

“No call, no text, no update is worth a human life.”



National Transportation Safety Board

*Attentive Driving:
Countermeasures to
Distraction*

FORUM SUMMARY

Forum on Attentive Driving: Countermeasures to Distraction
3/27/2012

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Introduction

On March 27, 2012, the National Transportation Safety Board (NTSB) hosted a 1-day forum of invited experts to discuss Attentive Driving: Countermeasures to Distraction. The forum was constructed around four panels: one introducing the topic and three covering countermeasures—enforcement, education, and engineering.

The NTSB has a history of investigating distracted driving accidents (see following section). In the recent investigation of an accident in Gray Summit, Missouri, which occurred on August 5, 2010, the NTSB determined that the probable cause of the collision was distraction, likely due to a text messaging conversation being conducted by the driver of a pickup, which resulted in his failure to notice and react to a Volvo tractor that had slowed or stopped in response to a queue in a work zone. After a decade of issuing recommendations about distraction, the NTSB called for a nationwide ban on the use of portable electronic devices while driving. In discussing countermeasures to distracted driving during the forum, we recognized that—in addition to the state-by-state ban recommended in the Gray Summit report—we need a broad public policy effort to change driver behavior.

The stated goals of the forum were (1) to further highlight the dangers of distracted driving; (2) to gather information about the effects of distraction other than from portable electronic devices; (3) to identify obstacles to implementation of the NTSB's driver distraction recommendations and discuss solutions; and (4) to gather information about the limitations of national data on distracted driving. A complete transcript of the forum is located on the NTSB website at http://www.nts.gov/news/events/2012/attentive_driving/Transcript.pdf.

Previous NTSB Highway Accidents Involving Portable Electronic Devices

Multivehicle Collision, Interstate 44 Eastbound, Gray Summit, Missouri, August 5, 2010, Highway Accident Report NTSB/HAR-11/03 (Washington, DC: National Transportation Safety Board, 2011).

Truck-Tractor Semitrailer Median Crossover Collision With 15-Passenger Van, Munfordville, Kentucky, March, 26, 2010, Highway Accident Report NTSB/HAR-11/02 (Washington, DC: National Transportation Safety Board, 2011).

Motorcoach Collision With the Alexandria Avenue Bridge Overpass, George Washington Memorial Parkway, Alexandria, Virginia, November 14, 2004, Highway Accident Report NTSB/HAR-06/04 (Washington, DC: National Transportation Safety Board, 2006).

Ford Explorer Sport Collision With Ford Windstar Minivan and Jeep Grand Cherokee on Interstate 95/495 Near Largo, Maryland, February 1, 2002, Highway Accident Report NTSB/HAR-03/02 (Washington, DC: National Transportation Safety Board, 2003).

Panel Discussions

Attention to Nondriving Tasks, Panel 1

Jeff Caird, Ph.D., University of Calgary

Donald Fisher, Ph.D., University of Massachusetts

John Lee, Ph.D., University of Wisconsin

Anne McCartt, Ph.D., Insurance Institute for Highway Safety (IIHS)

Comments of Dr. Jeff Caird

- From 1999–2008, the percentage of highway fatalities in the United States linked to distracted driving increased from 10.9 to 15.8.
- Distraction from texting is a significant problem.
- Although there is no one definitive research method that answers all driver distraction questions, the various methods do tend to be convergent, indicating that driver distraction is a problem.
- At the University of Calgary, we did a meta-analysis that included 26 studies and found that, in general, conversation increases response time to hazards and events by a quarter second. The same meta-analysis found no consistent effects of conversation on vehicle speed, headway, or lane keeping. With respect to eye movements or missed events, there were insufficient studies to make a determination.

Comments of Dr. Donald Fisher

- There are a number of categories of distraction and corresponding engineering, enforcement, and education remedies to reduce the dangers of distracted driving to the motoring public.
- Novice drivers are much more likely to be distracted than experienced drivers. For example, when trying to get change for an exact tollbooth, novice drivers are 16 times more likely to take a long, dangerous glance inside the vehicle than are experienced drivers. Novice drivers are also six times less likely to anticipate hazards when glancing outside the vehicle.
- Research has shown that, with training, novice drivers will reduce the frequency of long glances and increase their likelihood of anticipating driving hazards for up to a year after training.
- Currently, we do not know whether in-vehicle systems that require drivers to alternate glances on and off the road are safe because we are uncertain as to how long one needs to stay focused on the road to anticipate a hazard.

