



DISTRACTED DRIVING: SO WHAT'S THE BIG PICTURE?

By Robyn Robertson, President and CEO, Traffic Injury Research Foundation

In the past five years distracted driving has garnered growing media attention and rapidly emerged as one of the most high-profile, talked-about issues in road safety today. In fact, Webster's Dictionary named "distracted driving" as its word of the year in 2009 (Webster's 2009). Governments, industry, safety advocates, researchers and the public have all weighed in on the issue and what needs to be done to address it. This has resulted in an unprecedented level of national and global commitment, legislation, and policy – all designed with the intention of making roads safer. Education and enforcement activities, however, have been much less pronounced.

A major reason for the fractionated efforts to address the issue is that the big picture is often neglected. Like most road safety issues, distracted driving is trans-disciplinary in nature and therefore complex both to understand and to solve. