

# **Estimating the Presence of Alcohol and Drug Impairment in Traffic Crashes and their Costs to Canadians: 1999 to 2007**

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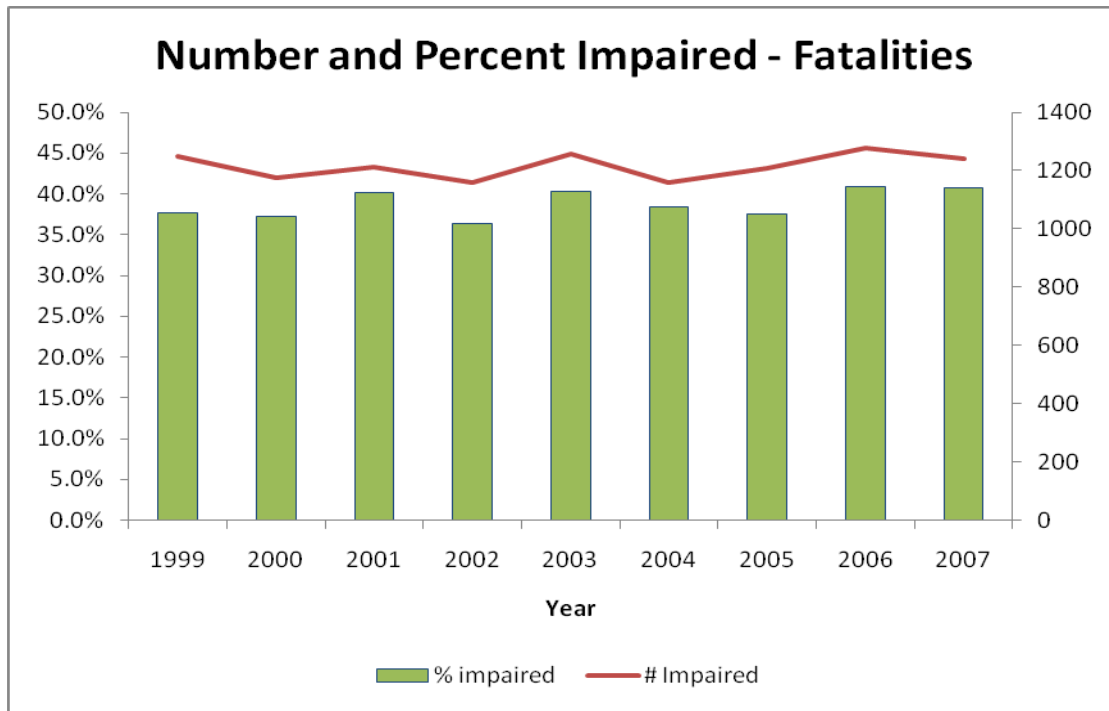
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The methodology used in this Report and the calculations for 1999 to 2006 are from “Estimating the Presence of Alcohol and Drug Impairment in Traffic Crashes and their Costs to Canadians: 1999 to 2006” by Applied Research and Evaluation Services (ARES), 2125 Main Mall, University of British Columbia, Vancouver, British Columbia, V6T 1Z4, compiled by G. William Mercer, Ph.D. This Report includes additional calculations based on 2007 data.

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Executive Summary



Over the nine-year period between 1999 and 2007, it is estimated that impaired driving killed **10,937** persons, injured **645,307**, and caused damage to **2,132,667** vehicles in all crashes, translating into **9,114** fatal crashes, **441,105** injury-only crashes and **1,403,070** property-damage only (PDO) crashes, totaling **1,853,289** crashes in all. In turn, this cost Canadians between **\$17.7 billion** (Real Dollar Estimate model) and **\$102.9 billion** (Willingness to Pay model), depending on the costing model and assumptions used. To put this another way, based on a population of 33 million people, that represents a cost of between about **\$536** and **\$3,117** per Canadian.

In an average year in Canada, impaired driving killed **1,215** persons, injured **71,701**, and caused damage to **236,963** vehicles, translating into **1,013** fatal crashes, **49,012** injury-only crashes and **155,897** property-damage only (PDO) crashes, totaling an average of **205,921** crashes in all. In turn, on average, this cost Canadians between **\$1.96 billion** (Real Dollar Estimate model) and **\$11.43 billion** (Willingness to Pay model), depending on the costing model and assumptions used. To put this another way, that represents a cost of between about **\$60** and **\$346** per Canadian.

Turning to 2007, the most recent year of data, it is estimated that, for Canada, impaired driving, including impairment by drugs other than alcohol, resulted in **1,239 fatalities**, **73,120 injuries** and, including property-damage-only, a total of **210,006 crashes**, at a cost of **between \$2.2 and \$12.6 billion**, depending upon the costing model used.

