

Teenage Driver Cellular Phone Use During the First Year of Driving

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Funding Agency

Minnesota Department
of Transportation



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Teens & Phones: Driving Risk

- Teens **report** they use phones while driving
 - 33% of teen drivers reported texting or emailing while driving (CHOP, 2013)
 - 25% of teens reported they respond to texts once or more every time they drive (UMTRI, 2013)
- Teens are **observed** texting/calling while driving
 - Dialing, texting, or reaching for phone increased crash or near crash risk (Klauer et al, 2014).
- Teens using phones **crash**
 - An estimated 21% of distracted teen drivers aged 15-19 involved in a fatal crash in 2011 were using a cell phone (NHTSA, 2013)



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Minnesota Cell Phone Laws

- Texting is illegal for all drivers
 - Statute 169.475 applies to all “electronic messages” including texting, email, querying a web site, etc
 - Voice-to-text is allowed
- All types of calling are banned for teen drivers under age 18
 - Hands-held and hands-free



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UMN's Teen Driver Support System

- Coaches in the vehicle
 - Intelligent speed adaptation
 - Excessive maneuvers
 - Stop signs (Metro Area)
 - Seat belt reminder
- **Prevents phone use**
- Reports to parents
 - Text, email and web reporting



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How Does TDSS Prevent Phone Use?

- TDSS runs on a smartphone
 - Pairs with a Bluetooth device in the vehicle
 - TDSS runs in the foreground while driving
- Cannot access other apps while driving
- Silences and hides incoming phone/text alerts (sound, vibration, visual hidden)



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TDSS Field Operational Test

- Recruited 300 newly licensed teens along with 1 parent each
- Age <17, recruited prior to licensing
 - Installed within 4 weeks of receiving license
- 274 participants in final sample
 1. Control (N=92)
 2. TDSS In-vehicle System (N=92)
 3. TDSS in-vehicle System with Parent Feedback (N=90)



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Experimental Groups

- 18 communities; 6 communities per group matched (as closely as possible) for:
 - Socioeconomic status
 - Commuting rates (low, high)
 - Population (low, medium, high)
 - Rural, suburban
 - Fatal crash rates for teen drivers



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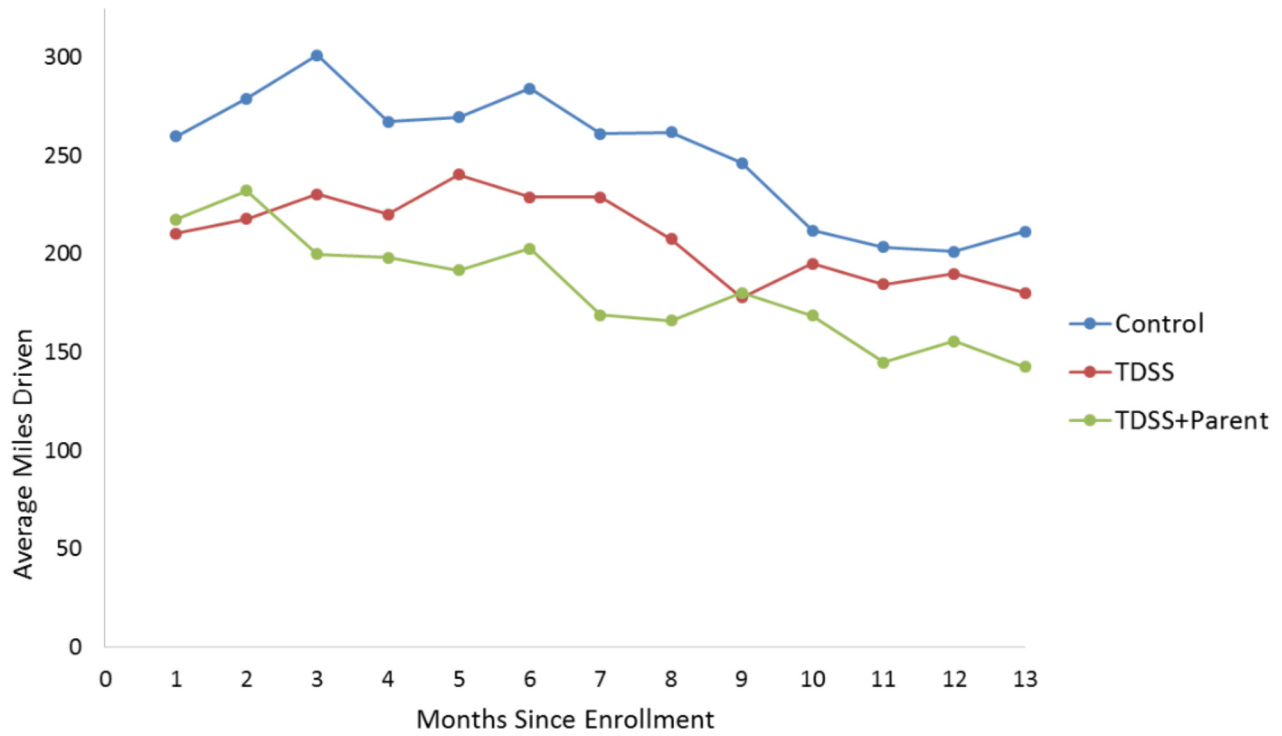
Data Collection

