



Prevalence of Driving Distractions among High School Student Drivers in Three Canadian Cities

Oda J, Macpherson A, Middaugh-Bonney T,
Brussoni M, Piedt S, Pike I.
BC Injury Research & Prevention Unit
University of British Columbia, Vancouver, Canada
York University, Toronto, Canada



Introduction

- According to the WHO *Global status report on road safety*:
 - Road traffic injuries are the leading cause of death among young people, aged 15 to 44
 - An estimated 1.3 million people die each year and some 20 to 50 million sustain non-fatal injuries
- In Canada
 - Motor vehicle crashes are a leading cause of injury for Canadian youth ages 15 to 19
 - MVC's represent some 70% of unintentional injury deaths and 23% of unintentional injury hospitalizations

<http://www.phac-aspc.gc.ca/publicat/lcd-pcd97/index-eng.php>
(accessed: Sept 17, 2010)



Introduction

Graduated Drivers' Licensing (GDL) has been introduced in several Canadian Provinces

- 2 stages: *Learner* and *Novice* - 12 mo. each stage
- DRIVING RESTRICTIONS AND CONDITIONS (BC):
 - Zero BAC level while driving
 - No driving between midnight and 5 a.m.
 - Limit of 1 passenger, unless supervisor who is 25 years or older
 - Refrain from driving highways or expressways
 - Mandatory display of 'L' or 'N' sign/plate when driving
 - Other restrictions (e.g. Not permitted to use cell phones)



Purpose of the Study

To assess the prevalence of compliance with GDL rules and driving distractions among high school students in three Canadian cities (Halifax NS, Barrie ON & Vancouver BC) representing different geographic, socioeconomic, and jurisdictional settings