While these figures can only be considered as order-of-magnitude approximations, the issue of more precisely determining the magnitude of impaired driving crashes and attendant costs is important and worthy of consideration by researchers and policy makers alike.

## Estimating the Presence of Alcohol and Drug Impairment in Traffic Crashes and their Costs to Canadians: 1999 to 2007<sup>1</sup>

### The Model for Estimation:

Knowledge of the extent of harm caused by traffic crashes, and by the sub-set of crashes caused by impairment, is important in the development of public policy and the allocation of countermeasure resources.

The more serious a crash, the more likely it will be reported to or otherwise become known to various authorities such as the police, motor vehicle branches, insurance companies, and the coroner, and the more likely it will be investigated by one or more of those bodies. Consequently, Canadian data on motor vehicle fatalities, and whether or not the fatally injured person(s) had measurable blood alcohol content (BAC), is largely complete, valid and reliable. That is, we have very good information the number of persons killed in crashes, and whether or not they were possibly impaired by alcohol. On the other hand, the data on whether or not a fatally injured person might have been impaired by drugs is incomplete, primarily due to a lack of testing and testing sensitivity.

As crashes become less serious, there is less likelihood that they will be reported, recorded, or investigated. In order to assess the magnitude of the traffic crash and impairment-caused traffic crash problem, there is a need to find a way to estimate the number of less severe crashes, and whether or not they might have been caused by impairment by alcohol and/or drugs.

Historically, crashes reported to the police have been used as a measure of crash frequencies and types, with the police forwarding crash reports to provincial Motor Vehicle Branches for compilation and statistical analyses. However, a comparison of the frequencies of these reports with data from insurance company crash counts shows an underreporting of less serious crashes in the police-generated data (Mercer & Marshall, 2002). This could be because of a lack of policing resources, a reluctance on the part of drivers to report crashes to the police (but a desire for financial compensation from insurance companies) or both. Certainly, some proportion of crashes will never be reported to anyone and will just be settled privately, but insurance-based counts seem to gather many more crash instances than do police data counts.

An examination of insurance-based and other data sources suggests that there may be a roughly stable relationships among the number of motor-vehicle related fatalities to the number of injuries to the number of property damage only (PDO) events, such that there appears to be about 118 injuries and 650 PDO events for each fatality (Mercer & Marshall, 2002). Using these

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<sup>1</sup> In 2002 MADD Canada commissioned Applied Research and Evaluation Services (ARES) at the University of British Columbia to consider the extent and cost of impaired driving crashes in Canada for the year 1999 (Mercer & Marshall, 2002). That full report is at [http://www.madd.ca/english/research/magnitude\\_report2k2.doc](http://www.madd.ca/english/research/magnitude_report2k2.doc) and explains in detail how the model of that estimate was constructed. None of the assumptions around the model have changed for this report.

multipliers, one can move from the very good information on the frequencies of fatalities to an estimation of the frequencies of less serious crashes.

Similarly, an examination of BAC levels associated with different levels of crash-related injury severity (from no injury to fatality) can produce a rough estimation of the proportion likely impaired by alcohol in less severe crashes for every one percent impaired by alcohol in fatal crashes. An examination of these relationships showed that as crash severity lessened, the likelihood of impairment being a cause lessened. From the examination of the BAC data, it has been suggested that for every one percent of fatal injuries associated with an impaired crash, about half of one percent of injury-only crashes were likely to be associated with alcohol-impairment, and about three-tenths of one percent of PDO events were likely to be associated with alcohol-impairment (Mercer & Marshall, 2002). To put this another way, if the percent of alcohol-impaired crashes went up by 10%, the percent of alcohol-impaired injury crashes would go up by 5% and the percent of PDO crashes would go up by 3%. Again, using these multipliers, one can move from very good information on the frequencies of impairment-related fatalities to an estimation of the frequency of impairment in less serious crashes.

Finally, from an examination of studies of the impairing role of drugs as well as alcohol in crashes it has been suggested that where there is a positive BAC, about 75% of the instances involve alcohol alone, about 25% of the instances where alcohol was involved there were likely also drugs involved, and that there was an additional 10% of persons likely impaired by drugs over and above those impaired by alcohol alone or alcohol and drugs (Mercer & Marshall, 2002).

