

Evaluation of the Road Safety Impact of Ontario's Speed Limiter Legislation for Large Trucks

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Large Truck Collisions in Ontario

- Large truck drivers are generally safe
 - In 2015, 70% of large truck drivers involved in collisions were coded as “driving properly”
- In 2015, 20% of fatalities on Ontario’s roads were due to collisions involving a large truck
 - Collisions involving a large truck are more dangerous than those involving only passenger vehicles

Speed Kills

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Speed provides:

- Less time to react to unexpected events
- More kinetic energy to dissipate

Speed limit changes provide natural experiments

- Most recently British Columbia, Canada

Speed-limiting systems (HTA 68.1)

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- 2009 Ontario legislation mandates electronic speed limiters for most large trucks (>11,793 kg) to be set to a maximum of 105 km/h
- Tampering with speed limiting device is prohibited
- Commercial vehicles exempted from the law
 - Bus; mobile crane; motor home; vehicle manufactured before 1995; ambulance; fire apparatus

Offences & Penalties

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- Maximum road speed setting on the electronic control module (ECM) above 105 km/h
- Indication of tampering with speed limiting device
- Driver speed recorded at/above 115 km/h (Deeming provision)
- Driver refusal to allow officers access to ECM

- Penalties:
 - Fines range from \$250 to \$20,000 (Average: \$390)

<https://www.ontario.ca/laws/statute/90h08?search=speed+limiting>
<https://www.ontario.ca/laws/regulation/900587>

Speed Limiter Jurisdictional Scan

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Mandatory Large Truck Speed Limiter Legislation

Jurisdiction	Details	Effective Date
Canada	Ontario and Quebec: large trucks (>11,793 kg)	2009
European Union	Large trucks (>12,000 kg) Buses (>10,000 kg)	1992
United States	None (currently)	N/A
Australia	Large trucks (>12,000 kg) Buses (>5,000 kg)	1990

- Ontario and Quebec are the only North American jurisdictions that require a large truck speed limiter
- Many commercial fleets in the U.S. currently use speed limiters

What We Wanted To Know

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Very few studies on speed limiters using collision data (e.g. Hickman et al., 2012)

- What is the effect on the frequency of collisions involving speeding large trucks on 100 km/h highways?
- Have there been unintended consequences in large truck driver behaviour?
- Are large truck drivers complying?

Study Data

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Collision

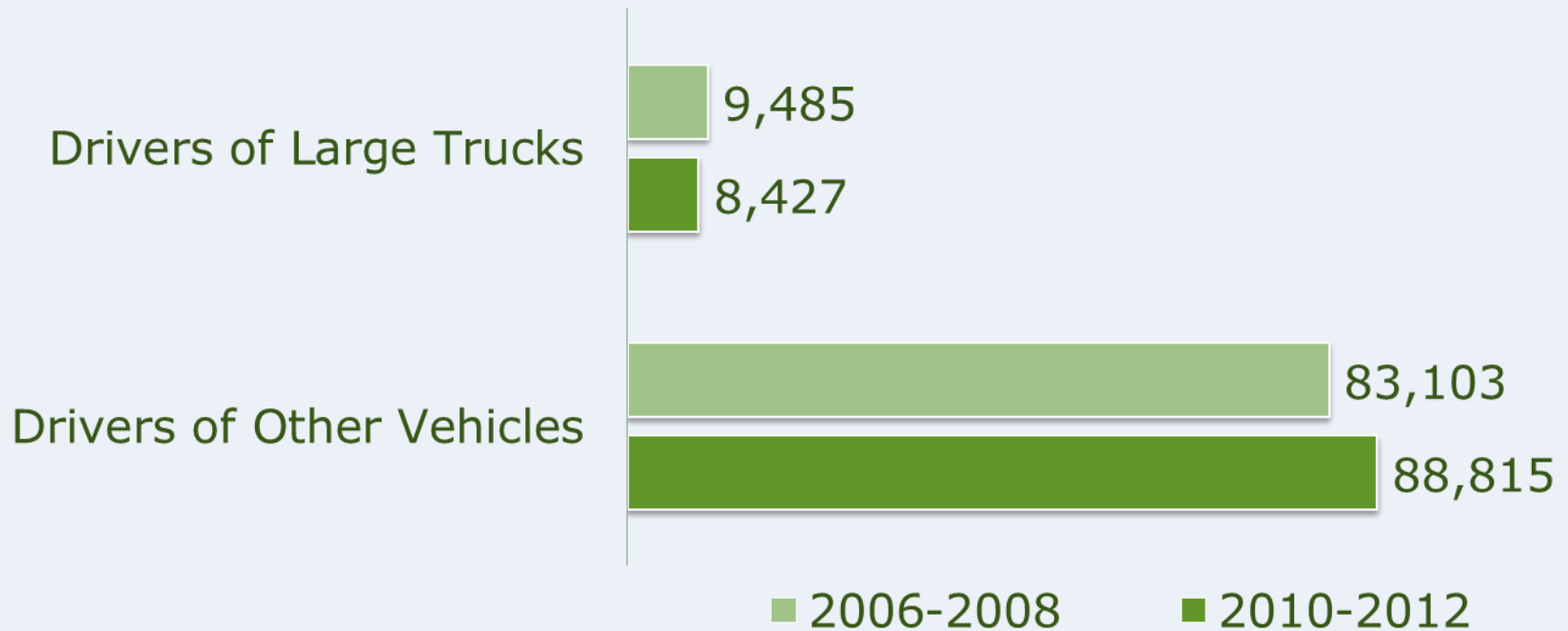
- Large trucks (11,793 kg+*); Other registered vehicles
- Pre (2006-2008) and post (2010-2012) legislation in 2009
- Fatal, Injury and Property Damage police reported collisions
- High Speed Highways (80-100 km/h)
- One year pilot (August 2014 – August 2015)
- Observed speed with LiDAR cameras
- Recorded engine speed settings

