

# Mobile device use by drivers before and after implementation of a new Nova Scotia distracted driving law

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# Declarations

- \* Conflicts of interest:
  - \* MADD Canada
- \* Funding:
  - \* AUTO21
- \* I just got my first cell phone....

# Mobile device use and driving ability

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## A meta-analysis of the effects of texting on driving

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# Mobile device use and crash risk

**The effects on accident risk of using mobile phones:  
problems of meta-analysis when studies are few  
and bad**

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# Mobile device use and crash risk

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## ACCIDENTS AND VIOLENCE

# Cell phone use and traffic crash risk: a culpability analysis

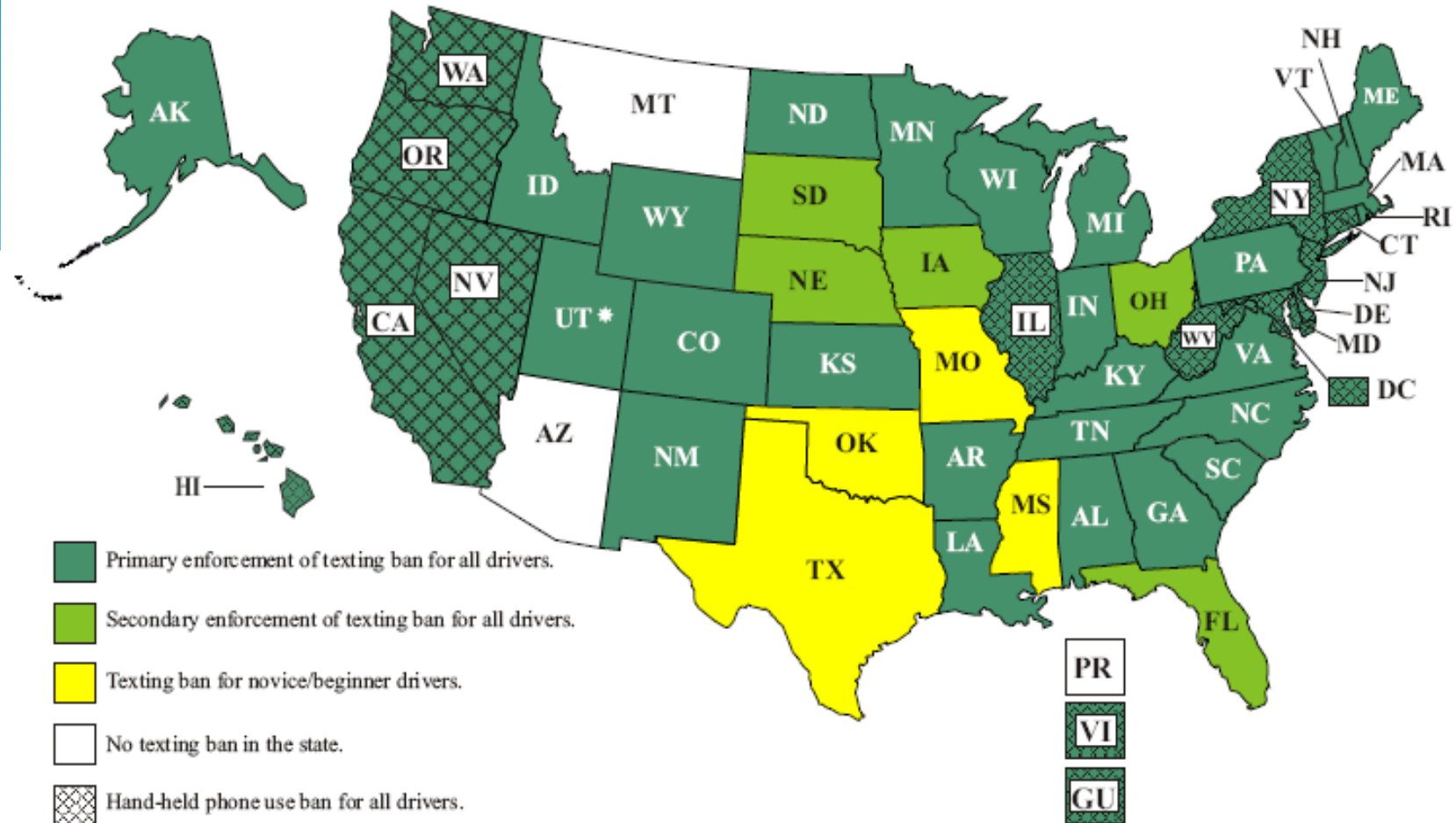
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# Cell Phone Use and Texting While Driving Laws