#### Calculation of Frequencies:

In order to estimate the extent of fatal, injury and PDO events, it was assumed that there were 118 injuries and 650 PDO events for every fatal event. Those multipliers were applied to the known number of motor vehicle-related fatal events in Canada as reported by the Traffic Injury Research Foundation (Mayhew *et al.*, 2001) for 1999; the Canadian Council of Motor Transport Administrators (CCMTA) Standing Committee on Road Safety Research Policies paper The Alcohol-Crash Problem in Canada: 2000 for 2000; the CCMTA paper The Alcohol-Crash Problem in Canada: 2001 for 2001; the CCMTA paper The Alcohol-Crash Problem in Canada: 2002 for 2002; the CCMTA paper The Alcohol-Crash Problem in Canada: 2003 for 2003; the CCMTA paper The Alcohol-Crash Problem in Canada: 2004 for 2004; the CCMTA paper The Alcohol-Crash Problem in Canada: 2005 for 2005; the CCMTA paper The Alcohol-Crash Problem in Canada: 2006 for 2006; and the CCMTA paper The Alcohol-Crash Problem in Canada: 2007 for 2007.

**Table 1: Estimated Fatalities, Injuries & PDO Vehicles, Canada, 1999 to 2007**

Year	Fatalities	Injuries @118	PDO veh. @ 650
1999	3,315	391,170	2,154,750
2000	3,162	373,116	2,055,300
2001	3,021	356,478	1,963,650
2002	3,197	377,246	2,078,050
2003	3,124	368,632	2,030,600
2004	3,013	355,534	1,958,450
2005	3,226	380,668	2,096,900
2006	3,122	368,396	2,029,300
2007	3,045	359,310	1,979,250

Again, working from the above sources, the percent of persons killed in motor vehicle-related crashes, on-road or off-road, where alcohol was involved was used as a starting point to estimate the numbers injured and PDO events, using the notion that for every 1% fatal there would be 0.5% injured and 0.3% in PDO events. That resulted in Table 2.

**Table 2: Estimated % Alcohol-Involved - Fatalities, Injuries & PDO Vehicles, Canada, 1999 to 2007**

Year	Fatalities	Injuries @0.5%	PDO veh. @ 0.3%
1999	34.20%	17.10%	10.26%
2000	33.80%	16.90%	10.14%
2001	36.50%	18.25%	10.95%
2002	33.00%	16.50%	9.90%
2003	36.60%	18.29%	10.98%
2004	34.90%	17.45%	10.47%
2005	34.10%	17.05%	10.23%
2006	37.20%	18.60%	11.16%
2007	37.00%	18.50%	11.10%

As noted above, it has been estimated that about 10% of fatal crashes involve impairment by drugs (licit and illicit) alone. Assuming that the drugs-plus-alcohol frequencies are a sub-set of the instances where alcohol has been found,<sup>2</sup> the estimations of overall impairment can be drawn by multiplying the cells in the above Table 2 by 1.1 to produce Table 3.

<sup>2</sup> As a combination of alcohol and drugs can be more impairing than the same level of alcohol alone, instances of undetected drugs-plus-alcohol may have alcohol levels too low to be included in any counts of impairment, as it is

**Table 3: Estimated % Impaired - Fatalities, Injuries & PDO Vehicles, Canada, 1999 to 2007**

Year	Fatalities	Injuries	PDO veh.
1999	37.62%	18.81%	11.29%
2000	37.18%	18.59%	11.15%
2001	40.15%	20.08%	12.05%
2002	36.30%	18.15%	10.89%
2003	40.25%	20.12%	12.07%
2004	38.39%	19.20%	11.52%
2005	37.51%	18.76%	11.25%
2006	40.92%	20.46%	12.28%
2007	40.70%	20.35%	12.21%

Finally, the estimated percent impaired (Table 3) can be applied to the estimated number of fatalities, injuries, and PDO vehicles (Table 1) to give an estimated number of victims and PDO vehicles, shown in Table 4.

**Table 4: Estimated # Impaired - Fatalities, Injuries & PDO Vehicles, Canada, 1999 to 2007**

Year	Fatalities	Injuries	PDO veh.
1999	1,247	73,579	243,185
2000	1,176	69,362	229,248
2001	1,213	71,563	236,522
2002	1,161	68,470	226,300
2003	1,257	74,181	245,174
2004	1,157	68,245	225,555
2005	1,210	71,413	235,901
2006	1,278	75,374	249,117
2007	1,239	73,120	241,666
All	10,937	645,307	2,132,667
Average	1,215	71,701	236,963

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rare that drivers are examined for drugs. Consequently, this assumption is likely conservative. See Mercer & Jeffery, 1995.

The insurance company-generated ratios of 1.2 fatalities per fatal crash, 1.11 injuries per fatal crash, 1.44 injuries per injury crash and 1.52 vehicles per PDO crash were used to move to the crash as the units of analysis, as shown in Table 5.<sup>3</sup>

**Table 5: Estimated # Impaired Crashes - Fatalities, Injuries & PDO, Canada, 1999 to 2007**

Year	Fatal	Injury	PDO.	Sum
1999	1,039	50,295	159,990	211,325
2000	980	47,413	150,821	199,214
2001	1,011	48,917	155,606	205,534
2002	967	46,803	148,881	196,652
2003	1,048	50,707	161,298	213,053
2004	964	46,649	148,391	196,004
2005	1,008	48,815	155,198	205,022
2006	1,065	51,522	163,893	216,480
2007	1,033	49,982	158,991	210,006
All	9,114	441,105	1,403,070	1,853,289
Average	1,013	49,012	155,897	205,921

Using these crash frequency estimations, three costing models can be used (in 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006 and 2007 dollars)<sup>4</sup> to estimate the order-of-magnitude of impaired-related crashes in Canada in each of these years.

#### Calculation of Costs:

Broadly, there are three kinds of questions that are asked about the result of a traffic crash:

1. How much will this cost me in real dollars spent? (Real Dollar Estimate [RDE])
2. How much will this cost me in terms of lost goods, opportunity, or productivity? (Discounted Future Earnings [DFE])
3. How much would I pay for this not to have happened? (Willingness to Pay [WTP])

<sup>3</sup> That is:

- A. (number of fatalities divided by fatalities per fatal crash) = number of fatal crashes;
- B. ((number of fatal crashes multiplied by number of injuries per fatal crash) subtracted from (number of injuries)) divided by number of injuries per injury crash = number of injury crashes; and
- C. number of PDO vehicles divided by number of vehicles per PDO crash = number of PDO crashes.

<sup>4</sup> The calculations for 1999 to 2006 used the following rates of inflation: 1999 to 2000 = 3.71%; 2000 to 2001 = 2.73%; 2001 to 2002 = 2.55%; 2002 to 2003 = 2.16%; 2003 to 2004 = 2.29%; 2004 to 2005 = 2.13%; and 2005 to 2006 = 1.39%. Based on [http://www.bankofcanada.ca/en/inflation\\_calc.htm](http://www.bankofcanada.ca/en/inflation_calc.htm), an inflation rate of 2.04% was used for 2006 to 2007.

Each model approaches the question of crash costs differently, especially in the calculation of the value of a fatal crash. The RDE figures are based on estimates from the Insurance Corporation of British Columbia (Mercer & Halabisky, 1999) while the DFE and WTP estimates come from an Ontario study by Vodden *et al.*, 1994.

**Table 6: Crash costs by Costing Model in 1999 \$**

Model	fatal	injury-only	PDO
Real Dollar Estimate	\$280,340	\$25,215	\$1,581
Deferred Future Earnings	\$984,412	\$23,779	\$7,265
Willingness to Pay	\$7,473,138	\$32,101	\$7,265

**Table 7: Crash costs by Costing Model in 1999 to 2007**

Year	Model	fatal	Injury-only	PDO	sum
1999	Real Dollar Estimate	\$291,344,046	\$1,268,200,800	\$252,944,486	<b>\$1,812,489,332</b>
	Deferred Future Earnings	\$1,023,052,632	\$1,195,976,475	\$1,162,328,712	<b>\$3,381,357,820</b>
	Willingness to Pay	\$7,766,477,349	\$1,614,535,550	\$1,162,328,712	<b>\$10,543,341,611</b>
2000	Real Dollar Estimate	\$284,836,544	\$1,239,874,089	\$247,294,683	<b>\$1,772,005,316</b>
	Deferred Future Earnings	\$1,000,201,585	\$1,169,262,977	\$1,136,366,775	<b>\$3,305,831,337</b>
	Willingness to Pay	\$7,593,004,221	\$1,578,473,057	\$1,136,366,775	<b>\$10,307,844,053</b>
2001	Real Dollar Estimate	\$301,896,460	\$1,314,134,739	\$262,106,077	<b>\$1,878,137,276</b>
	Deferred Future Earnings	\$1,060,107,362	\$1,239,294,466	\$1,204,427,989	<b>\$3,503,829,817</b>
	Willingness to Pay	\$8,047,777,361	\$1,673,013,653	\$1,204,427,989	<b>\$10,925,219,004</b>
2002	Real Dollar Estimate	\$296,214,744	\$1,289,402,617	\$257,173,219	<b>\$1,842,790,580</b>
	Deferred Future Earnings	\$1,040,156,055	\$1,215,970,844	\$1,181,760,556	<b>\$3,437,887,455</b>
	Willingness to Pay	\$7,896,317,537	\$1,641,527,400	\$1,181,760,556	<b>\$10,719,605,494</b>
2003	Real Dollar Estimate	\$327,851,526	\$1,427,115,377	\$284,640,229	<b>\$2,039,607,133</b>
	Deferred Future Earnings	\$1,151,248,401	\$1,345,840,831	\$1,307,976,764	<b>\$3,805,065,996</b>
	Willingness to Pay	\$8,739,672,182	\$1,816,848,334	\$1,307,976,764	<b>\$11,864,497,280</b>

Year	Model	fatal	Injury-only	PDO	sum
2004	Real Dollar Estimate	\$308,523,832	\$1,342,983,239	\$267,859,952	\$1,919,367,023
	Deferred Future Earnings	\$1,083,379,334	\$1,266,500,038	\$1,230,868,155	\$3,580,747,526
	Willingness to Pay	\$8,224,445,930	\$1,709,740,431	\$1,230,868,155	\$11,165,054,516
2005	Real Dollar Estimate	\$329,637,212	\$1,435,276,972	\$286,114,262	\$2,051,028,446
	Deferred Future Earnings	\$1,157,518,823	\$1,353,537,622	\$1,314,750,228	\$3,825,806,673
	Willingness to Pay	\$8,787,273,930	\$1,827,238,790	\$1,314,750,228	\$11,929,262,948
2006	Real Dollar Estimate	\$352,848,643	\$1,535,926,125	\$306,342,690	\$2,195,117,459
	Deferred Future Earnings	\$1,239,025,606	\$1,448,454,782	\$1,407,703,760	\$4,095,184,149
	Willingness to Pay	\$9,406,030,544	\$1,955,374,362	\$1,407,703,760	\$12,769,108,667
2007	Real Dollar Estimate	\$349,359,008	\$1,520,404,539	\$303,243,127	\$2,173,006,673
	Deferred Future Earnings	\$1,226,771,775	\$1,433,817,154	\$1,393,460,667	\$4,054,049,596
	Willingness to Pay	\$9,313,005,907	\$1,935,613,964	\$1,393,460,667	\$12,642,080,539

**Table 8: Crash costs by Costing Model 1999 to 2007 Total and Average**

Year	Model	fatal	Injury-only	PDO	sum
All	Real Dollar Estimate	\$2,842,512,015	\$12,373,318,499	\$2,467,718,726	\$17,683,549,239
	Deferred Future Earnings	\$9,981,461,572	\$11,668,655,189	\$11,339,643,607	\$32,989,760,368
	Willingness to Pay	\$75,774,004,962	\$15,752,365,541	\$11,339,643,607	\$102,866,014,111
Average	Real Dollar Estimate	\$315,834,668	\$1,374,813,167	\$274,190,970	\$1,964,838,804
	Deferred Future Earnings	\$1,109,051,286	\$1,296,517,243	\$1,259,960,401	\$3,665,528,930
	Willingness to Pay	\$8,419,333,885	\$1,750,262,838	\$1,259,960,401	\$11,429,557,123

Conclusion:

The model developed in Estimating the Presence of Alcohol and Drug Impairment in Traffic Crashes and their Cost to Canadians: A Discussion Paper (Mercer & Marshall, 2002) was applied to data from Mayhew *et. al.* (2001) for 1999 data and to The Alcohol-Crash Problem in Canada (CCMTA) for the data for 2000, 2001, 2002, 2003, 2004, 2005, 2006 and 2007 to estimate the extent and cost of impaired driving in Canada.

Over the nine-year period between 1999 and 2007, it is estimated that impaired driving killed **10,937** persons, injured **645,307**, and caused damage to **2,132,667** vehicles in all crashes, translating into **9,114** fatal crashes, **441,105** injury-only crashes and **1,403,070** property-damage only (PDO) crashes, totaling **1,853,289** crashes in all. In turn, this cost Canadians between **\$17.7 billion** (Real Dollar Estimate model) and **\$102.9 billion** (Willingness to Pay model), depending on the costing model and assumptions used. To put this another way, based on a population of 33 million people, that represents a cost of between about **\$536** and **\$3,117** per Canadian.

While having only nine years of data-points, the phenomenon appears to be relatively stable. For example, looking at the estimate of the proportion of fatalities from 1999 to 2007 they are 38%, 37%, 40%, 36%, 40%, 38%, 38%, 41% and 41% respectively, with no discernable trend. Admittedly, the drop from 2001 to 2002 represents about a 10% reduction in the total proportion,<sup>5</sup> and 2002 is the lowest of the years, but this may simply be a function of 2001 having been unusually high.

