Estimating the Harms and Costs of Cannabis-attributable Collisions in the Canadian Provinces

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About CCSA

• **Vision:** A healthier Canadian society where evidence transforms approaches to substance use.

• **Mission:** To address issues of substance use in Canada by providing national leadership and harnessing the power of evidence to generate coordinated action.

• **Value Proposition:** CCSA was created by Parliament to provide national leadership to address substance use in Canada. A trusted counsel, we provide national guidance to decision makers by harnessing the power of research, curating knowledge and bringing together diverse perspectives.
National Priorities and Areas of Action

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This project was supported in part by a donation by State Farm Insurance to the Canadian Centre on Substance Use and Addiction.
The Canadian government has announced plans to legalize cannabis by July 1, 2018.

In 2012, 10% of Canadians used cannabis in the past year and just under half of cannabis users were estimated to have driven under the influence of cannabis.

There is increased risk of motor vehicle collision with cannabis use.

More recent and detailed cost data for driving under the influence of cannabis is needed to inform policy

- Rehm et al., (2006) cost study
- Fischer et al., (2015)
- Imtiaz et al., (2016)
Study Goals

Cannabis-attributable motor vehicle collision harms
• To calculate the numbers of people involved in fatal, injury and property damage only motor vehicle collisions attributed to driving under the influence of cannabis in each province by age

Cannabis-attributable motor vehicle collision costs
• To calculate the economic and social costs associated with these cannabis-attributable deaths, injuries and property damage only harms
Methodology

Data for 2012

1. Cannabis exposure data
2. Cannabis risk relation functions for MVCs
3. Cannabis-attributable fractions (CAFs)
4. Cannabis-attributable harms
5. MVC victim data
6. Cannabis-attributable MVC harms
7. Cost values by MVC outcome
8. Cannabis-attributable MVC costs
Findings: Driving under the Influence of Cannabis

Prevalence of driving under the influence of cannabis use by age and province

- BC
- AB
- SK
- MB
- ON
- QC
- NB
- NS
- PEI
- NL

Age groups:
- 16-19
- 20-24
- 25-34
- 35-44
- 45-54
- 55-64
- 65-74
- 75+
## Findings: Harms

### Cannabis-attributable motor vehicle collisions (2012)

<table>
<thead>
<tr>
<th>Collision outcome</th>
<th>Number of road users</th>
<th>Number of drivers (%)</th>
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<tbody>
<tr>
<td>Deaths</td>
<td>75 (95% CI: 0-213)</td>
<td>38 (95% CI: 0-109) (51%)</td>
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<tr>
<td>Injuries</td>
<td>4,407 (95% CI: 20-11,549)</td>
<td>2856 (95% CI: 13-7,486) (65%)</td>
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<tr>
<td>Property damage only involvement</td>
<td>7,794 (95% CI: 3,107-13,086)</td>
<td>6,879 (95% CI: 2,742-11,550) (88%)</td>
</tr>
</tbody>
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## Findings: Costs

**Cannabis-attributable motor vehicle collision costs by outcome severity**

<table>
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<tr>
<th>MVC outcomes</th>
<th>Costs (2012)</th>
</tr>
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<tbody>
<tr>
<td>Deaths</td>
<td>$638,776,532 (95% CI: 2,163,672-1,817,022,033)</td>
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<tr>
<td>Injuries</td>
<td>$372,797,626 (95% CI: 166,4133-977,071,132)</td>
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<tr>
<td>Property damage</td>
<td>$83,397,905 (95% CI: 33,241,586-266,203,832)</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>$1,094,972,062 (95% CI: 37,069,392-2,934,108,175)</strong></td>
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Study Limitations

- Single point in time (2012)
- B.C. DUIC generalized to other provinces (no data for territories)
- Minor MVCs under represented
- Risk estimates do not account for dose response
Conclusions

Policy Implications
• Explores the extent of the issue
• Informs priority interventions
• Greater focus on youth prevention is needed

Areas for further exploration
• Focus on younger drivers
• Expansion of roadside data collection
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Addiction matters • La dépendance, ça compte

November 13–15 Calgary, Alberta
Du 13 au 15 novembre Calgary (Alberta)

Registration Now Open L’inscription est ouverte
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