Comments of Dr. John Lee

- Education is not sufficient. Even well-meaning drivers who know the risks of distraction may be “seduced in the moment” by technology.
- Although vehicle entertainment systems may seem like old technology, they are not. Surface similarities belie profound differences that make something seem familiar and safe when it may not be.

- The danger comes from the huge proliferation of new types of distractions. There are over 500,000 apps for the iPhone alone—many of which are designed to be used while driving, though some are expressly designed not for such use, though drivers do so regardless.
- One major problem is that the pace of changing technology far outstrips the pace of regulatory response.
- Also, just as entertainment can distract, driving-related information can also distract, which is a growing issue as cars change dramatically from cars as we normally think of them to “computers on the road.”
- “Attentive cars”—or those that help direct drivers to attend to events of interest in the moment, but also provide feedback to help understand the dangers of certain risks—may be an answer to complement regulations, public awareness, and training.

Comments of Dr. Anne McCartt

- No study or single study approach is going to tell us all the things we need to know about the problem of distracted driving. There is ample evidence that many drivers talk on cell phones; however, we know a lot more about the use of handheld devices than hands-free devices. There are also large gaps in our knowledge about different driving situations, such as phone use at night, on busy high speed roads, or on rural roads.
- At any given time of day, survey studies indicate that about 5 percent of drivers talk on handheld cell phones while sitting at intersections. Additionally, an estimated 4

percent of drivers overall talk on hands-free phones. We know a lot less about the use of hands-free devices, and there are also large gaps in our knowledge of different driving situations.

- Most distracted driving studies are experimental, which can isolate very precisely the effects of specific cell phone tasks on driving performance. For the most part, all such studies have found decrements in driving performance with either handheld or hands-free phone tasks. However, because these are small volunteer samples where the driving and the phone tasks are controlled by the researcher, not the driver, it is unknown whether the findings generalize to drivers using their own phones and their own vehicles.
- Naturalistic driving studies have the advantage of looking at real world driving, so they very precisely document observable distractions. The biggest limitations of these studies to date are that the samples are mainly near crashes. For example, of the 500 crashes and near crashes in the 100-car study, only about 10 percent were actual crashes. In a study of commercial vehicle drivers where there were 3,600 safety relevant events, only 10 were at-fault crashes and about 112 were at-fault near crashes.
- Police crash reports do not generally aid in understanding the problem of distracted driving because it is not reliably reported.
- Two studies have verified cell phone use for crash-involved drivers. In these studies, though they had some limitations, there was a fourfold increase in crash risk when a driver was on the phone. However, based on these data, it is surprising that crash rates

have not increased, considering that studies estimate 7–10 percent of drivers being on the phone during their driving time.

- Crash awareness technologies in vehicles may help prevent crashes due to distraction, fatigue, and other types of inattention, though they will not increase our understanding of the problem of distracted driving.

General Panel 1 Discussion

- **Handheld vs. hands-free cell phones:** In general, experimental studies show that driver task performance is affected by cell phone distraction; and cell phone billing record studies show that both handheld and hands-free cell phones elevate the risk of crashing. However, naturalistic studies have generally not shown an elevated risk associated with hands-free phones.
- **Talking on the phone vs. talking with passengers while driving:** Although some passengers may self regulate their behavior depending on the driving environment, studies have shown that the presence of passengers has a protective effect in certain circumstances and a negative effect in others.
- **Other distractions:** In one meta-analysis, it was noted that distractions from “outside person, object, or event” accounted for a large proportion of crash variability.
- **Cognitive distraction vs. auditory, visual, or manual distractions:** One panelist argued that though drivers can “look but not see,” a major problem facing transportation safety professionals is that drivers “aren’t even looking.”