- Data is collected via the smartphone in real time and transmitted to server
 - 12 months
- All variables specified *a priori*
 - Validated in ongoing process through study
 - There are limitations
 - Phone must be in vehicle
 - Equipment functioning
 - Use of Parent Mode



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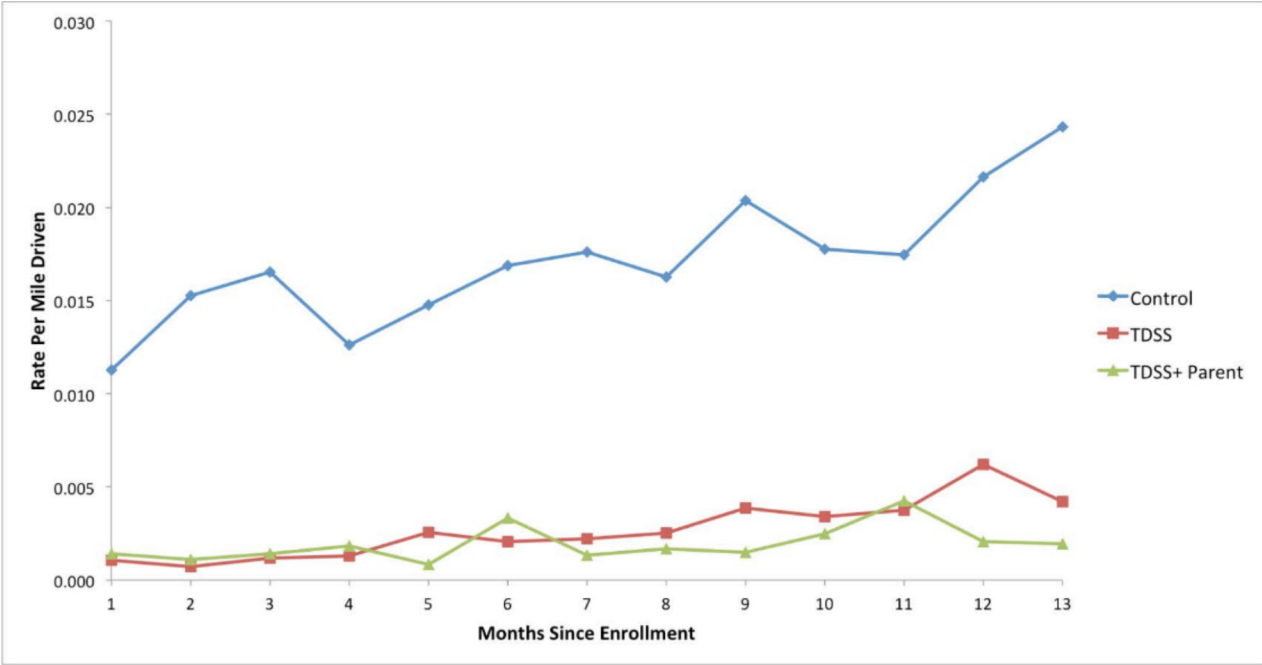
Group Mileage



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Calling While Driving (Day)