*Gross Vehicle Weight Rating (GVWR)

Compliance

A First Look At Our Data

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- 11.2% decrease for large truck drivers in collisions post 2009 speed limiter legislation

Targeted Outcome Measure

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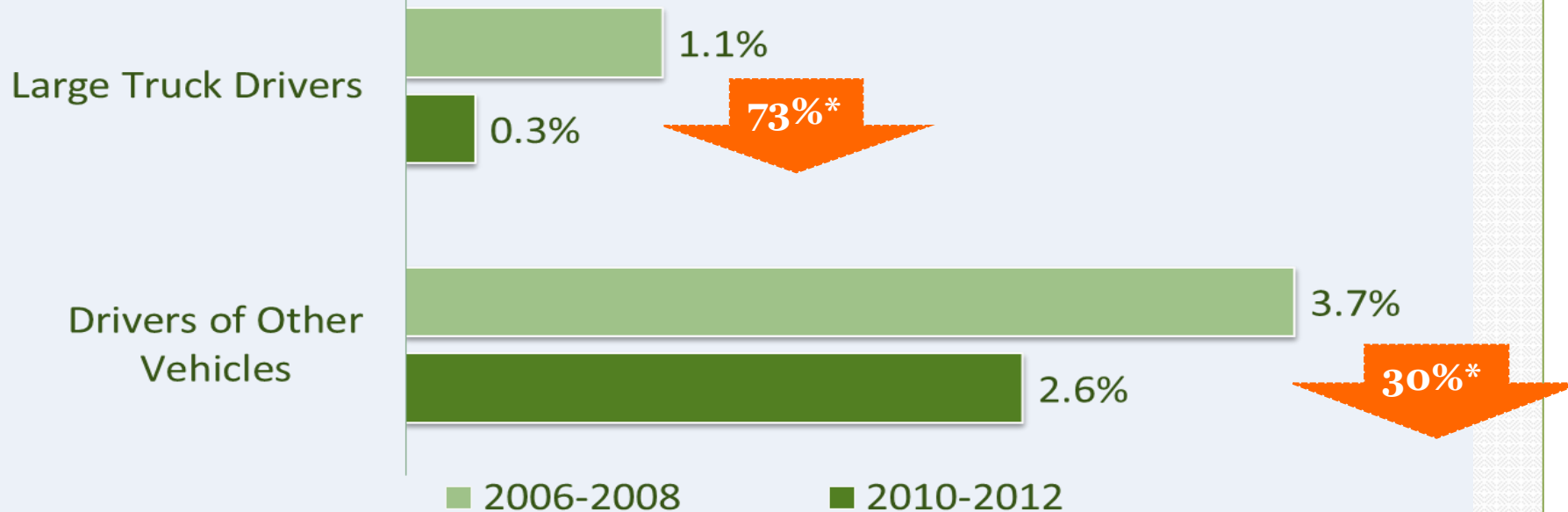
Outcome measure should:

- Isolate the intended effect of speed limiters
 - Speed is the only “at-fault” collision measure we expect to be affected by speed limiters
- Control for changes in exposure before and after implementation

What did we find? Speed collisions

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Speeding drivers in collisions on 100 km/h highways



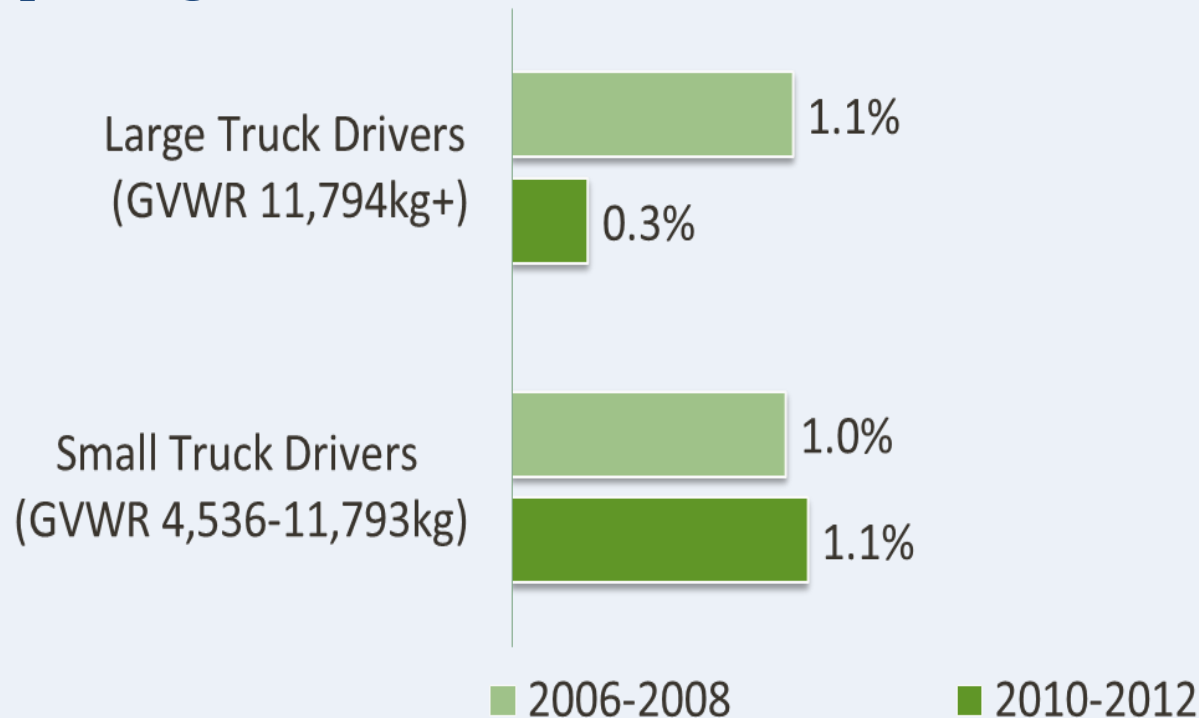
- Large truck drivers produced fewer at-fault speed collisions *relative to all at-fault driver actions*, post 2009.

*significant finding

Alternate Comparison Group

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Speeding commercial drivers in collisions on 100 km/h highways



- Small truck driver collision outcomes too few for further analysis

Transference to Other Roads?

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- Question: Do large truck drivers adjust their driving behaviour in an attempt to compensate for time lost?
 - Answer: No evidence to indicate worse collision outcomes for large truck drivers post 2009

Rear-End Crashes

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- Question: Does the speed differential created between large trucks and the general flow of traffic lead to an increase in rear-end crashes?
 - Answer: No evidence of change in proportion of large truck drivers rear-ended post 2009 on 100 km/h roads

Lead driver in rear end collision on 100 km/h roads of all drivers in collisions

	2006-2008			2010-2012		
	Rear end	Total	% of total	Rear end	Total	% of total
Large truck driver	951	9,485	10.03	882	8,427	10.47
Other driver	15,464	83,103	18.61	18,939	88,815	21.32

Compliance

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[Spoken comments]

Future Directions

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- Additional investigation underway within Ontario's Large Truck Collision Causation Study

Thank You!

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