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New Data from VTTI Provides Insight into Cell Phone Use and Driving Distraction

Blacksburg, Va., July 27, 2009 – Several large-scale, naturalistic driving studies (using sophisticated cameras and instrumentation in participants' personal vehicles) conducted by the Virginia Tech Transportation Institute (VTTI), provide a clear picture of driver distraction and cell phone use under real-world driving conditions. Combined, these studies continuously observed drivers for more than 6 million miles of driving. A snapshot of risk estimates from these studies is shown in the table below.

"Given recent catastrophic crash events and disturbing trends, there is an alarming amount of misinformation and confusion regarding cell phone and texting use while behind the wheel of a vehicle. The findings from our research at VTTI can help begin to clear up these misconceptions as it is based on real-world driving data. We conduct transportation safety research in an effort to equip the public with information that can save lives," says Dr. Tom Dingus, director of the Virginia Tech Transportation Institute.

In VTTI's studies that included light vehicle drivers and truck drivers, manual manipulation of phones such as dialing and texting of the cell phone lead to a substantial increase in the risk of being involved in a safety-critical event (e.g., crash or near crash). However, talking or listening increased risk much less for light vehicles and not at all for trucks. Text messaging on a cell phone was associated with the highest risk of all cell phone related tasks.

CELL PHONE TASK	***Risk of Crash or Near Crash event***
Light Vehicle/Cars	
Dialing Cell Phone	2.8 times as high as non-distracted driving
Talking/Listening to Cell Phone	1.3 times as high as non-distracted driving
Reaching for object (i.e. electronic device and other)	1.4 times as high as non-distracted driving
Heavy Vehicles/Trucks	
Dialing Cell phone	5.9 times as high as non-distracted driving
Talking/Listening to Cell Phone	1.0 times as high as non-distracted driving
Use/Reach for electronic device	6.7 times as high as non-distracted driving
Text messaging	23.2 times as high as non-distracted driving

Explanation of Findings
Eye glance analyses were conducted to assess where drivers were looking while involved in a safety-critical event and performing cell phone tasks. The tasks that draw the driver's eyes away from the forward roadway were those with the highest risk.

Several recent high visibility trucking and transit crashes have been directly linked to texting from a cell phone. VTTI's research showed that text messaging, which had the highest risk of over 20 times worse than driving while not using a phone, also had the longest duration of eyes off road time (4.6 s over a 6-s interval). This equates to a driver traveling the length of a football field at 55 mph without looking at the roadway. Talking/listening to a cell phone allowed drivers to maintain eyes on the road and were not associated with an increased safety risk to nearly the same degree.

Recent results from other researchers using driving simulators suggest that talking and listening is as dangerous as visually distracting cell phone tasks. The results from VTTI's naturalistic driving studies clearly indicate that this is not the case. For example, talking and listening to a cell phone is not nearly as risky as driving while drunk at the legal limit of alcohol. Recent comparisons made in the literature greatly exaggerate the cell phone risk relative to the very serious effects of alcohol use, which increases the risk of a fatal crash approximately seven times that of sober driving. Using simple fatal crash and phone use statistics, if talking on cell phones was as risky as driving while drunk, the number of fatal crashes would have increased roughly 50% in the last decade instead of remaining largely unchanged.

These results show conclusively that a real key to significantly improving safety is **keeping your eyes on the road**. In contrast, "cognitively intense" tasks (e.g., emotional conversations, "books-on-tape", etc.) can have a measurable effect in the laboratory, but the actual driving risks are much lower in comparison.

VTTI's recommendations (based on findings from research studies)

- Driving is a visual task and non-driving activities that draw the driver's eyes away from the roadway, such as texting and dialing, should always be avoided.

- Texting should be banned in moving vehicles for all drivers. As shown in the table, this cell phone task has the potential to create a true crash epidemic if texting-type tasks continue to grow in popularity and the generation of frequent text message senders reach driving age in large numbers.

- "Headset" cell phone use is not substantially safer than "hand-held" use because the primary risk is associated with both tasks is answering, dialing, and other tasks that require your eyes to be off the road. In contrast, "true hands-free" phone use, such as voice activated systems, are less risky if they are designed well enough so the driver does not have to take their eyes off the road often or for long periods.

- All cell phone use should be banned for newly licensed teen drivers. Our research has shown that teens tend to engage in cell phone tasks much more frequently, and in much more risky situations, than adults. Thus, our studies indicate that teens are four times more likely to get into a related crash or near crash event than their adult counterparts.

The Disconnect Between Naturalistic and Simulator Research

It is important to keep in mind that a driving simulator is ***not*** actual driving. Driving simulators engage participants in tracking tasks in a laboratory. As such, researchers that conduct simulator studies must be cautious when suggesting that conclusions based on simulator studies are applicable to actual driving. With the introduction of naturalistic driving studies that record drivers (through continuous

video and kinematic sensors) in actual driving situations, we now have a scientific method to study driver behavior in real-world driving conditions in the presence of real-world daily pressures. As such, if the point of transportation safety research is to understand driver behavior in the real-world (e.g., increase crash risk due to cell phone use), and when conflicting findings occur between naturalistic studies and simulator studies, findings from the real-world, and not the simulator-world, must be considered the gold standard.

It is also critical to note that some results of recent naturalistic driving studies, including those highlighted here as well as others (e.g., Sayer, Devonshire and Flanagan, 2007) are at odds with results obtained from simulator studies. Future research is necessary to explore the reasons why simulator studies sometimes do not reflect studies conducted in actual driving conditions (i.e., the full context of the driving environment). It may be, as Sayer, Devonshire and Flanagan (2007) note, that controlled investigations cannot account for driver choice behavior and risk perception as it actually occurs in real-world driving. If this assessment is accurate, the generalizability of simulator findings, at least in some cases, may be greatly limited outside of the simulated environment.

NOTE: Dr. Rich Hanowski, Director of the Center for Truck and Bus Safety at VTTI, will be presenting the results of his study directed at Driver Distraction in Commercial Motor Vehicle Operations, at the First International Conference on Driver Distraction and Inattention in Gothenburg, Sweden, September 28-29, 2009.

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