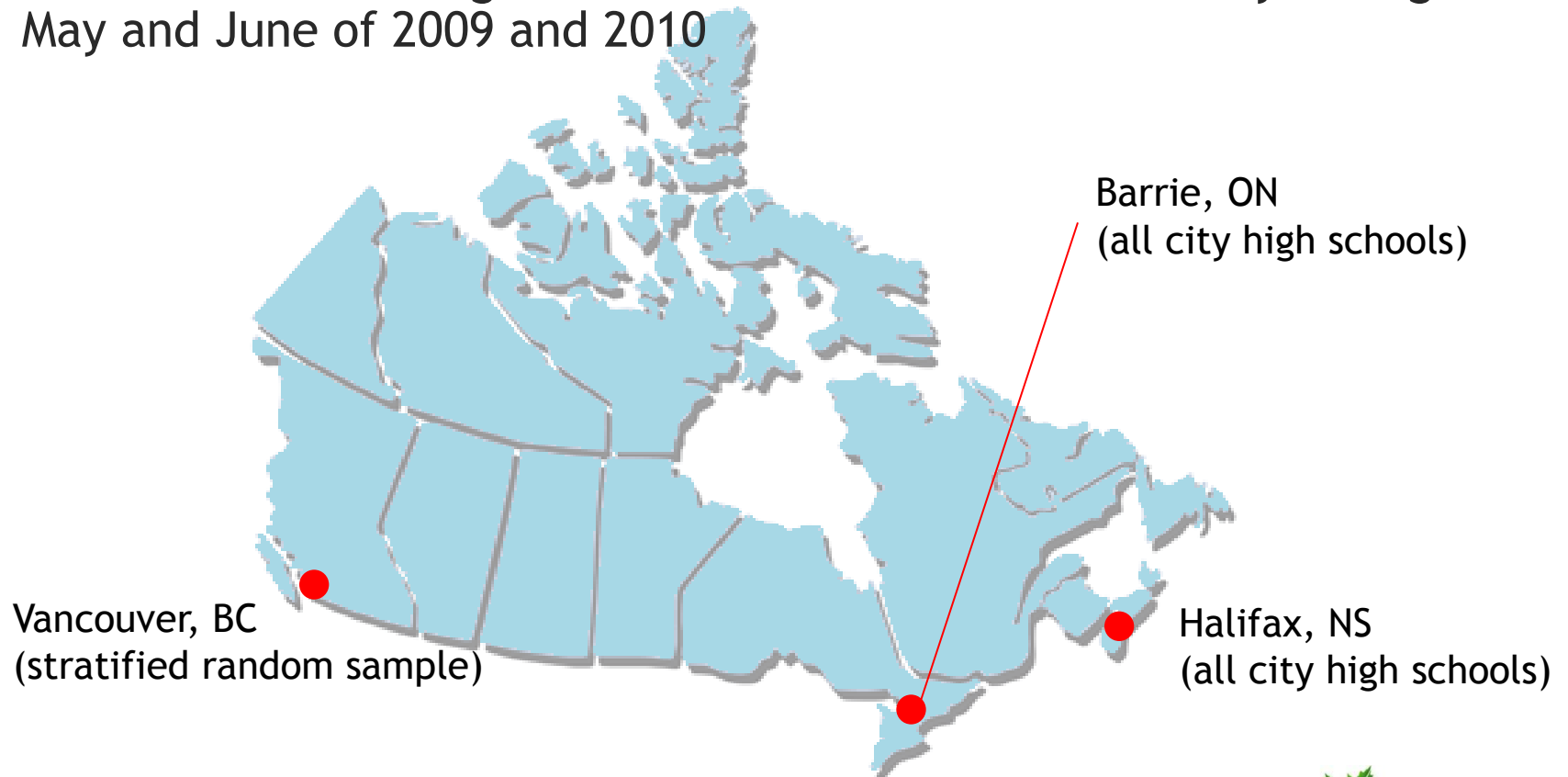


Methods

- High schools in each city were identified using two sources:
 - School board websites
 - DMTI, a company which partners with universities to disseminate spatial data
- Schools were classified into income terciles based on the after-tax income of their neighbourhood census tract, according to 2006 census
- All high schools in Barrie and Halifax were included
- In Vancouver, a random selection, stratified by income level, was used

Methods

- 30-minute observations were made by trained observers of high school drivers leaving school at the end of the school day during May and June of 2009 and 2010



Methods

- Driver:
 - Sex
 - Seatbelt use
 - Passengers
 - Distractions:
 - cell phone
 - loud music
 - eating/drinking
 - smoking



Results

Table 1: Number of schools and drivers observed (2009 and 2010)

Income	Barrie		Halifax		Vancouver		TOTAL	
	School	Drivers	School	Drivers	School	Drivers	School	Drivers
Highest	2	129	4	199	7	118	13	446
Mid	2	103	4	190	6	129	12	422
Lowest	2	60	4	151	8	204	14	415
TOTAL	6	292	13	540	21	451	40	1,283

Overall, males - 756 (58.9%)
 females - 515 (40.1%)
 unknown - 12 (1.0%)

Results - Seat Belt Use

Table 2: Number of drivers wearing a seatbelt (2009 and 2010)

	Barrie		Halifax		Vancouver		TOTAL	
Income	n	%	n	%	n	%	n	%
Highest	127	98.4	195	98.0	116	98.3	438	98.2
Mid	99	96.1	158	83.2	125	96.9	382	90.5
Lowest	58	96.7	135	88.7	201	98.5	394	94.8
TOTAL	284	97.3	488	90.4	442	98.0	1,214	94.6

Overall, males - 714 (94.5%)
 females - 489 (95.0%)
 unknown - 11 (0.5%)

Results - Passengers

Table 3a: Number of drivers with passengers (2009 and 2010)

Drivers	Passengers	%
544	0	42.4
482	1	37.6
153	2	11.9
104	3 or more	8.1

Table 3b: Proportion of drivers with passengers by city

City	%	Mean # Passengers
Halifax	99.0	2.0
Barrie	98.6	2.3
Vancouver	47.7	0.6

Results - Driver Distractions

Table 4: Number of drivers with at least one distraction (2009 and 2010)

Income	Barrie		Halifax		Vancouver		TOTAL	
	n	%	n	%	n	%	n	%
Highest	29	22.5	4	2.0	30	25.4	63	14.1
Mid	17	16.5	25	13.1	38	29.5	80	19.0
Lowest	3	5.0	16	10.6	48	23.5	67	16.3
TOTAL	49	16.8	45	8.3	116	25.7	210	16.4

