alcohol-related are half the percentage of total crash fatalities that are alcohol-related. *Ibid* at 18-19. For example, if 46% of the total crash deaths in a province were alcohol-related, they would assume that 23% of the total crash injuries in that jurisdiction were alcohol-related. We have used this approach in calculating the number of alcohol and impairment-related crash injuries in Charts III and IV.

⁷ The province has not used age categories that correspond to those in the remainder of the *Crash Problem 2009*. Consequently, its alcohol and impairment-related crash injuries and population data could not be included in calculating the Canadian-wide statistics in Charts III and IV.