- **Relative efficacy of training vs. design countermeasures:** The panel agreed that training is of limited value.
- **Multitasking:** Panelists suggested that it is not clear whether humans can simultaneously process multiple cognitive tasks. One panelist discussed a performance decrement associated with multitasking. There was general agreement that drivers *think* they can effectively multitask.
- **Trends in driving distraction research:** Panelists noted that since some of the original naturalistic driving research (i.e., the “100-car study”) was completed in 2004, the nature of driving distractions has changed dramatically due to the introduction of such technology as smartphones and in-vehicle connectivity. In fact, technology may be outpacing research to understand its effects.
- **How to make attentive driving the norm:** Panelists suggested (1) antitexting laws, (2) adults modeling attentive driving behavior for their children, (3) technology that provides feedback to drivers who have looked away from the road too long, and (4) changing societal attitudes about the appropriateness of distracted driving.

Distracted Driving Laws and Enforcement, Panel 2

State Senator Bruce Starr (Oregon), National Conference of State Legislatures (NCSL)

Christopher Murphy, Governors Highway Safety Association (GHSA)

Sergeant Jerry Oberdorf, Pennsylvania State Police

Neil Chaudhary, Ph.D., Preusser Research Group

Tim Barker, York County (Pennsylvania) District Attorney's Office

Comments of Senator Bruce Starr

- State legislators will continue to play an important role in this critical discussion and policy debate. Because motor vehicle laws are under the purview of the states, these issues will continue to be debated in state capitals across the country.
- Since 2000, every state, the District of Columbia, and Puerto Rico have considered legislation related to distracted driving or, more specifically, driver cell phone use. In 2011, legislators in 37 states considered approximately 160 driver distraction bills.
- No state completely bans all cell phones for all drivers. Nine states prohibit driver use of handheld cell phones. Nevada passed a law in 2011 that makes it a misdemeanor—not a traffic infraction—to use a handheld device while driving. As of December 2011, 35 states specifically ban texting while driving for all drivers. Indiana, Maine, Nevada, North Dakota, and Pennsylvania passed texting-while-driving prohibitions in 2011. Many other states, including Oregon, changed their laws last year.
- In 2011, 15 states introduced legislation related to teen and young driver use of cell phones while operating a motor vehicle, while North Dakota, New Mexico, and

Texas enacted those laws. The Texas law prohibits young drivers from using a wireless communication device while operating a vehicle, motorcycle, or moped, except in the case of emergency.

- The challenges to enacting distracted driving legislation include (1) constituent concerns about infringements on personal liberties; (2) a belief that cell phones are being singled out and other distracting activities, such as reading or eating, are being ignored; (3) conflicting research findings on what activities (e.g., hands-free vs. handheld cell phones) pose the most risk; (4) enforcement challenges; and (5) the advent of new technologies such as smartphones.

Comments of Mr. Christopher Murphy

- In California, if you receive a ticket for handheld cell phone use or for texting while driving, it will cost you \$159. The base fine is \$20, but when you add penalties and assessments, it becomes much more expensive. California has a total ban on cell phone use for drivers under 18 and both a handheld ban and a texting ban for adults; and, in each case, those are primary enforcement laws.
- Research conducted by the California Office of Traffic Safety has shown that in 2011, 9 percent of all drivers were estimated to be talking or texting while driving during the day. Additionally, survey research found that nearly 84 percent of drivers believed that conversations or texting while driving represented the most serious driving distraction. Also, drivers reported 40 percent less cell phone usage since the introduction of California's handheld cell phone ban.

- In April 2011, California kicked off the “**IT’S NOT WORTH IT**” campaign to address distracted driving. The state allocated \$1.5 million in paid media to develop three commercial messages that were used along with National Highway Traffic Safety Administration (NHTSA) commercials. Television, radio, billboards, and social media were used to get the message out.
- In 2011, California issued almost half a million handheld cell phone use citations to drivers. From 2009–2011, citations for handheld cell phone use increased considerably. Citations for texting also increased but not at the same rate. Citations of drivers under 18 decreased slightly.
- Earlier this year, UC Berkeley looked at the periods 2 years prior to and 2 years following California’s enactment of a handheld cell phone ban while driving. Overall deaths were down 22 percent, and driver deaths associated with handheld cell phone use were down by about 47 percent.