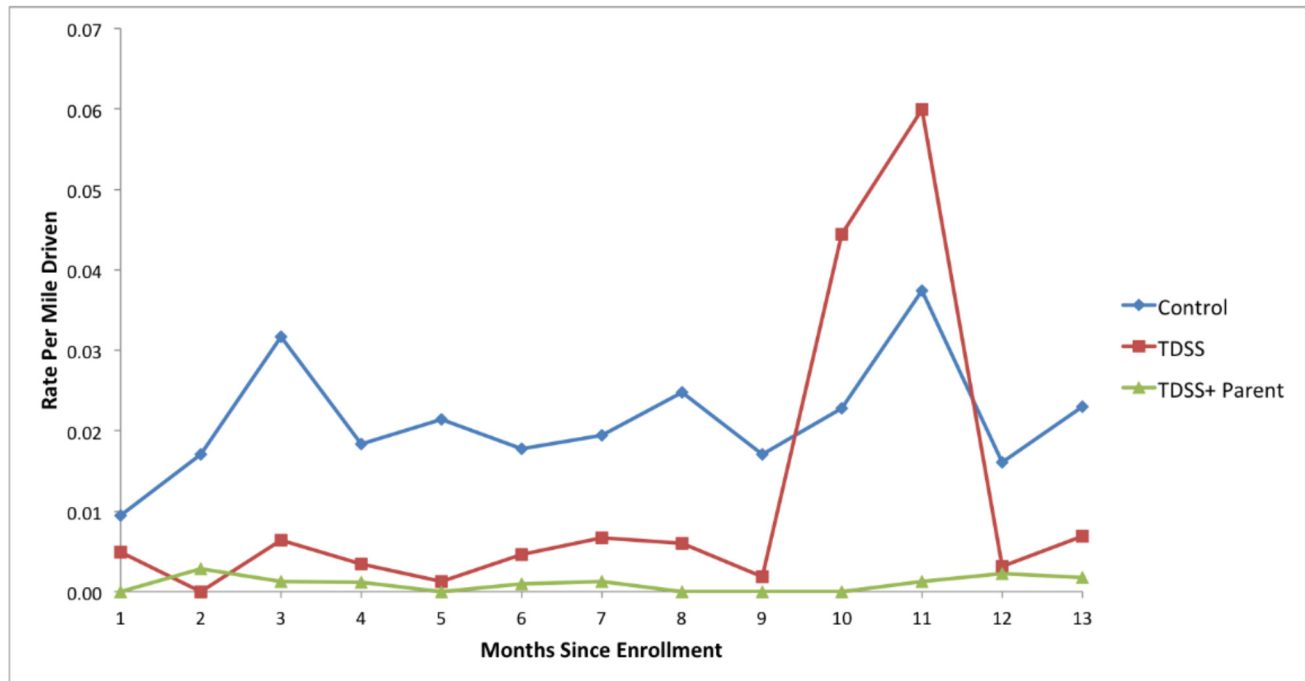


DAY: 5 a.m. – 9 p.m.



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Calls While Driving (Night)

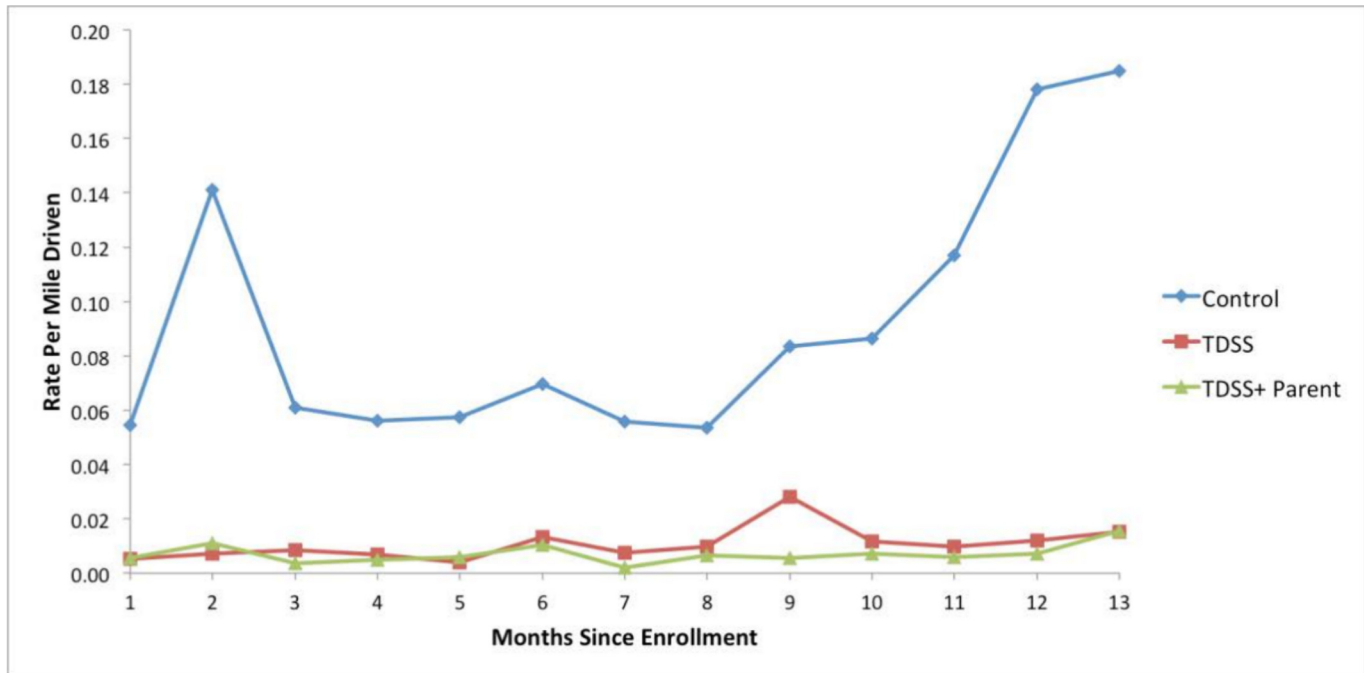


NIGHT: 9 p.m. - Midnight



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Texting While Driving (Day)

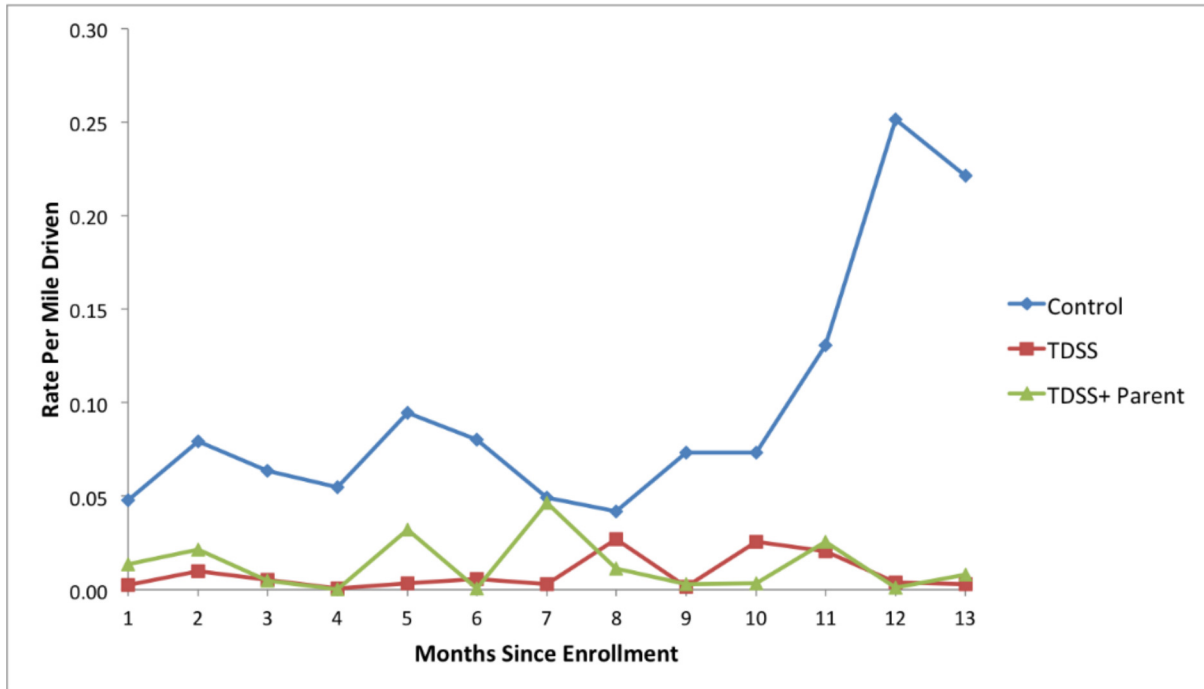


DAY: 5 a.m. – 9 p.m.



