

Integrated In-Vehicle Safety Systems: Countermeasures for Distracted Driving

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Ability of In-Vehicle Safety Systems

- A variety of naturalistic studies have demonstrated that integrated crash warning, or driver assistance, systems:
 - Can assist in addressing some distracted driving related crashes
 - Crashes have been averted
- Initial cost, maintenance, and repair are still relatively high
- Manufacturers and U.S. DOT are actively studying alternatives
 - Wireless, connected vehicle technology

Absence of Risk Compensation

- To date, no real-world evidence of risk compensation
 - Drivers are not performing more secondary tasks with the safety systems
 - Limited evidence that secondary behaviors are reduced
 - Durations of exposure are relatively short, so long term is still unknown
 - U.S. DOT is considering a field operational experiment just on risk compensation with in-vehicle safety systems

In-Vehicle Systems as a Countermeasure to Distraction

- Critical to understand the nature of the tasks that drivers are engaged in, and that lead to crashes
- 2008 GES data suggests that 21.7% of all crashes involve distraction
 - Cell phones are only cited in 1% of the crashes
- UMTRI analyses suggest it is probably closer to 3.5% of crashes are due to cell phones
- The MAJORITY of distraction related crashes are NOT due to cell phones

In-Vehicle Systems Relative to the Distracting Tasks

- Distraction related crashes and fatalities have plagued traffic safety for decades
 - Distraction is not new, and it is not just associated with new technology
- In-vehicle safety systems need to be designed to assist in all forms of distraction
 - Only addressing the “new” forms of distraction will have limited impact in terms of total lives saved

Further Integration of In-Vehicle Systems to Address Distraction

- The level to which safety systems are integrated into a vehicle could be enhanced
 - Increasingly, information on-board is available to support a better understanding of driver behavior
 - The approach could improve warning system accuracy and reduce false positives
 - Monitor radio, navigation, and climate control inputs to modify threat assessment algorithms
 - Eating, drinking, grooming, etc. are more challenging

Summary

- In-vehicle safety systems hold promise, but they can't address all forms of driver distraction
- New approaches that lower cost are underway
- Increased levels of integration could enhance the distraction-related safety benefit
- The distraction debate needs to address far more than cell phones