Comments of Sergeant Jerry Oberdorf

- Prior to March 8, 2012, the Pennsylvania law enforcement community, in addressing distracted driving, could only use sections in the *Pennsylvania Vehicle Code* applicable to careless driving, reckless driving, and failing to stay within a single lane.
- In 1994, the Pennsylvania State Police investigated a crash in which a pizza delivery driver who was reaching for a slice of pizza ran a stop sign, collided with another

- vehicle, and killed a teenager. At that time, there was no aggressive enforcement of distracted driving, and the driver was issued a \$25 fine only.
- On March 8, 2012, the *Pennsylvania Vehicle Code*, Title 75, Section 3316(a), prohibiting text-based communications, went into effect. However, it is Sergeant Oberdorf's belief that it will be very difficult for the state police to enforce the law and prosecute drivers because they must have "reasonable suspicion" to pull a driver over, and because many types of manual cell phone manipulation are still legal (such as dialing and scrolling). Simply observing a driver's manual manipulation of a phone is not sufficient justification for making a stop.

Comments of Dr. Neil Chaudhary

- NHTSA recently sponsored a distracted driving survey project in Hartford, Connecticut, and Syracuse, New York. Four waves of high visibility enforcement were conducted over roughly a year. NHTSA provided paid media for the enforcement efforts, which included the slogan "**PHONE IN ONE HAND, TICKET IN THE OTHER,**" and there was extensive earned media, including onsite visits by the Secretary, U.S. Department of Transportation (DOT).
- The NHTSA study documented the number of tickets written by police, how many earned media clips occurred during the time period, the public's awareness of and attitude about the enforcement collected through a one-page survey, and observations of actual phone use made at intersections. The study also used comparison sites with no intervention to serve as control groups.

- Study results suggested that media penetration was strong. From 99–190 tickets were written by police per 10,000 people. Also, in the Hartford study, handheld cell phone use decreased from 6.8 percent before the intervention to 2.9 percent afterward. However, the study did not track driver behavior following the enforcement, nor did it track crash rates for the populations studied.

Comments of Mr. Tim Barker

- Pennsylvania recently passed its first law to ban texting while driving. Previously, distracted drivers were prosecuted under careless driving or reckless driving laws.
- Pennsylvania's first distracted driving prosecution, in 2001, involved a bag of fast food, not distraction due to a portable electronic device.
- Current laws are inadequate to address recidivism in the area of distracted driving.
- In a notable distracted driving case, Pennsylvania prosecuted a driver speeding 69.7 mph in a 55-mph zone and tailgating while applying makeup and using a smartphone. She drove into a work zone and killed a police officer who was conducting accident reconstruction.

General Panel 2 Discussion

- **Governors Highway Safety Association (GHSA):** The GHSA supports texting bans while driving but has not yet indicated support of a handheld cell phone ban.
- **Law enforcement:** There is an inherent difficulty in detecting and enforcing bans on drivers who are using cell phones.

- **Determining whether distraction caused the accident:** The Pennsylvania State Police look for skid marks to determine whether a driver attempted to stop before a collision, in addition to taking witness statements, interviewing the driver, and trying to rule out other possible causes. Search and seizure laws prohibit the state police from using cell phones or cell phone records as evidence unless they have a search warrant.
- **Enforcement and legislation:** Many points were discussed, including that (1) in some states, officers cannot require that drivers provide cell phones for inspection during a traffic stop; (2) cell phones that are “integrated devices” (that is, connected to the vehicle in some fashion) are exempt from most laws; (3) having a “distraction enhancement” to existing careless or reckless driving laws would facilitate prosecution; (4) distracted driving laws should involve “primary enforcement” and have strong penalties; and (5) training classes should be mandatory for distracted driving violations.

Attentive Driving: Changing Attitudes and Behaviors, Panel 3

Jacob Nelson, American Automobile Association (AAA)

Daniel McGehee, Ph.D., Public Policy Center, University of Iowa

David Teater, National Safety Council (NSC)

Jeffrey Michael, Ed.D., National Highway Traffic Safety Administration (NHTSA)

Comments of Mr. Jacob Nelson

- The public health protocol for tackling a health challenge involves (1) identifying the problem; (2) identifying risk and protective factors; (3) designing, evaluating, and refining theory-based interventions; and (4) ensuring widespread adoption by relevant audiences.
- Public health interventions typically involve multiple components that may include public policy, outreach, education, and community-based programs. All of these elements work in concert to influence social norms. It is rare for a single component intervention to effect a change in public health.
- In any area of public health, it is very important to know your target audience, including perceived susceptibility and perceived barriers to the issue you are trying to change. Communication-based interventions should target segmented audiences.