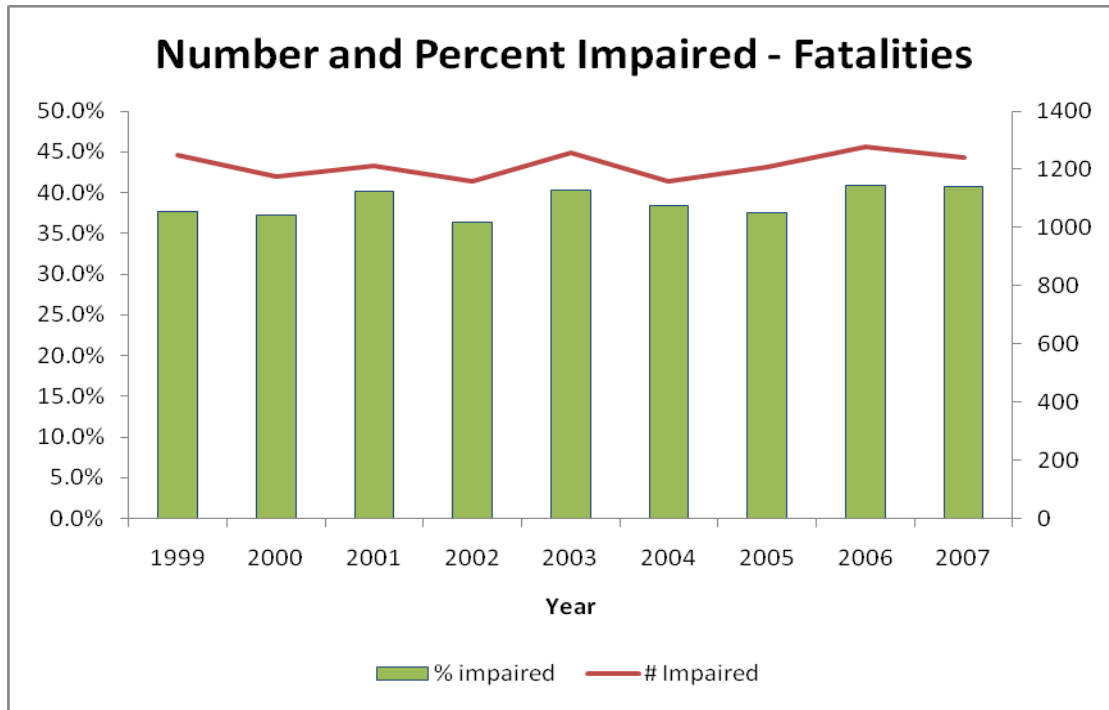
Because of this apparent stability, it seems reasonable to express these impaired driving statistics in terms of “average years”. Thus, it is estimated that in an average year in Canada, impaired driving killed **1,215** persons, injured **71,701**, and caused damage to **236,963** vehicles in all crashes, translating into **1,013** fatal crashes, **49,012** injury-only crashes and **155,897** property-damage only (PDO) crashes, totaling an average of **205,921** crashes in all. In turn, on average, this cost Canadians between **\$1.96 billion** (Real Dollar Estimate model) and **\$11.43 billion** (Willingness to Pay model), depending on the costing model and assumptions used. To put this another way, that represents a cost of between about **\$60** and **\$346** per Canadian.

Turning to 2007, the most recent year of data, it is estimated that, for Canada, impaired driving, including impairment by drugs other than alcohol, resulted in **1,239 fatalities**, **73,120 injuries** and, including property-damage-only, a total of **210,006 crashes**, at a cost of **between \$2.2 and \$12.6 billion**, depending upon the costing model used.

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<sup>5</sup> That is,  $((40\% - 36\%) / 40\%) * 100 = 10\%$ .

Figure 1: Proportion and Number, Impaired Driving Fatalities, 1999 to 2007



While these figures can only be considered as order-of-magnitude approximations, the issue of more precisely determining the magnitude of impaired driving crashes and attendant costs is important and worthy of consideration by researchers and policy makers alike.

