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Predicting the Impact of Random Breath Testing on
the Social Costs of Crashes, Police Resources, and
Driver Inconvenience in Canada

R. Solomon, S. Pitel, B. Tinholt and R. Wulkan

Introduction
Impairment-related crashes are the leading criminal cause of
death in Canada, claiming almost twice as many lives per year
as all categories of homicide combined.1 While impaired
driving deaths fell sharply from the early 1980s until the late
1990s,2 little progress has been made in the interim.3 In fact, the
number of impairment-related crash deaths and injuries in
2008, the latest year for which there are national data, are
roughly comparable to the 2000 levels.4 Thus, despite the
current sobriety checkpoint programs, countless awareness
campaigns, various server-training programs, alternate

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** J.D. 2012 and J.D. 2013 respectively, the University of Western Ontario.
1. In contrast to the 1,162 impairment-related crash fatalities in 2008, there
were 611 homicides in Canada, which include the offences of murder,
manslaughter and infanticide. See respectively S. Pitel and R. Solomon,
Estimating the Number and Costs of Impairment-Related Traffic Crashes in
Canada: 1999 to 2008 (Oakville: MADD Canada, 2011), p. 8 (Pitel) and
Statistics Canada, CANSIM Table 253-0001, Homicide survey, number and
rates (per 100,000 population) of homicide victims, Canada and provinces,
amannual (Ottawa: Statistics Canada, 2010).
Fatalities — Progress Continues” in H. Laurell and F. Schlyter, eds.,
Proceedings of the 15th International Conference on Alcohol, Drugs and
Alcohol, Drugs and Traffic Safety (ICADTS), 2000).
3. Pitel, supra, footnote 1.
4. While the number of impairment-related deaths fell from 1,176 in 2000 to
1,162 in 2008, the number of impairment-related injuries rose from 69,362 to
73,120 over the same period. See ibid., at p. 8 (Table 4). The percentage of
crash deaths that were impairment-related rose from 37.2% in 2000 to 43.1%
in 2008, and the percentage of injuries that were impairment-related
increased from 18.6% to 21.6%.
transportation policies, progressive provincial and territorial legislation,\(^5\) and numerous \textit{Criminal Code} amendments,\(^6\) impaired driving continues to be a serious problem in Canada. The persistence of impaired driving is not a uniquely Canadian problem. Faced with similar concerns, most developed and developing countries enacted random breath testing (RBT) programs.\(^7\) In Australia, New Zealand and other countries, the great majority of random breath tests are conducted at what are called “organized”, “fixed” or “stationary” checkpoints, where every passing driver is stopped and tested, unless it is necessary to wave drivers

5. Unless otherwise stated, subsequent references to the provinces should be interpreted as including the territories. Most provinces have enacted several progressive measures in the last ten years, including: comprehensive graduated licensing programs; zero BAC limits for young and new drivers; increased short-term roadside licence suspensions for driving with a BAC of .05% or more; mandatory alcohol interlock programs for federal impaired driving offenders; vehicle impoundment programs and comprehensive assessment and treatment programs. For a review of the provincial reforms see R. Solomon et al., Taxes the provinces and Territorial. The 2009 Report (Oakville: MADD Canada, 2009).


The most substantive federal amendments in recent years were enacted in 2008. Among other things, these amendments empowered the police to investigate drug-impaired driving and to demand that suspected impaired drivers submit to standard field sobriety testing. They also created several new impaired driving offences, increased penalties, and narrowed two questionable defences that were perceived as being abused. See \textit{An Act to amend the Criminal Code and to make consequential amendments to other Acts. S.C. 2008, c. 6, ss. 18-26. While these measures addressed several longstanding gaps in the enforcement and prosecution of impaired driving cases, they did not significantly increase the federal law’s deterrent effect. See R. Solomon, E. Chamberlain and C. Lynch, “Canada’s New Impaired Driving Legislation: Modest Gains and Missed Opportunities” (2010), 56 C.L.Q. 51.}

through to prevent undue delays. The power to conduct RBT during routine patrol activities, often referred to as “mobile” RBT, is also important, particularly in rural areas, late at night or in other circumstances in which low traffic volumes would not merit establishing an organized RBT checkpoint.

It is widely accepted that well-publicized programs involving both organized and mobile RBT with high testing levels (hereafter referred to as comprehensive RBT programs) increase the perceived and actual risk of apprehension, and thereby achieve sharp, sustained reductions in impaired driving crashes.\(^9\) Relying in part on this information, the House of Commons Standing Committee on Justice and Human Rights unanimously recommended in 2009 that the federal government enact RBT legislation.\(^10\) The government


accepted the committee’s recommendation in principle, and the Department of Justice issued a discussion paper and convened a two-day workshop endorsing RBT in March 2010. The federal government is currently considering this recommendation.

Enacting RBT legislation would change the grounds that police need to demand a preliminary breath test on “an approved screening device” (ASD). While Canadian police currently have a common law power and, in most jurisdictions, express statutory authority to stop any vehicle at random, they can only demand an ASD test from a driver whom they reasonably suspect has alcohol in his or her body. Sobriety checkpoint programs, like those in Canada, in which preliminary testing requires individualized suspicion, involve what is generally referred to as “selective breath testing” (SBT). Research from Canada and abroad indicates that the great


12. The police are also empowered to inspect the licence, ownership and insurance documents of drivers and to question them about their licence, vehicle and sobriety. The major cases on the common law power are *R. v. Deehan*, [1985] 2 S.C.R. 2 at pp. 32-36, 20 C.C.C. (3d) 97, 46 C.R. (3d) 193 and *R. v. Orbaniski; R. v. Elias*, [2005] 2 S.C.R. 3 at para. 41, 196 C.C.C. (3d) 481, 29 C.R. (6th) 285. For examples of the statutory provisions, see the Ontario *Highway Traffic Act*, R.S.O. 1990, c. H.8, ss. 216(1), 33(1) and (3) and 48(1) and the British Columbia *Motor Vehicle Act*, R.S.B.C. 1996, c. 318, ss. 73(1) and (2) and 71.