Comments of Dr. Daniel McGehee

- Driving, in general, is one of the most dangerous activities for teenagers. Motor vehicle crashes are the leading cause of death for teens.

- Because crash rates are highly dependent on exposure to driving, crashes typically decrease when unemployment and fuel prices increase.
- Teenagers are sensitive to peer influence and risk taking. Although some risk taking—such as driving at a high speed—is intentional, other risk taking may result from the driver’s naiveté. Additionally, it is speculated that teens may not manage distractions in the way adults do. For example, teens may elect to check a text message while entering an on-ramp rather than waiting for their vehicle to be stopped at a traffic signal.
- Teenagers appear to be expert at using portable electronic devices. However, though teens perceive themselves to be good multitaskers, they are actually not good at driving and using other devices at the same time.
- Research shows that in 2010, girls were sending approximately 4,000 texts per month and boys were sending about 2,800 texts per month. Almost 80 percent of youth are active in social networks. Mobile data use is increasing among young people while voice-based use of devices is declining.
- Graduated driver licensing systems have been shown to be effective by providing a protective environment during the early driving years. Additionally, research has shown that event-triggered video recordings of driver events paired with coaching feedback can be effective in reducing risk-related activities.

Comments of Mr. David Teater

- The National Safety Council (NSC), in 2009, called for a national ban on cell phone use while driving. In recent years, many organizations, including the NTSB, have put in place total ban policies for their employees. Other companies, especially the oil and gas industries, have had policies in place for a much longer time.
- A typical policy might specify that an employee may not use a handheld or hands-free cell phone while driving in any way, for any purpose—texting, talking, or emailing—in any of the following five circumstances: (1) driving a company car, (2) driving a personal car on company business, (3) being on company property, (4) using a company cell phone, or (5) using a personal cell phone for company business.
- Most companies that enact cell phone while driving policies do so to protect the health and safety of their employees. An additional reason is to protect employers from liability for accidents caused by distraction.
- The NSC conducted a cell phone ban survey of 10,000 members and received 2,000 responses. Within the response group, one-quarter of employers had total bans on cell phone use while driving, and only seven companies reported a decrease in productivity as a result of enacting the ban. By contrast, 46 companies reported an increase in productivity; the NSC is conducting further analysis of that result.

Comments of Dr. Jeffrey Michael

- NHTSA's hypothesis is that cell phone distraction is similar to other driver problems, such as nonuse of seat belts and drinking and driving, in that the behavior is under the driver's control, there is a clear safety implication to the behavior, and there is widespread public support for policy.
- In the early 1980s, seat belt use was less than 20 percent despite public awareness campaigns. Mandatory seat belt laws, which began in New York State in 1984, greatly increased use. By the mid-1990s, almost every state had a law, and seat belt use had risen to the 60 percent range. High-visibility seat belt enforcement raised usage levels to the 85 percentile range.
- States that have employed the full "**CLICK IT OR TICKET**" seat belt enforcement program, which includes aggressive law enforcement and paid/earned media, have experienced an 8.6 percent increase in seat belt use, while states that implemented enforcement only had increases of just 2.7 percent. States that relied only on awareness and education had increases of less than 1 percent.
- NHTSA believes that a comprehensive program to address distracted driving must involve education and employer programs, technology development, strong laws, and strong enforcement.

General Panel 3 Discussion

- **Strategies for teens and youth:** Panel members discussed (1) the role that parents can play in modeling attentive driving behavior to children; (2) the notion that the fear of hurting others is a more effective motivator for young people than the fear of hurting oneself; (3) the use of role models or peer pressure to encourage safe driving behavior; (4) the use of driver safety monitoring technologies paired with driver coaching; and (5) the use of cell phone blocking devices.
- **Incentives to encourage attentive driving behavior:** One suggestion was that teens could sign a pledge to drive distraction free and, if their driving records are clean after a year, they would be entered into a drawing for a new car. Another possible incentive may be reduced auto insurance rates for companies with cell phone policies.
- **Victim advocacy:** The involvement of victims of distracted driving was discussed as a means of changing overall social norms.
- **Employer enforcement:** Employers use various methods of enforcing cell phone bans. Some companies set up observation stations at property entrances, while others use blocking or monitoring technologies, but most simply rely on employee buy-in and peer-to-peer interactions.
- **Voice mail messages:** Voice mail messages can be used to inform those trying to call a driver that he or she is busy. Such messages may provide drivers with a rationale for why they are not answering the phone and also alert callers that the driver finds communicating while driving to be an inappropriate behavior.

