



Comparison of a State Cell Phone Law versus a Fleet Cell Phone Policy using Naturalistic Data

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Problem

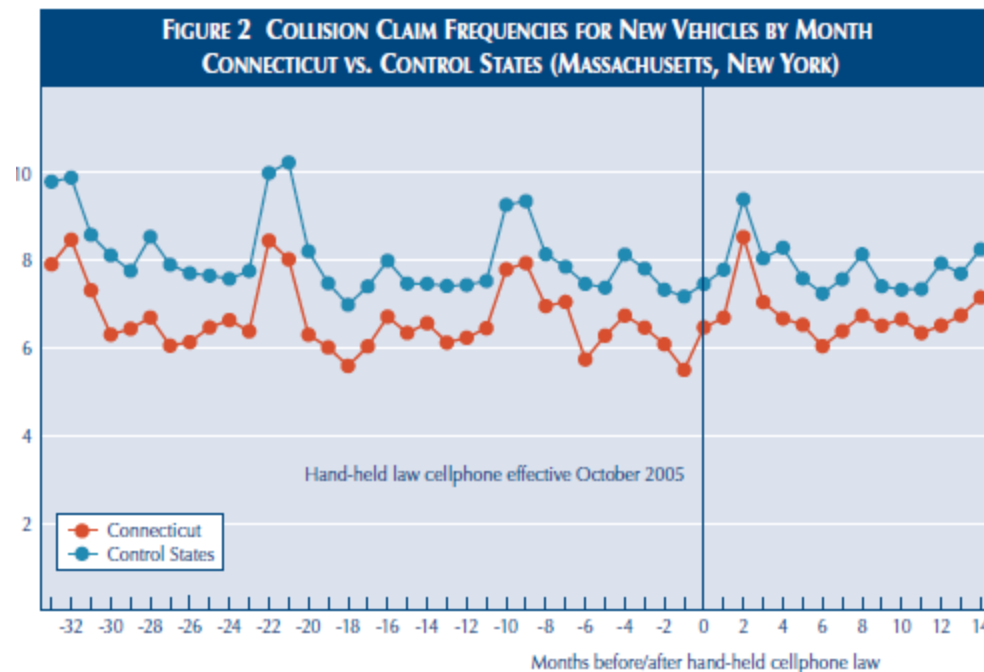
- 100 fold increase in U.S. cell phone subscribers over last 15 years (Cellular Telecommunications and Internet Association, 2010)
- 11% to 40% of drivers admit to using cell phone while driving (O'Donnel, 2009; Braitman & McCartt, 2010)
- Proportion of reported distraction crashes has increased (Distraction.gov)
- ~70% of safety-critical events (SCE) involve distraction (Klauer et al., 2006; Olson et al., 2009)

One Solution

- Policies and laws
- More states and federal agencies prohibiting use of mobile phone while driving
 - DOT/FMCSA ban on texting in all interstate commercial truck and bus drivers
 - 34 states ban texting while driving
 - 9 states ban hand-held mobile phone use
 - 30 states ban all mobile phone use in novice drivers

Effectiveness of Laws

- Results are mixed at best
 - Nikolaev et al. 2010; IIHS, 2009, 2010
- Initial benefits disappear over time



Summary of Current Study

- Use an existing naturalistic dataset
- DriveCam provided dataset
- Trucks and buses in the current study were equipped with an onboard safety monitoring
- Video recordings used by fleet safety managers
- Video and kinematic data snippets
- Authors did not receive any video data



Data Collection/Reduction

- Driver Risk Analyst reviews potential events
- Determine if the potential event was a SCE or non-event baseline
 - Spurious, triggered, non-safety event
- What behaviors contributed to the SCE
 - Crash, near-crash, crash-relevant conflict
- List behaviors that occurred
 - Operational standards developed by the vendor
 - Quality rating of 97 percent (<3 percent error rate) against their internal standards

Overview of Datasets

- Two different datasets
 - Dataset A: Sep 6, 2008 to June 5, 2009
 - No new data reduction
 - Cell phone was dichotomous (yes/no)
 - No baselines
 - Data set B: June 6, 2009 to Sep 5, 2009
 - Baselines
 - Re-review of cell phone use into discrete subtasks
 - Dialing a cell phone (hands-free and hand-held)
 - Talking/listening on a cell phone (hands-free and hand-held)
 - Reaching for a cell phone
 - Reaching for hands-free device
 - Texting/email/web

Dataset Demographics

- Dataset A
 - 195 truck and bus fleets
 - 13,431 vehicles
 - 1,336 crashes, 15,864 near-crashes, 173,591 crash-relevant conflicts
- Dataset B
 - 125 truck and bus fleets
 - 13,306 vehicles
 - 1,085 crashes, 8,373 near-crashes, 30,661 crash-relevant conflicts, and 211,171 baselines

Fleet/State Cell Phone Policies/Laws

- State laws
 - No hand-held cell phone use
 - No texting
- Fleet policies
 - No cell phone use
 - Hands-free cell phone use

Analysis Approach

- Have the location of the SCE or baseline
- Have the fleet cell phone policy
 - If unknown, excluded from analysis
- Analysis 1 combined datasets A and B
- Analysis 2 only used dataset B
- Odds ratios to assess likelihood of cell phone use

Analysis 1

- Not mutually exclusive
- Adherence not assessed

Cell Phone Use While Driving	Any State Cell Phone Law		Any Fleet Cell Phone Policy	
	No	Yes	No	Yes
No Cell Phone Use	210,024	217,632	50,261	282,042
Cell Phone Use	6,312	6,363	1,897	8,787
Odds Ratio	0.97		0.83	
95% Confidence Interval	0.94 to 1.01		0.78 to 0.87	

Analysis 2

- Mutually exclusive
- Adherence was assessed

Policy/Law	Obedied Cell Phone Law/Policy	Disobeyed Cell Phone Law/Policy	Odds Ratio	95% Confidence Interval
Only a State Hand-Held Law	12,120	521	--	--
Only a Carrier No Cell Phone Policy	56,502	1,428	1.7	1.5 to 1.9
Only a Carrier Hand-Held Policy	8,689	89	4.2	3.3 to 5.3

Conclusions (1 of 2)

- Fleet policies more effective than State laws
- Drivers obeyed fleet policies, but largely ignored State laws
- Why?
- Video-based system allowed fleets to enforce policies
 - Opportunity to monitor drivers and implement corrective feedback (and consequences)

Conclusions (2 of 2)

- Laws themselves may not alter long-term behavior change
- Enforcement or perception of enforcement is critical (Kim, 1991; Campbell, 1988; Chaudhary et al., 2004)
- Recently completed high-visibility enforcement demonstration supports this contention (Cogrove et al., 2011)
 - 57% and 32% reduction in driver hand-held cell phone
 - 72% and 32% reduction in drivers who were texting while driving