15. A 1997 American study reported that the police missed over 60% of drivers with BACs above .08% and almost 90% of those with BACs between .05%
majority of drinking drivers, including those with BACs above .05%, are not detected at SBT checkpoints. Although millions of Canadians are stopped at SBT checkpoints each year, only a tiny fraction of them are subject to ASD testing. In contrast, all drivers passing through RBT checkpoints are subject to ASD testing, thereby greatly increasing detection rates. As is currently the case, the results of ASD testing based on RBT would be inadmissible in criminal proceedings, but rather would be used solely to screen drivers to determine if evidentiary breath testing was warranted.

The purpose of this article is to estimate the likely impact of implementing a comprehensive RBT program on the social costs of crashes, police resources and driver inconvenience in Canada. While the exact impact of RBT cannot be predicted given the limitations in the available data, three preliminary conclusions appear to be warranted.

First, the introduction of a comprehensive RBT program will

16. See infra, footnotes 70-71 and the accompanying text. A similar situation in Australia prior to the introduction of RBT led R. Homel, one of the world’s most prolific RBT researchers, to state: “many drivers — males, in particular — play ‘breathtest roulette,’ perceiving that the odds of apprehension are slight and that they can conceal their drinking successfully”. He concluded that sobriety checkpoints that rely on an officer’s subjective judgements of impairment are unlikely to achieve substantial long-term reductions in alcohol-related crash deaths and injuries. See Homel, supra, footnote 8, at pp. 72 and 74.
significantly reduce the social costs of impaired driving by decreasing the number of deaths, injuries and crashes. Second, comprehensive RBT programs will require increased police resources to stop and screen large numbers of drivers. However, these additional costs will likely be largely offset by reduced demands on police resources due to the decline in crashes and Criminal Code charges, and due to the streamlined processing of all impaired driving suspects. In any event, the social cost savings attributable to RBT will massively exceed any foreseeable net increase it generates in policing costs. Third, a comprehensive RBT program will require more drivers to be stopped and far more drivers to be subjected to preliminary breath tests at roadside. However, these stops and screening tests involve only minor delay and are unlikely to be seen as an inconvenience or annoyance by the great majority of drivers.

Section I: Estimating the Impact of RBT on the Number and Cost of Crashes in Canada

(1) Introduction

This section begins with estimates of the number of total and impairment-related traffic deaths, injuries and property-damage only (PDO) crashes in Canada and their social costs. This is followed by a brief review of the international experience with RBT, focusing on comparable countries that have implemented comprehensive programs. It is then suggested that the decrease in crashes resulting from implementing a comprehensive RBT program in Canada would likely fall within a specified range. An estimate of the likely social cost savings attributable to RBT is provided.

(2) The Estimated Number of Traffic Crashes

Mothers Against Drunk Driving (MADD) Canada commissioned G. Mercer and M. Marshall of Applied Research and Evaluation Services (ARES) at the University of British Columbia to estimate the number and social cost of impairment-related crashes in Canada for 1999. Their 17

17. B. Mercer and M. Marshall, Estimating the Presence of Alcohol and Drug
starting point is data drawn from the Fatality Database,\textsuperscript{18} which is maintained by the provincial coroners and the Traffic Injury Research Foundation. Mercer and Marshall also relied on research concerning the ratios of traffic fatalities to both traffic injuries and vehicles damaged in PDO collisions. A detailed discussion of Mercer and Marshall’s methodology can be found in their initial report.\textsuperscript{19}

The authors updated their report annually until 2009, when responsibility was assumed by S. Pitel of the Faculty of Law at the University of Western Ontario. Table 1 is based on Pitel’s estimates of the number of total and impairment-related deaths, injuries and PDO crashes for 2008.\textsuperscript{20} It should be emphasized that individuals are the unit of analysis for deaths and injuries, while crashes are the unit of analysis for vehicles damaged in PDOs.


\textsuperscript{19} Given the inherent limitations in this database, it likely significantly understates the total number of alcohol-related deaths in Canada. For example, if an impaired driver crashes into a vehicle, killing its sober driver and two occupants, it is only the dead driver’s BAC that would be reported in the Fatality Database. Unless the police recorded the crash as being due to the surviving driver’s impairment, all three deaths would be recorded as being non-alcohol-related. Similar problems arise when intoxicated drivers survive crashes in which they kill sober passengers, pedestrians or bicyclists. See H. Simpson, Drinking-Driving Statistics in Canada: does anyone really know how big the problem is? (Ottawa: Traffic Injury Research Foundation, 1997), pp. 53-56.

\textsuperscript{20} Moreover, research indicates that police frequently fail to detect and report the presence of alcohol. See for example Vingilis, 1982, supra, footnote 14 and Vingilis, 1987, supra, footnote 14. Although these sources are dated, police underreporting remains problematic.

\textsuperscript{19} Mercer, supra, footnote 17.