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Texting While Driving (Night)



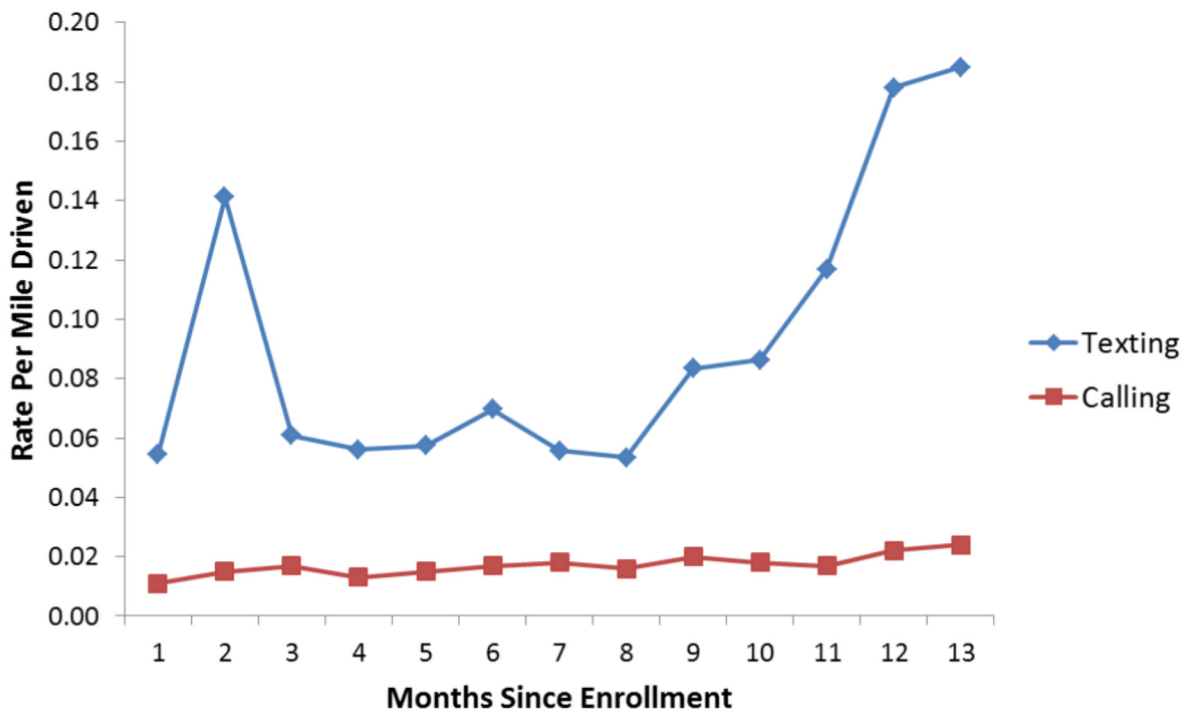
NIGHT: 9 p.m. - Midnight



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Control Group: Texting Versus Calling (Day)



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The Savvy Teen

- Borrowed a phone while driving
 - 17 teens reported doing this more than once a month (TDSS+Parent Group)
- Worked to find holes in the system
 - Started a call before starting the car
 - Used a Bluetooth voice-to-call or voice-to-text app that runs in the background



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Summary

- Overall, calling/texting in the treatment groups was significantly lower than in Control group
 - Blocking phone functions appears to work for teens
- However, they found the holes and took advantage
 - Future applications can attempt to address issues



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Implications for Traffic Safety

- Blocking of functions is effective to reduce texting and calling while driving amongst new teen drivers
 - Bans are difficult to enforce, even among teen drivers
 - All teens in this study knew the laws regarding texting/calling



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Questions?

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