Technology and Design Countermeasures, Panel 4

John Maddox, National Highway Traffic Safety Administration (NHTSA)

Linda Angell, Ph.D., Touchstone Evaluations/Virginia Tech Transportation Institute (VTTI)

James Sayer, Ph.D., University of Michigan Transportation Research Institute (UMTRI)

Robert Strassburger, Alliance of Automobile Manufacturers (AAM)

Michael Cammisa, Global Automakers

Comments of Mr. John Maddox

- Recently proposed NHTSA visual–manual guidelines state that portable electronic devices should be placed where the driver can easily see and reach them. The guidelines limit device operation to one hand only, leaving the other hand for steering; limit the amount of manual inputs required to operate a device; and limit unnecessary visual information in the driver’s field of view.
- NHTSA defines a “lockout” as a function or task that may not be operated unless the vehicle is in park or at 0 mph. “Per se lockouts” are based on law, policy, or common sense approaches, such as video, static images not related to driving, manual text entry, displaying more than 30 characters of text, and displaying automatically scrolling text.
- A second type of lockout is based on measuring and assessing how quickly a task can be completed. Any task that takes a driver’s eyes off the road for more than 2 seconds at a time or for more than 12 seconds total would be locked out unless the vehicle is in park.

- NHTSA believes that its guidelines will deter manual texting, 10-digit dialing, navigation destination manual entry while driving, manual social media communications, Internet surfing, and many other functions and features that exceed the 2- or 12-second limit.
- The guidelines would not deter integrated hands-free cell phone use, nor would they deter communication and control through voice interaction.
- The visual–manual guidelines are the first phase of a three-part program. Phase II will address visual–manual interactions for nomadic or portable devices; supporting research has been ongoing for about a year. NHTSA is now writing draft guidelines for phase II. Phase III will look at voice interfaces and address the topic of cognitive distraction.

Comments of Dr. Linda Angell

- Technology offers one promising source for preventing and mitigating distraction, but we need to develop technology countermeasures, evaluate their benefits, and integrate them with the vehicle, and most importantly with the driver and driving tasks. Choreographing the driver’s attention to the forward road is critical.
- Technology can be used to safeguard and actively support the target behavior of drivers that is central to attentive driving, such as actively scanning the forward roadway. A healthy percentage of the glances of attentive drivers are centered on the forward road center as they actively maintain and apply situational awareness.

- Strategies that may be used to “nudge” drivers toward attentive behavior include (1) decluttering techniques that improve driver focus on key information, (2) embedded training and safety coaching, (3) lockouts that block the usage of certain tasks or devices, and (4) driver workload and dialogue managers. Several of these strategies are currently in use in vehicles.
- Other approaches in development include pairing technologies that actively monitor driver attention with those that engage safety systems to prevent crashes or assist the driver in preventing them.

Comments of Dr. James Sayer

- Research shows that in-vehicle safety systems, such as forward crash warning and lane departure warning systems, can alert distracted drivers and prevent crashes. However, these technologies are considered to be a long-term solution only because it will take time to integrate them into the vehicle fleet.
- Initial research has shown no evidence of risk compensation as a result of new in-vehicle technologies—that is, when drivers have in-vehicle technologies to warn them or to prevent crashes, they do not appear to adopt riskier driving behaviors.
- Cell phone use accounts for only a small percentage of distraction-related crashes. In investigating countermeasures to distraction, we do not want to inadvertently send a message that other forms of distraction are acceptable.