\textsuperscript{20} Pitel, supra, footnote 1, at p. 6 (Table 1), p. 8 (Table 4), and p. 9 (Table 5). The total number of PDO crashes (1,152,039) has been calculated using the same methodology as that used to calculate the number of impairment-related PDO crashes.
Table 1: The Estimated Number of Total and Impairment-Related Traffic Deaths, Injuries and PDO Crashes in 2008

<table>
<thead>
<tr>
<th></th>
<th>Deaths</th>
<th></th>
<th>Injuries</th>
<th></th>
<th>PDO Crashes</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Impairment-Related</td>
<td>Total</td>
<td>Impairment-Related</td>
<td>Total</td>
<td>Impairment-Related</td>
</tr>
<tr>
<td></td>
<td>2,694</td>
<td>1,162</td>
<td>317,892</td>
<td>68,538</td>
<td>1,152,039</td>
<td>149,028</td>
</tr>
</tbody>
</table>

(3) The Estimated Cost of Traffic Crashes

Different methods can be used to estimate the total costs of crashes, including the Real Dollar Estimate, Discounted Future Earnings and Willingness-to-Pay approaches. We have adopted the Social Cost Model of K. Vodden et al., which is based on what they describe as the “technically preferred” Willingness-to-Pay approach.21 This model was selected because it is recent, based on extensive analysis, and was prepared for the federal Ministry of Transportation.

The major components of Vodden et al.'s estimate include: fatalities, injuries, property damage, traffic delays, out-of-pocket expenses, hospital/health costs, and police, fire and ambulance costs.22 While numerous variables are taken into account, it is the human consequences of collisions that make up all but a small fraction of the total costs. For example, fatal and personal injury crashes constituted only 0.32% and 27% of total crashes in Ontario in 2004, but accounted for 64% and 28% respectively of the total social costs. The remaining 73% of PDO crashes generated only 8% of the total social costs.23

Vodden et al. discussed at length the different ways of valuing the human consequences of collisions.24 While they provided high, low and medium cost figures for the Willingness-to-Pay approach, they ultimately used the

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22. Ibid., at Executive Summary i.
23. Ibid., at pp. 24 and 3.
24. Ibid., at Appendix B.
medium cost numbers in calculating the national and provincial estimates. They estimated that in 2004, the average social cost per death was $13,600,000 and the average social cost per PDO crash was $8,000. While Vodden et al. did not provide an average social cost per injury, this figure may be calculated from their data. They divided injuries into three categories, major, minor and minimal, and estimated that the average social cost per injury was $280,000, $48,000 and $18,000 respectively. Based on these average injury costs and Vodden et al.’s estimates of the number of each type of injury, it may be estimated that the average social cost per injury in 2004 was $43,675. For the purposes of the subsequent analyses, these average social cost figures per death, injury and PDO crash have been adjusted for inflation as of 2008.

In Table 2, these adjusted cost figures are multiplied by the number of total and impairment-related traffic deaths, injuries and PDO crashes to produce the 2008 social cost estimates for crashes in Canada.

25. Ibid., at p. 3.
26. Ibid., at Executive Summary i.
27. Ibid.
28. Vodden et al. indicated that there were 5,279 major, 60,726 minor and 58,822 minimal injuries in Ontario in 2004. Thus, major, minor and minimal injuries accounted for 10.2%, 55.4% and 34.4% of total injuries respectively. Ibid., at p. 24.
29. Implicit in our subsequent use of this average cost figure is the assumption that Vodden et al.’s percentage breakdown of injury type has remained constant into 2008.
Table 2: The Estimated Social Costs of Impairment-Related and Total Crashes in Canada for 2008

<table>
<thead>
<tr>
<th></th>
<th>Impairment-Related Crash Costs</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Cost Per</td>
<td>Total</td>
</tr>
<tr>
<td>Deaths</td>
<td>1,162</td>
<td>$14,828,080</td>
<td>$17,230,228,960</td>
</tr>
<tr>
<td>Injuries</td>
<td>68,838</td>
<td>$47,619</td>
<td>$3,263,711,022</td>
</tr>
<tr>
<td>PDO Crashes</td>
<td>149,028</td>
<td>$8,722</td>
<td>$1,299,822,216</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>$21,793,762,198</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Total Crash Costs</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Cost Per</td>
<td>Total</td>
</tr>
<tr>
<td>Deaths</td>
<td>2,694</td>
<td>$14,828,080</td>
<td>$39,946,847,520</td>
</tr>
<tr>
<td>Injuries</td>
<td>317,892</td>
<td>$47,619</td>
<td>$15,137,699,148</td>
</tr>
<tr>
<td>PDO Crashes</td>
<td>1,152,039</td>
<td>$8,722</td>
<td>$10,048,084,158</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>$65,132,630,826</td>
</tr>
</tbody>
</table>

4) The International Experience with RBT

Finland, Sweden and France introduced RBT in the late 1970s, followed by most Australian jurisdictions in the 1980s. Most other European countries and New Zealand enacted RBT legislation in the 1990s. In 2003, the European Commission recommended that all member states in the European Union introduce comprehensive RBT legislation. Ireland, the most recent country to do so, initiated its RBT program in 2006. While there is extensive research on the traffic safety benefits of RBT in various countries, the