## Appendix A: Provincial and Territorial Data

As noted in the body of the text, these figures can only be considered as order-of-magnitude approximations. Applied to the entire country, they can give an idea of the scope and cost of impaired driving crashes. However, when applied at the provincial and territorial level, they become substantially less reliable, as there are likely differences among the provinces and territories in the ratio of injuries to fatalities and the medical, repair and other costs associated with crashes. Nonetheless, arguably, there is some worth in applying these calculations to crashes at the provincial and territorial level, to obtain some notion of the costs of these crashes to those jurisdictions. Consequently, with a strong caution against over-interpreting the data, the crash number and costing calculations described above are presented for the 2007 data:

**Table 9: Estimated Fatalities, Injuries & PDO Vehicles, 2007**

Jurisdiction	Fatalities	Injuries @118	PDO veh. @ 650
British Columbia	475	56,050	308,750
Alberta	471	55,578	306,150
Saskatchewan	161	18,998	104,650
Manitoba	126	14,868	81,900
Ontario	914	107,852	594,100
Quebec	604	71,272	392,600
New Brunswick	104	12,272	67,600
Nova Scotia	114	13,452	74,100
Prince Edward Island	9	1,062	5,850
Newfoundland & Labrador	46	5,428	29,900
Yukon, NW Territory & Nunavut	21	2,478	13,650
Canada	3,045	359,310	1,979,250

**Table 10: Estimated % Alcohol-Involved - Fatalities, Injuries & PDO Vehicles, 2007**

Jurisdiction	Fatalities	Injuries @0.5%	PDO veh. @ 0.3%
British Columbia	38.90%	19.45%	11.67%
Alberta	42.90%	21.45%	12.87%
Saskatchewan	46.70%	23.35%	14.01%
Manitoba	44.30%	22.15%	13.29%

Jurisdiction	Fatalities	Injuries @0.5%	PDO veh. @ 0.3%
Ontario	35.80%	17.90%	10.74%
Quebec	24.20%	12.10%	7.26%
New Brunswick	47.10%	23.55%	14.13%
Nova Scotia	36.90%	18.45%	11.07%
Prince Edward Island	66.70%	33.35%	20.01%
Newfoundland & Labrador	55.60%	27.80%	16.68%
Yukon, NW Territory & Nunavut	41.18%	20.59%	12.35%
Canada	37.00%	18.50%	11.10%

Table 11: Estimated % Impaired - Fatalities, Injuries &amp; PDO Vehicles, 2007

Jurisdiction	Fatalities	Injuries	PDO veh.
British Columbia	42.79%	21.40%	12.84%
Alberta	47.19%	23.60%	14.16%
Saskatchewan	51.37%	25.69%	15.41%
Manitoba	48.73%	24.37%	14.62%
Ontario	39.38%	19.69%	11.81%
Quebec	26.62%	13.31%	7.99%
New Brunswick	51.81%	25.91%	15.54%
Nova Scotia	40.59%	20.30%	12.18%
Prince Edward Island	73.37%	36.69%	22.01%
Newfoundland & Labrador	61.16%	30.58%	18.35%
Yukon, NW Territory & Nunavut	45.30%	22.65%	13.59%
Canada	40.70%	20.35%	12.21%

Table 12: Estimated # Impaired - Fatalities, Injuries &amp; PDO Vehicles, 2007

Jurisdiction	Fatalities	Injuries	PDO veh.
British Columbia	203	11,992	39,634
Alberta	222	13,114	43,342
Saskatchewan	83	4,880	16,128
Manitoba	61	3,623	11,973

Jurisdiction	Fatalities	Injuries	PDO veh.
Ontario	360	21,236	70,187
Quebec	161	9,486	31,353
New Brunswick	54	3,179	10,507
Nova Scotia	46	2,730	9,023
Prince Edward Island	7	390	1,288
Newfoundland & Labrador	28	1,660	5,486
Yukon, NW Territory & Nunavut	10	561	1,855
Canada	1,239	73,120	241,666

Table 13: Estimated # Impaired Crashes - Fatalities, Injuries & PDO, 2007

Jurisdiction	Fatal	Injury-only	PDO	all
British Columbia	169	8,197	26,075	34,441
Alberta	185	8,964	28,514	37,663
Saskatchewan	69	3,335	10,611	14,015
Manitoba	51	2,477	7,877	10,405
Ontario	300	14,516	46,176	60,992
Quebec	134	6,484	20,627	27,245
New Brunswick	45	2,173	6,913	9,131
Nova Scotia	38	1,866	5,936	7,840
Prince Edward Island	6	266	847	1,119
Newfoundland & Labrador	23	1,135	3,609	4,767
Yukon, NW Territory & Nunavut	8	383	1,220	1,611
Canada	1,033	49,982	158,991	210,006