- Effect of Sex:
 - Overall: males - 141 (18.6%) : females - 64 (12.4%)
- Varied by city:
 - Barrie: 22.5% : 13.7%
 - Halifax: 9.1% : 10.1%
 - Vancouver: 30.1% : 30.1%

Results - Nature of the Distraction

- Overall, 210 drivers (16.4%) had at least one driving distraction
- Of these:
 - Most common distraction: Loud music - 114 drivers (54.3%)
 - Second most common: Cell phone - 94 drivers (44.8%)
 - Third most common: Smoking - 25 drivers (12.1%)
- Vancouver had the highest proportion of drivers with at least one driving distraction: 116 of 210 (55.2%)
- Vancouver had the highest proportion of drivers observed using a cell phone while driving: 72 of 94 drivers (76.6%)

Results - Neighbourhood Income

Table 5: Number of drivers with at least one distraction by Neighbourhood Income (2009 and 2010)

Income	Barrie		Halifax		Vancouver		TOTAL	
	n	%	n	%	n	%	n	%
Highest	29	59.2	4	8.9	30	25.9	63	30.0
Mid	17	34.7	25	55.6	38	32.7	80	38.1
Lowest	3	6.1	16	33.3	48	41.4	67	31.4
TOTAL	49	100.0	45	100.0	116	100.0	210	100.0

- Effect of Neighbourhood Income:
 - Overall: mid > low > high
- Varied by city:
 - Barrie: high > mid > low
 - Halifax: mid > low > high
 - Vancouver: low > mid > high

Limitations

- Poor visibility into the interior of the cars may have resulted in misclassification
- Observations captured students' behaviour at one moment in time
 - they may engage in more risky behaviour at other times of the day
- School's neighbourhood income a proxy for income
- Results may not be generalizable to young drivers who not attend school



Conclusions

- Compliance with provincial GDL restrictions is relatively high:
 - Seat belt wearing rates in Barrie and Vancouver were 97% and 98%, respectively. However, Halifax rates were lower at 90%
 - Number of passengers were within restrictions and the fewer number in Vancouver may be explained by the stricter restriction in BC
- The presence of at least one distraction is approximately 1 in 6 drivers observed (16.4%)
 - Lower than self-report US youth data (Hedlund J, 2005) where 62% reported cell phone use and 33% failed to wear seatbelt

Conclusions

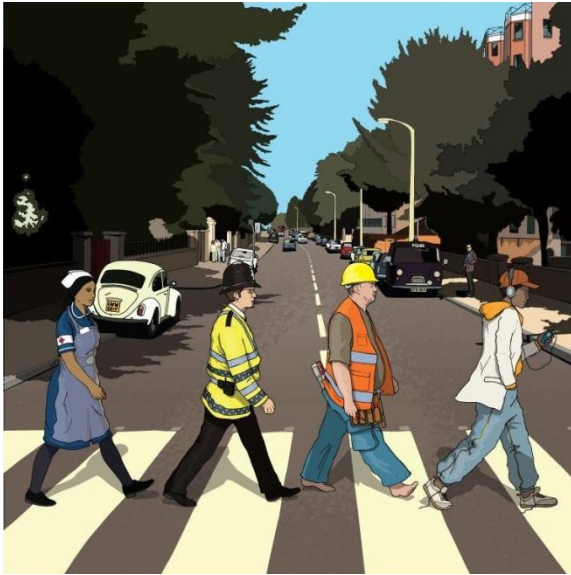
- Variations in provincial GDL requirements may have an impact on the kinds of distractions observed in each city
 - e.g. cell phone use was highest in Vancouver where legislation restricting their use did not come into force until 2010
- Distractions were seen more frequently in male drivers and drivers living in Vancouver
- The effect of socioeconomic status varied between the cities, and this data needs to be further corroborated by other studies
- Additionally, further data is needed to assess young drivers risk behaviour at other times, particularly during night driving

BC INJURY research and prevention unit



Thank you





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