32. WHO Profile, ibid., at p. 71 and EU Traffic Law, ibid.
Australian programs are the most widely studied. By the late 1980s, RBT had become the country’s “central countermeasure against drinking and driving” 36. The most comprehensive evaluation of the Australian programs was a time series analysis involving four states. In conducting the study, the authors controlled for various confounding factors, including other impaired driving countermeasures, such as lowering the legal BAC limit to .05%. They estimated that introducing RBT initially reduced total fatal crashes in Queensland, Western Australia and New South Wales by 35%, 28%, and 48% respectively, and reduced all serious crashes in Tasmania by 24%.37 Over a longer term, the total fatal crash reductions remained constant in Queensland and Western Australia at 35% and 28% respectively, whereas the annual reductions in New South Wales varied from 17% to 42%.38 Canada is unlikely to experience the dramatic reductions seen in these Australian jurisdictions, given that they introduced RBT more than 30 years ago, when alcohol-related crash deaths were at or near their peak. New Zealand and Ireland provide a more recent and perhaps realistic picture of the likely impact of RBT in Canada. In both countries, RBT replaced sobriety-checkpoint programs similar to those now operating in Canada. A 2009 meta-analysis found that the 1993


37. The initial reduction period was one year for Queensland, Western Australia and Tasmania, and 4.5 months for New South Wales.

38. J. Henstridge, R. Homel and P. Mackay, The Long-Term Effects of Random Breath Testing in Four Australian States: A Time Series Analysis (Canberra: Federal Office of Road Safety, 1997) at Executive Summary vi-vii (Henstridge). The data for Tasmania covered one year, whereas the ongoing data for Queensland and Western Australia spanned four years. In New South Wales, the researchers had access to ten years of data.
introduction of RBT in New Zealand (called compulsory breath testing or CBT) led to a 14% reduction in total crashes. Ireland’s 2006 RBT legislation was credited with reducing total traffic fatalities by 19% when compared to the preceding 12 months. Moreover, the deterrent impact of Ireland’s RBT program appears to have risen dramatically in the last four years.

Research reviews and meta-analyses have consistently found that RBT achieves significant and sustained reductions in driving deaths and injuries. For example, a 2001 analysis, which included 12 RBT studies, found that it led to a median decrease of 22% in total fatal crashes. A 2005 review stated that the Australian RBT programs resulted in as much as “a 24% reduction in nighttime crashes, especially in metropolitan areas”. A 2009 review reported that RBT resulted in reductions of 22% and 14% in total crashes in Australia and New Zealand respectively.

(5) Estimated Canadian Cost Savings

Predicting the impact of RBT in Canada is an inherently speculative endeavour. Nevertheless, in light of the Australian, Irish and New Zealand experience, it seems reasonable to suggest that Canada would likely experience total crash reductions of between 10% to 25%. For ease of analysis, we have assumed that the percentage reductions would be the same

42. See generally the references cited supra, footnote 9.
43. Shults, supra, footnote 9, at pp. 75-76.
44. Grube, supra, footnote 9, at p. 104.
45. Erke, supra, footnote 39.
for fatalities, injuries and PDO crashes, even though the reductions would likely vary.

In Table 3, we have used the 10%-25% crash reduction assumptions. However, we have adopted a conservative approach in that we have applied these reductions to only impairment-related deaths, injuries and PDO crashes, whereas the preceding Australian, New Zealand, and Irish statistics related to reductions in total crashes. Based on the 2008 estimate of impairment-related traffic deaths, injuries and PDO crashes from Table 1 and the preceding assumptions, the potential impact of introducing RBT in Canada is illustrated in Table 3.

Table 3: The Estimated Impact of Implementing RBT on Impairment-Related Deaths, Injuries and PDO Crashes in 2008

<table>
<thead>
<tr>
<th>Estimated % Reduction</th>
<th>Deaths Prevented</th>
<th>Injuries Prevented</th>
<th>PDO Crashes Prevented</th>
</tr>
</thead>
<tbody>
<tr>
<td>25%</td>
<td>291</td>
<td>17,135</td>
<td>37,257</td>
</tr>
<tr>
<td>20%</td>
<td>232</td>
<td>13,708</td>
<td>29,806</td>
</tr>
<tr>
<td>15%</td>
<td>174</td>
<td>10,281</td>
<td>22,354</td>
</tr>
<tr>
<td>10%</td>
<td>116</td>
<td>6,854</td>
<td>14,903</td>
</tr>
</tbody>
</table>

The subsequent analysis is based on the assumption that implementing RBT in Canada would result in a 20% reduction in impairment-related deaths, injuries and PDO crashes. While RBT is widely recognized to be among the most effective traffic safety measures, the impact of any one program will depend on various factors including testing levels and publicity. Research also indicates that the more intensive the RBT program, the greater its cost/benefit ratio. If Canada implements RBT programs similar in intensity to those in

46. See generally the references cited supra, footnote 9.
47. Miller, supra, footnote 39, at p. 783; Homel, supra, footnote 8, at p. 70; M. Mackay et al., Cost Effective EU Transport Safety Measures (Brussels: European Transport Safety Council, 2003), p. 27 (Mackay and S. Matus and S. Lenka, “Effectiveness of Breath Testing of Drivers for Alcohol at Road Checks” (paper presented to the 19th International Conference on Alcohol, Drugs and Traffic Safety — T*2010, August 22-26, 2010) [unpublished].
several Australian states, the resulting social cost savings would likely far exceed the following estimate.

Table 4: The Estimated Social Cost Savings in Impairment-Related Deaths, Injuries and PDO Crashes

<table>
<thead>
<tr>
<th>Total</th>
<th>Estimated 20% Reduction</th>
<th>Average Cost Per</th>
<th>Total Cost Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deaths</td>
<td>232</td>
<td>$14,828,080</td>
<td>$3,440,114,560</td>
</tr>
<tr>
<td>Injuries</td>
<td>13,708</td>
<td>$47,619</td>
<td>$652,716,252</td>
</tr>
<tr>
<td>PDO Crashes</td>
<td>29,806</td>
<td>$8,722</td>
<td>$259,967,932</td>
</tr>
<tr>
<td>Total Cost</td>
<td></td>
<td></td>
<td>$4,352,843,744</td>
</tr>
<tr>
<td>Savings</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Thus, even conservatively estimated, introducing comprehensive RBT programs in Canada could have reduced the social costs of traffic deaths, injuries and PDO crashes by more than $4.3 billion in 2008. This estimated saving is equivalent to the savings achieved by reducing total crashes by a mere 6.7%. This reduction is dramatically below that achieved by the introduction of RBT in New Zealand, Ireland and any of the Australian states.

Section II: The Impact of RBT on Police Resources

Concerns have been raised about the impact that implementing comprehensive RBT programs will have on existing police resources. This section begins with a review of the potential savings in police resources that may result from such programs. In addition to reducing impairment-related crashes and Criminal Code charges with their attendant police investigatory costs, RBT streamlines police processing of all impaired driving cases, whether or not they involve a crash.

These potential savings must be considered in the context of the additional police resources required to implement comprehensive RBT programs. Among other things, effective RBT programs require the police to maintain very high levels of driver testing. Thus, considerably more drivers will have to be stopped than is currently the case and far more drivers will need to be subject to roadside breath testing.
(1) Cost Savings

Traffic crashes place heavy demands on police resources, which vary with the severity of the crash. According to Vodden et al., the police expend an average of 107 hours on a fatal crash, 10 hours on an injury crash, and 2 hours on a PDO crash. As Table 5 illustrates, fatal crashes, which make up only 1% of total crashes, account for 15% of police resources spent on crashes. Similarly, injury crashes constitute only 19% of crashes, but account for 45% of police resources. PDO crashes, which make up 80% of crashes, account for only 40% of police resources expended on collisions.48

Table 5: Police Resources Expended on Crashes

<table>
<thead>
<tr>
<th>Crash Type</th>
<th>% of Total Crashes</th>
<th>% of Police Resources Expended on Crashes</th>
<th>Average Police Hours per Crash</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatal</td>
<td>1%</td>
<td>15%</td>
<td>107</td>
</tr>
<tr>
<td>Injury</td>
<td>19%</td>
<td>45%</td>
<td>10</td>
</tr>
<tr>
<td>PDO</td>
<td>80%</td>
<td>40%</td>
<td>2</td>
</tr>
</tbody>
</table>

As Table 6 illustrates, the police spent an estimated 870,122 hours investigating impairment-related crashes in 2008. Vodden et al. calculated police costs at $78 per hour, which when adjusted for inflation would be $85.04 in 2008.49 Based on these figures, the police costs for investigating impairment-related crashes would have amounted to almost $74 million. Given that police wages generally increase at a greater rate than inflation, $74 million is a conservative estimate of the 2008 costs.

48. Vodden, supra, footnote 21, at p. 28. These percentages were based on Ontario Provincial Police crash investigations. It should be noted that Vodden et al. stated earlier that fatal, personal injury and PDO crashes made up .2%, 26.6% and 73% respectively of total Ontario crashes in 2004. See ibid., at p. 24.
49. Ibid., at p. 142; and Inflation Calculator, supra, footnote 30.
Table 6: Estimated Annual Police Costs of Impairment-Related Crashes in Canada

<table>
<thead>
<tr>
<th>Crash Type</th>
<th>Number of Crashes (2008)</th>
<th>Police Hours Per Crash</th>
<th>Total Police Hours</th>
<th>Cost @ $85.04 Per Police Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatal</td>
<td>968</td>
<td>107</td>
<td>103,576</td>
<td>$8,808,103</td>
</tr>
<tr>
<td>Injury</td>
<td>46,849</td>
<td>10</td>
<td>468,490</td>
<td>$39,840,390</td>
</tr>
<tr>
<td>PDO</td>
<td>149,028</td>
<td>2</td>
<td>298,056</td>
<td>$25,346,682</td>
</tr>
<tr>
<td>Totals</td>
<td></td>
<td></td>
<td>870,122</td>
<td>$73,995,175</td>
</tr>
</tbody>
</table>

Moreover, the $74 million estimate does not include police resources expended on other aspects of impaired driving, such as routine traffic patrol activities, and the investigation and processing of impaired driving cases that do not involve crashes. In an effort to account for at least some of these additional costs, we have turned to other studies. However, these studies can provide only a very rough approximation.

A national survey of police practices reported that 47.6% of alcohol-related impaired driving charges arose from routine patrols (e.g., observation of erratic driving, licence checks and traffic offences), 21.4% arose from motor vehicle crashes, 15.1% arose from public complaints, and 10.8% arose from sobriety checkpoints.\(^{51}\) Statistics Canada data indicate that a total of 65,822 people were charged with impaired driving offences in 2008.\(^{52}\) Based on the police survey data, of the 65,822 cases, 78.6% or 51,736 resulted from situations other than crashes. Consequently, the preceding $74 million cost estimate would not include police resources expended on these 51,736 charges. The police survey also reports that it takes an average of 2.8 hours to process each impaired driving charge, not including court time.\(^{53}\) As Table 7 illustrates, police resources expended on the initial processing of non-crash

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50. Piel, supra, footnote 1, at p. 9 (Table 5).
related impaired driving cases amounts to over $12.3 million annually.

Table 7: Annual Police Expenditures on Impaired Driving Charges Arising from Routine Patrol and Sobriety Checkpoints

<table>
<thead>
<tr>
<th>Non-Crash Related Charges</th>
<th>Police Hours @ 2.80 Per Charge</th>
<th>Police Costs @ $85.04 Per Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>51,736</td>
<td>144,861</td>
<td>$12,318,979</td>
</tr>
</tbody>
</table>

The $74 million cost estimate also does not include police resources expended on pre-trial preparation or court attendance. These additional police costs are likely substantial. According to the national police survey, officers reported making an average of 1.7 court appearances per case, and the average trial lasts 4.4 hours.54

Finally, the estimate does not include the substantial police resources expended on processing provincial and territorial short-term (typically 24-hour or 3-day) and 90-day administrative licence suspensions. While there is no national data, the number of each type of administrative licence suspension greatly exceeds the total number of Criminal Code impaired driving charges. For example, Ontario currently imposes over 16,500 short-term administrative licence suspensions annually,55 and the number of 90-day administrative licence suspensions imposed in 2008 was 17,643.56 In British Columbia, approximately 41,300 24-hour administrative licence suspensions and 12,300 90-day administrative driving prohibitions were imposed in 2009.57

It must be acknowledged, however, that both types of

54. Ibid., at p. 434.
55. Letter from R. Freeston (Senior Policy Advisor, Safety Policy and Education Branch, Ontario Ministry of Transport) to A. Murie (CEO, MADD Canada) (August 16, 2010).
57. Letter from L. Mazzei (Senior Policy Advisor, British Columbia Office of the Superintendent of Motor Vehicles) to A. Murie (CEO, MADD Canada) (August 16, 2010).
administrative licence suspension are processed far more quickly than Criminal Code impaired driving charges.\textsuperscript{58}

Based on Tables 6 and 7, police expend $86,314,154 annually on impairment-related crashes and non-crash impaired driving charges. Assuming that the introduction of RBT reduces these crashes and charges by 20\%, the annual savings in police resources would be $17,262,831. It should be emphasized that this estimate excludes the savings in police resources attributable to reductions in pre-trial preparation, court attendance, and short-term and 90-day administrative licence suspensions.

Furthermore, this estimate does not include the substantial police savings that will result from RBT’s impact on the investigation and processing of all impaired driving cases. As indicated, Canadian police are authorized to stop motorists at random, but they can only demand an ASD test from drivers whom they reasonably suspect have alcohol in their body.\textsuperscript{59}

Moreover, it is common for defence counsel to aggressively challenge the officer’s basis for demanding a roadside breath test,\textsuperscript{60} and some judges have applied an overly rigorous standard for making such demands.\textsuperscript{61}

Unless a driver admits to drinking or was driving in an impaired manner, the police generally require clear visible signs that the driver consumed alcohol. In order to gather this evidence, the police must engage in what one researcher described as “an elaborate charade involving licenses and equipment, all the time ‘sniffing the air’ for signs of alcohol”.\textsuperscript{62}

By authorizing random roadside breath testing, RBT

\textsuperscript{58} It should be noted that since British Columbia relies very heavily on both types of administrative licence suspensions, its numbers may not be representative of Canada as a whole. Moreover, Québec does not have a short-term administrative licence suspension program.

\textsuperscript{59} See supra, footnotes 12 and 13.

\textsuperscript{60} See generally R. Robertson, W. Vanlaar and H. Simpson, National Survey of Crown Prosecutors and Defence Counsel on Impaired Driving (Ottawa: TIRF, 2009), pp. 68-70 (Robertson).


\textsuperscript{62} R. Homel made this statement in reference to the police processing of impaired driving suspects in Australia prior to the enactment of RBT. In our view, it aptly captures the current Canadian situation. See Random Stopping Programs, supra, footnote 31, at p. 186.
legislation would greatly streamline the processing of drivers. The police would no longer need to question drivers, closely observe them for visible signs of impairment, slowly scrutinize their documents, and attempt to detect the odour of alcohol on their breath.

Currently, if a court finds that there were insufficient grounds to demand a preliminary breath test, the results of the subsequent evidentiary breath tests will be excluded from evidence and the driver will most likely be acquitted. As a result, challenges to an officer’s demand for a preliminary breath test figure prominently in defence strategies and acquittals. RBT legislation would eliminate an officer’s need to prove in court that he or she had reasonable grounds to suspect that the accused had consumed alcohol. In turn, this would eliminate a major ground for contesting impaired driving charges, encourage more suspects to plead guilty and reduce police trial preparation and court time if a charge proceeded to trial.

(2) Additional Costs

RBT reduces impaired driving by dramatically increasing both the perceived and actual rates of apprehension, but this requires very high levels of roadside testing. It has been estimated that maintaining the deterrent impact of RBT requires stopping and testing the equivalent of at least onethird of licensed drivers each year, which in Canada would be over 7.6 million drivers. Even higher testing levels are preferable.

63. Robertson, supra, footnote 60.
66. Transport Canada reported that there were 22,972,403 licensed drivers in
Unfortunately, there are no national statistics on the number of drivers who are currently being stopped at SBT checkpoints. Nevertheless, it is clear that millions of Canadians are stopped each year at sobriety checkpoints. For example, in 2008 the Calgary and Toronto police reported stopping 142,350 and 409,429 drivers respectively at sobriety checkpoints. If these numbers of stops are representative on a per capita basis, approximately 4.4 to 5.1 million drivers would have been stopped at checkpoints across Canada in 2008. However, even within Ontario, there is dramatic variation in the use of sobriety checkpoints. In addition to those stopped at sobriety checkpoints, millions of drivers are stopped and questioned


67. Henstridge, supra, footnote 38, at p. 115. Specifically, the authors recommend that “all states should increase highly visible stationary RBT to a level equivalent to one test per licence holder per year”. See Random Stopping Programs, supra, footnote 31, at p. 162 and G. Casey, “Random Breath Testing: a successful policy recipe” (2006), 7 Journal of the Australian College of Road Safety 29 at p. 30. In order to meet this testing level, Canadian police would have to stop and test the equivalent of almost 23 million drivers.