\* Utah considers speaking on a cell phone without a hands-free device to be an offense only if a driver also is committing some other moving violation (other than speeding).

Note: Many states that have passed hand-held phone bans and texting bans provide for various exemptions for emergencies, law enforcement personnel, emergency medical technicians, firefighters, state DOT employees, etc.

Source: National Conference of States Legislatures, 2014.

# Canadian policies

Province	Fine	Demerits	Law In Effect
British Columbia	\$167	3	February 2010
Alberta	\$172	None	September 2011
Saskatchewan	\$280	4	January 2010
Manitoba	\$200	2	July 2010
Ontario	\$280	None	October 2009
Quebec	\$115 – \$145	4	April 2008
Newfoundland and Labrador	\$100 – \$400 currently (\$45 – \$180 originally)	4	April 2003
Prince Edward Island	\$250-\$400	3	January 2010
Nova Scotia	\$233.95 first offence \$348.95 second offence \$578.95 subsequent offences	4	February 2015
New Brunswick	\$172.50	3	June 2011
Yukon	\$250	3	April 2011
Northwest Territories	\$322	3	January 2012

Table reproduced from the CAA website on Distracted Driving: <http://distracteddriving.caa.ca/education/distracted-driving-laws-in-canada.php>

# Mobile device use while driving in Nova Scotia

- \* First legislation appeared in April, 2008.
- \* Fines ranged from \$176.45 for a first offence to \$348.95 for a third or further offence.
- \* No demerit point penalty.
- \* Limited awareness campaign (radio, print, website).



# HANDS ON THE WHEEL— EYES ON THE ROAD



## AS OF APRIL 1<sup>ST</sup> IT'S THE LAW

Effective April 1, 2008, it is against the law in Nova Scotia to use a **hand-held cellular phone**, or **text messaging device**, while driving.

Under this new law, you may only drive and talk on a mobile phone by using the hands-free function. You may still use a cell phone to report emergency situations.

For information on the new law and safe cell phone use, visit [www.gov.ns.ca/tran/](http://www.gov.ns.ca/tran/)

  
**NOVA SCOTIA**  
Transportation and  
Infrastructure Renewal

## Nova Scotia Awareness Campaign

April, 2008

Jurisdiction	Effective Date of Law	Difference in ECD Usage for Talking		
		2006-07 to 2009-10	2009-10 to 2012-13	2006-07 to 2012-13
BC	01/2010	-0.7%	-0.3%	-1.0%
AB	09/2011	-5.8%	-3.4%	-9.2%
SK	01/2010	-1.0%	-1.0%	-2.0%
MB	07/2010	-2.6%	-0.9%	-3.5%
ON	10/2009	-3.5%	-1.0%	-4.5%
QC	08/2008	0.1%	-0.6%	-0.5%
NB	06/2011	-0.3%	-0.2%	-0.5%
NS	04/2008	1.9%	-1.4%	0.5%
PEI	01/2010	-0.7%	-1.9%	-2.6%
NL	04/2003	-0.7%	-0.2%	-0.9%
YK	04/2011	-1.6%	2.6%	1.0%
NT	01/2012	-2.6%	-1.1%	-3.7%
Canada		-2.2%	-1.0%	-3.2%

## Effectiveness of 2008 Nova Scotia Legislation

# Legislative changes in Nova Scotia

- New tougher penalties for motorists who are caught texting or using hand-held cell phones while driving.
- As of February 1, 2015, these fines have increased to \$233.95 for a first offence and \$578.95 for a third offence, with the addition of four demerit points on conviction.
- These new regulations give Nova Scotia some of the strongest fines for hand-held cell phone use in Canada.