Table 14: Crash costs by Costing Model, 2007

Jurisdiction	Model	fatal	injury-only	PDO	sum
British Columbia	Real Dollar Estimate	\$57,155,540	\$249,344,884	\$49,732,781	\$356,233,204
	Deferred Future Earnings	\$200,701,287	\$235,144,636	\$228,531,721	\$664,377,645
	Willingness to Pay	\$1,523,618,585	\$317,438,831	\$228,531,721	\$2,069,589,138
Alberta	Real Dollar Estimate	\$62,566,715	\$272,676,289	\$54,384,679	\$389,627,683
	Deferred Future Earnings	\$219,702,593	\$257,147,312	\$249,908,092	\$726,757,997
	Willingness to Pay	\$1,667,866,498	\$347,141,843	\$249,908,092	\$2,264,916,433
Saskatchewan	Real Dollar Estimate	\$23,335,694	\$101,447,504	\$20,238,333	\$145,021,531
	Deferred Future Earnings	\$81,943,129	\$95,670,045	\$92,999,045	\$270,612,219
	Willingness to Pay	\$622,069,126	\$129,151,946	\$92,999,045	\$844,220,117
Manitoba	Real Dollar Estimate	\$17,248,121	\$75,347,966	\$15,023,782	\$107,619,869
	Deferred Future Earnings	\$60,566,661	\$71,056,882	\$69,037,176	\$200,660,719
	Willingness to Pay	\$459,790,224	\$95,924,849	\$69,037,176	\$624,752,249
Ontario	Real Dollar Estimate	\$101,459,538	\$441,562,808	\$88,071,366	\$631,093,712
	Deferred Future Earnings	\$356,274,475	\$416,415,706	\$404,704,919	\$1,177,395,100
	Willingness to Pay	\$2,704,648,376	\$562,149,820	\$404,704,919	\$3,671,503,115
Quebec	Real Dollar Estimate	\$45,318,593	\$197,237,066	\$39,341,824	\$281,897,484
	Deferred Future Earnings	\$159,135,932	\$186,004,370	\$180,783,272	\$525,923,574
	Willingness to Pay	\$1,208,076,275	\$251,100,815	\$180,783,272	\$1,639,960,362
New Brunswick	Real Dollar Estimate	\$15,218,931	\$66,100,577	\$13,185,147	\$94,504,655
	Deferred Future Earnings	\$53,441,171	\$62,336,135	\$60,588,295	\$176,365,601
	Willingness to Pay	\$405,697,256	\$84,152,078	\$60,588,295	\$550,437,629

Jurisdiction	Model	fatal	injury-only	PDO	sum
<b>Nova Scotia</b>	Real Dollar Estimate	\$12,851,541	\$56,761,932	\$11,321,718	<b>\$80,935,191</b>
	Deferred Future Earnings	\$45,128,100	\$53,529,327	\$52,025,476	<b>\$150,682,903</b>
	Willingness to Pay	\$342,588,794	\$72,263,128	\$52,025,476	<b>\$466,877,399</b>
<b>Prince Edward Island</b>	Real Dollar Estimate	\$2,029,191	\$8,091,465	\$1,615,481	<b>\$11,736,137</b>
	Deferred Future Earnings	\$7,125,489	\$7,630,654	\$7,423,447	<b>\$22,179,590</b>
	Willingness to Pay	\$54,092,968	\$10,301,175	\$7,423,447	<b>\$71,817,589</b>
<b>Newfoundland &amp; Labrador</b>	Real Dollar Estimate	\$7,778,565	\$34,525,612	\$6,883,436	<b>\$49,187,613</b>
	Deferred Future Earnings	\$27,314,376	\$32,559,371	\$31,630,718	<b>\$91,504,466</b>
	Willingness to Pay	\$207,356,375	\$43,954,261	\$31,630,718	<b>\$282,941,354</b>
<b>Yukon, NW Territory &amp; Nunavut</b>	Real Dollar Estimate	\$2,705,588	\$11,650,493	\$2,326,903	<b>\$16,682,983</b>
	Deferred Future Earnings	\$9,500,653	\$10,986,995	\$10,692,568	<b>\$31,180,215</b>
	Willingness to Pay	\$72,123,957	\$14,832,143	\$10,692,568	<b>\$97,648,667</b>
<b>Canada</b>	Real Dollar Estimate	\$349,359,008	\$1,520,404,539	\$303,243,127	<b>\$2,173,006,673</b>
	Deferred Future Earnings	\$1,226,771,775	\$1,433,817,154	\$1,393,460,667	<b>\$4,054,049,596</b>
	Willingness to Pay	\$9,313,005,907	\$1,935,613,964	\$1,393,460,667	<b>\$12,642,080,539</b>

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