69. For the 2008 Calgary and Toronto population figures see letter from M. Lauzon (Reference Services Coordinator, Statistics Canada) to V. Gray (Data Resources Librarian, Western Libraries) (June 14, 2011) (Lauzon). These numbers were then used to calculate the percentage of the population of each city that was stopped. In turn, the Canadian population, which was reported to be 33,316,000, was multiplied by this percentage to estimate the total number of drivers stopped at sobriety checkpoints nationwide. Statistics Canada, CANSIM Table 051-0001, Estimates of population, by age group and sex for July 1, [2008] Canada, provinces and territories, annual (persons) (Ottawa: Statistics Canada, 2010) (Table 051-0001).

about their sobriety during routine police patrol activities each year.

While the number of drivers stopped at SBT programs may have to be increased two or threefold, there will need to be far greater increases in the number of drivers subjected to ASD testing. The Ontario Provincial Police tested considerably less than 1% of the drivers that they stopped at SBT checkpoints from 2007 to 2009. Other Ontario data, albeit limited, suggest that some municipal police forces may have slightly higher testing levels. Thus, increasing ASD testing to the minimum recommended level of one-third of licensed drivers per year would require the purchase of large numbers of ASDs and millions of disposable mouthpieces. There would be additional capital costs if Canadian police followed the lead of Australia and New Zealand in conducting subsequent evidentiary breath testing at roadside in large, specially equipped vehicles commonly referred to as “booze buses”.

(3) Summary

Implementing comprehensive RBT programs will substantially reduce some police costs but will increase others. The cost savings will come from reductions in impairment-related crashes, Criminal Code charges, short-term and 90-day roadside suspensions and from streamlining the processing of all impaired-driving suspects. The additional police costs will result primarily from the need to stop and test far more drivers than is currently the case. In Finland, these costs and savings balanced out. As one researcher noted,

72. For example, the ASD testing rate at SBT checkpoints in Waterloo and London was 1.99% and 1.36% respectively. See Waterloo Regional Police Service, Annual Report 2009, online: Waterloo Regional Police Service <www.wrps.on.ca> at p. 12 (accessed June 21, 2011) and London Police Service, 2009 Annual Report, online: London Police Service <http://www.police.london.ca> at p. 7 (accessed June 21, 2011).
73. Unlike in Australia and New Zealand, the vehicles used in Canada would have to provide a private space for suspects to consult with legal counsel prior to evidentiary breath testing. The cost of these vehicles may be partially offset by reductions in police time and the cost of transporting suspects to the police station for testing.
According to the Finnish Ministry of the Interior there has been no increase in police staffing for random breath testing and no reduction in other police activities despite a 30-fold increase in breath tests. Perhaps the reduction in road accidents and drinking and driving has freed police for other activities.”

Given the lack of information on the costs and scope of Canada’s SBT programs, it is difficult to predict the exact impact that switching to RBT will have on police costs. Nevertheless, based on the available research the additional enforcement costs will likely be largely offset by the resulting police savings.

Section III: The Impact of RBT on Driver Inconvenience

The effectiveness of RBT derives in part from its ability to process large numbers of drivers in a relatively short period of time. Once stopped, drivers are typically asked to provide a breath sample without any preliminary discussion, observation or review of the driver’s documents. The driver remains seated

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75. A Finnish study reported that a team of eight to twelve officers could test 500 drivers in half an hour. *Ibid.*, at p. 101. Based on this testing rate, the number of licensed drivers in Canada and the previously estimated 2008 hourly police cost of $85.04, it would cost less than $20 million to test the equivalent of every licensed driver in Canada each year. See Collision, *supra*, footnote 66 and Section II(1), Cost Savings, above. However, this estimate does not include police planning, setup and travelling time, or the capital costs of ASDs, mouthpieces or “breeze buses”. Nevertheless, taking into account the cost of Canada’s current SBT programs, the Finnish study suggests that the additional police costs of implementing intensive RBT programs in Canada would be less than the resulting police savings.

In contrast, a New Zealand study estimated the police costs in testing 1.2 to 1.5 million drivers per year at almost $30 million (NZ). It must be noted that in the New Zealand programs, the police screen the ambient air in close proximity to the driver’s mouth using a passive alcohol sensor. If alcohol is detected, the driver will be required to provide a breath sample on an ASD. See Miller, *supra*, footnote 39, at pp. 784, 787 and 789. Nor does this estimate take into account the costs of the existing sobriety checkpoint programs. Even discounting for these factors, the exchange rate and the cost of Canada’s current SBT programs, the New Zealand study suggests that the additional police costs of implementing intensive RBT programs in Canada would exceed any resulting police cost savings.