Comments of Mr. Robert Strassburger

- The Alliance of Automotive Manufacturers developed its driver focus guidelines over a decade ago, and they are now in their third iteration. The guidelines help promote an environment in which drivers can better keep their eyes on the road and hands on the wheel.
- The core metric in the Alliance guidelines is the 2-second rule. Additionally, the guidelines specify that displays must be mounted high enough in the vehicle so that drivers can continue to see the roadway with their peripheral vision even while glancing at the display.
- Unlike portable electronic devices brought into a vehicle, vehicle integrated systems are designed for use in the driving environment.
- With respect to NHTSA's proposed visual-manual guidelines, the Alliance believes that the implementation of guidelines over regulations is an appropriate and preferred approach given (1) how rapidly technology is evolving, (2) the expanding state of knowledge of driver behavior behind the wheel, and (3) the Federal government's lack of authority to regulate portable electronic devices.
- The Alliance believes that the development and evolution of guidelines should be data driven and science based, and that guidelines for in-vehicle systems and those now under development by NHTSA for portable electronic devices should be finalized as a single package to avoid having drivers migrate to nomadic devices.

- Integrating a portable or carry-in device into the vehicle allows the vehicle to serve as the safety filter but requires cooperation between automakers and device manufacturers.

Comments of Mr. Michael Cammisa

- Global Automakers supports state laws for primary enforcement bans on the use of handheld devices for texting and the use of cell phones while driving.
- Automakers take a measured approach in designing a vehicle and deciding what features to include. For in-vehicle information systems, automakers look at what drivers are currently doing in their vehicles and see if they can devise a better way to assist the driver in performing these tasks in a manner compatible with the driving environment. Usability, comprehension, and safety are all considered; and existing laws, regulations, and industry standards and guidelines are also reviewed for their applicability.
- For example, a well designed navigation system may relieve the driver of stress and reduce sudden lane changes and other abrupt maneuvers, and assist in helping the driver focus on the road and traffic instead of looking at maps, handwritten instructions, and street signs.

General Panel 4 Discussion

- **Risk compensation studies:** Are drivers appropriately warned about the types of crashes safety systems are designed to prevent and the relative frequency of those alerts? Drivers actually learn from having experienced the warnings.

- **Range of driving distractions:** Do we have countermeasures to address the full range of driving distractions, and are certain types of distractions considered more socially acceptable than others?
- **Common concerns:** There were brief discussions about the timing of the various phases of the NHTSA visual–manual guidelines, the potential for vehicles to record driver use of a variety of in-vehicle technologies, and whether drivers will read/understand written warnings or training materials in their owners’ manuals.
- **Research projects:** The industry is conducting research on voice-based interfaces, and proprietary data are now available in a DOT docket (NHTSA-2007-28442). Research on in-vehicle communication systems was recently presented at the Transportation Research Board annual meeting. NHTSA is currently conducting a naturalistic study designed to understand the cognitive effects of cell phone conversations on handheld, hands-free, and integrated devices. Wayne State University and MIT are conducting brain-based research using functional magnetic resonance imaging (fMRI) and electroencephalogram (EEG) data.
- **Future trends:** Consumers are interested in safety, and automakers are competing to have the safest vehicles. All panelists agreed that in the future they expect to see a rating system on the safety and usability of in-vehicle systems.

Closing Remarks

The key takeaway from the NTSB's forum on attentive driving is that we—the government, industry, safety advocates, and the public—have to change the dialogue and focus on countermeasures to distracted driving. We have to figure out how to address distractions—all distractions—and engage in positive conversation to focus on attentive driving. In the past, the norm was an attentive driver with occasional distractions. But I think the challenge now is that those distractions really compete full time for a driver's attention.

We need a renewed respect for the driving task and for our responsibilities as drivers. Although we Americans think of our cars as tools for mobility and freedom, we see over 30,000 fatalities every year on our nation's highways. Driving a 2-ton vehicle at highway speeds has to be taken very seriously. That is another lesson to be drawn from this forum: take driving seriously, and put attention back into the driver's seat where it belongs.

Adlai Stevenson said, "All progress has resulted from people who took unpopular positions." It is important to think about the things that we are asking people to do. Pay attention when you drive. It may be unpopular to ask drivers to put their cell phones down—stop talking, stop texting—but it can be done. This behavioral change needs to happen at the grassroots level, in corporate board rooms, in legislatures, and at the family dinner table. We have to change behavior one company, one community, and one person at a time. I think we can all start right now. So, as I have said before—and, unfortunately, the statistics show that we will say again—"no call, no text, no update is worth a human life."

Chairman Deborah A.P. Hersman