# Current Study

- \* To assess whether the new legislation prohibiting the use of mobile devices while driving (including use of handheld cell phones, smartphones and other electronic devices), with an increased fine structure and use of demerit point penalties, has led to reductions in mobile device use amongst drivers in Halifax, Nova Scotia.
- \* Focus today is on 3-month post-legislation evaluation

# Methods

- Observational study of drivers at ten traffic intersections around Halifax
  - Intersections selected based on traffic flow
  - 9 out of 10 were either 2-way or 4-way stop signs; 1 was a traffic light.
  - Each intersection was monitored at three distinct times (morning rush hour, midday, evening rush hour) over the course of one day.
  - Site were visited once pre-legislation and once, again, post-legislation.

# Methods

- \* Observations were made by four data collectors, working in teams of two (focusing on one road, both directions).
- \* Information was collected on:
  - \* Total volume of traffic
  - \* Number of drivers using mobile devices
  - \* Driver descriptors (age, sex, vehicle type, whether passenger present)
- \* Each observation period lasted 50 minutes.

# Traffic Volume Counts

## Total Traffic Volume Observation Form

<b>DAY OF WEEK (CIRCLE ONE ONLY)</b> Monday.....1    Tuesday.....2    Wednesday....3 Thursday.....4    Friday.....5    Saturday.....6  <b>TIME OF DAY (CIRCLE ONE ONLY)</b> Morning.....1    Midday.....2    Evening.....3	DATE _____	PAGE NO. _____	INTERSECTION : _____
<div style="border: 1px solid black; padding: 5px;">Name: _____</div>			

### FIRST FIVE MINUTES

Total number of cars passing through in five minutes :

Total proportion of males/females :

Driver age ranges : <25

25-49

50+

# Driver Observation Form

## Distracted Driver Observation Form

<b>DAY OF WEEK (CIRCLE ONE ONLY)</b> Monday.....1    Tuesday.....2    Wednesday....3 Thursday.....4    Friday.....5    Saturday.....6	DATE _____	PAGE NO. _____	INTERSECTION : _____
<div style="border: 1px solid black; padding: 10px; margin-top: 10px;">         Name: _____       </div>			

	OBSERVATION PERIOD	VEHICLE TYPE	ACTIVITY	DRIVER SEX	DRIVER AGE
C A R O 1		1. Passenger Car	1. Talking	1. Male	1. <25
		2. Minivan/SUV	2. Typing	2. Female	2. 25-49
		3. Pickup truck	3. Both	3. Unsure	3. 50+
		4. Unsure	4. Unsure		4. Unsure
	OBSERVATION PERIOD	VEHICLE TYPE	ACTIVITY	DRIVER SEX	DRIVER AGE
C A R O 2		1. Passenger Car	1. Talking	1. Male	1. <25
		2. Minivan/SUV	2. Typing	2. Female	2. 25-49
		3. Pickup truck	3. Both	3. Unsure	3. 50+
		4. Unsure	4. Unsure		4. Unsure



# Results



# Table 1

## Percentage using handheld devices in Halifax before and after effective date of Nova Scotia cell phone driving legislation