Given the discrepancies in these studies and the gaps in the Canadian enforcement data, it is prudent to refrain from providing more definitive estimates of the impact of RBT on police savings and expenditures.
in the car and the breath test itself takes approximately 30 seconds.\textsuperscript{76} For example, a 2004 New Zealand study indicated that most drivers who did not require subsequent evidentiary breath testing were delayed a total of two minutes or less.\textsuperscript{77}

Thus, on average, RBT will result in detentions that are shorter than, or perhaps the same as, those currently involved in Canadian SBT processing. If officers at SBT checkpoints merely ask drivers a single question, such as, “Where are you coming from?” or “Have you had anything to drink?” before waving them on, then the SBT stops will likely be about the same duration as a typical RBT check. However, if drivers are asked to produce their licence and other documents, are scrutinized for signs of alcohol consumption, or are closely questioned, the SBT stops will take much longer than a typical RBT check.

Even if Canada adopted the intensive level of RBT screening recommended by the leading researchers,\textsuperscript{78} drivers in Canada would be stopped on average once a year and subjected to a total delay of about two minutes. International experience indicates that even the most intensive RBT programs are not viewed as an inconvenience or an annoyance. For example, a 2002 Queensland survey indicated that 98.2\% of drivers supported RBT and an almost identical percentage of

\textsuperscript{76} A Finnish study reported that RBT takes “only seconds” to perform. See Dunbar, \textit{supra}, footnote 35.

\textsuperscript{77} Miller, \textit{supra}, footnote 39, at p. 783. To avoid undue delay, drivers were usually waved through when line-ups developed. Similarly, video footage of a Queensland driver undergoing RBT showed that he was detained for less than two minutes. See H. Netau, “Random Breath Test — Streets of the Whitsundays” (2008), online: YouTube <http://www.youtube.com/watch?v=SlviKmd0JBu> (accessed June 21, 2011).

Miller also indicated that drivers subjected to subsequent evidentiary breath testing were delayed an average of only five minutes, including waiting time, RBT, and driver/vehicle checks. Although evidentiary testing could be sped up in Canada if conducted at roadside in specially equipped vans, Canadian processing times will, for various reasons, never approximate those in New Zealand, Australia or most EU countries. For example, s. 258(1)(c)(ii) of the \textit{Criminal Code} requires that two evidentiary breath tests be conducted and that there be an interval of at least 15 minutes between them. Moreover, under s. 10(b) of the Charter, the suspect must be given a reasonable opportunity to contact and consult with legal counsel prior to evidentiary testing.

\textsuperscript{78} Hentridge, \textit{supra}, footnote 38, at p. 15.
support was reported in an earlier New South Wales study. In Canada, a 2010 survey found that 77% of the participants supported the enactment of RBT legislation. Moreover, international experience indicates that public support for RBT increases after implementation.

Conclusion

Impaired driving is a persistent, deadly and costly problem in Canada. Faced with similar challenges in deterring impaired driving, most comparable countries have implemented comprehensive RBT programs and achieved substantial long-term reductions in impaired driving deaths and injuries. Various research studies have consistently reported RBT to be among the most cost-effective means of deterring impaired driving. For example, a 2003 European Union study concluded that increasing annual RBT testing levels to 1 test per 16 inhabitants would save between 2,000 and 2,500 lives, and result in a cost/benefit ratio of 1:36 or 1:55, depending on the model used. A 2004 World Health Organization study reported that each dollar spent on RBT results in an overall cost saving of $19. Similarly, a 2004 New Zealand study reported a cost/benefit ratio of 1:14 for RBT alone, 1:19 for RBT coupled with a media campaign, and 1:26 for RBT in conjunction with both a media campaign and “booze buses”.

80. Ipsos Reid, Attitudes Toward Random Breath Testing (RBT) (Oakville: MADD Canada, 2010), p. 6. The survey found that 46% of respondents “strongly” and 31% “somewhat” supported the introduction of RBT.
81. For example, prior to RBT’s introduction in New South Wales, public support for RBT stood at 63.8%. By mid-1983, six months after RBT was introduced, support had increased to 85.3% and by 1987 it stood at 97%. See I. Kearns et al., “An Overview of the Random Breath Testing Trial in New South Wales” (1987), 86 Alcohol, Drugs and Traffic Safety 429 at p. 430 and Random Stopping Programs, supra, footnote 31, at p. 177.
82. Mackay, supra, footnote 47.
84. Miller, supra, footnote 59, at p. 792. See also Homel, supra, footnote 8, at p.
Despite limits in the Canadian data, three preliminary conclusions appear to be warranted. First, implementing comprehensive RBT programs will deter impaired driving and significantly reduce related deaths and injuries. Even conservatively estimated, RBT can be expected to reduce the social costs of impaired driving in Canada by more than $4.3 billion per year. Second, comprehensive RBT programs will require increased police resources to stop and screen many more drivers than is currently the case. However, these additional costs will likely be largely offset by reduced demands on police resources due to reductions in crashes and criminal charges and the streamlined processing of all impaired driving suspects. RBT will shift considerable police resources from investigating crashes and apprehending impaired drivers to preventing crashes and deterring impaired driving. In any event, any foreseeable net increase in policing costs attributable to RBT will be dwarfed by the multi-billion dollar social cost savings that it generates. Third, a comprehensive RBT program will require more drivers to be stopped and far more drivers to be subject to preliminary breath tests at roadside. However, these stops and tests involve minor delay and are unlikely to be seen as an inconvenience or annoyance. Almost 80% of Canadians already favour RBT and support will likely increase once the legislation is enacted.

The available evidence indicates that implementing comprehensive RBT programs in Canada will save hundreds of lives, prevent tens of thousands of injuries, and reduce the social costs of impaired driving by billions of dollars annually. These benefits can be achieved without significantly increasing demands on police resources or unduly burdening the driving public. Over the last 30 years, this same calculus has led the great majority of comparable countries to enact RBT legislation. There is no reason why Canada should not follow suit.

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