	Percentage handheld device use				Difference in use rates	
	Pre-Legislation (December 2014)		Post-Legislation (April/May 2015)		Pre- versus Post-Legislation	
	N	Use Rate	N	Use Rate	Difference	95% CI
Overall (all 10 sites)	10,575	2.3 (n=240)	10,042	3.1 (n=314)	0.8*	(0.3, 1.2)
Time of Day						
Morning	3,450	1.9	3,216	2.1	0.2	(-0.4, 0.8)
Midday	3,107	2.6	2,890	3.6	1.0*	(0.1, 1.8)
Late afternoon	4,018	2.3	3,936	3.6	1.3*	(0.6, 2.0)
Day of Week						
Monday	1,505	2.2	1,401	3.9	1.7*	(0.4, 2.9)
Tuesday	1,587	3.4	1,428	4.1	0.7	(-0.7, 2.1)
Wednesday	2,523	1.6	2,701	2.9	1.3*	(0.5, 2.1)
Thursday	1,961	2.2	2,063	2.6	0.4	(-0.5, 1.3)
Friday	2,999	2.3	2,449	2.9	0.6	(-0.3, 1.5)
Weather						
Clear	3923	2.1	938	2.9	0.8	(-0.4, 2.0)
Cloudy	3034	2.4	4768	3.0	0.6	(-0.1, 1.3)
Unsettled	3618	2.3	4336	3.3	1.0*	(0.3, 1.7)

Statistically significant (P < 0.05) based on test of difference in proportions.

# Table 2

## Distribution of traffic flow observations\* in Halifax by driver gender, age, time of day, and day of week, and estimated use rate

Driver Characteristic	Pre-Legislation (December 2014)				Post-Legislation (April/May 2015)			
	N	%	Use Rate Estimate	95% CI	N	%	Use Rate Estimate	95% CI
Sex								
Male	1523	57.2	2.6	(2.5, 2.7)	1466	57.3	3.5	(3.3, 3.7)
Female	1140	42.8	1.8	(1.6, 2.0)	1098	42.8	2.7	(2.5,2.9)
Estimated Age								
<25 years	291	11.0	3.2	(2.9, 3.5)	355	13.8	5.3	(4.9, 5.7)
25-49 years	1547	58.1	2.7	(2.6, 2.8)	1418	55.4	3.6	(3.4, 3.8)
50+ years	827	31.0	1.1	(0.9, 1.3)	811	31.7	1.3	(1.0, 1.6)
Total	2663	100	2.3		2558	100	3.1	

\* Based on observations made in 5 min preceding and 5 min following 40-min observations of cell phone use.

# Results among mobile device users

- \* Texting was more common than talking.
- \* A higher proportion of those using hand-held devices while driving were male, between 25-49 years of age, driving passenger cars, and drove alone.
- \* These trends were consistent pre- and 3 months post-legislation with limited exceptions:
  - \* Drivers aged under 25 were more common post-legislation
  - \* Texting rates were higher post-legislation

# Long-term use rate trends in Nova Scotia

2006/2007	2008	2009/2010	2012/2013	2014	2015	2015	2016
	Law introduced				Law amended	3-month follow-up	1-year Follow-up
1.7%		3.6%	2.2%	2.3%		3.1%	?
Rural and Urban		Rural and Urban	Rural and Urban	Urban		Urban	Urban

# Discussion

- \* Nova Scotia's new distracted driving legislation did not reduce rates of mobile device use while driving 3-months post-legislation
  - \* *In fact, rates increased slightly*
- \* Limited awareness?
- \* Limited enforcement?



# Enforcement in 2008

April	11
May	57
June	83
July	110
August	114
September	170
October	163
November	270
December	185
total	1163

\* 200 or more tickets given per month in the 5 years following

# Evaluations of legislation elsewhere

- \* Studies have shown short-term effects of legislation on cell phone usage in both directions (increased usage/decreased usage) but desired effects tend to wane over time.

Study	Effect of law
McCartt et al (2003)	New York – decline in use over short term
	Connecticut (control) – no change
McCartt et al (2004)	New York – no decline in use long term
	Connecticut (control) – no change
McCartt et al (2006)	Maryland (control) – decline in use
	Virginia (control) – increased use
	Washington– decline in use
Department for Transport (2009)	London, UK – increased use



# Conclusions

- \* Early returns on Nova Scotia's new law restricting mobile device use while driving were not encouraging
- \* These results are restricted to an urban setting.
  - \* Effectiveness in rural Nova Scotia may be different.
- \* Observations 12 month post-legislation are forthcoming
  - \* As are police ticketing data

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# Questions?

Thank you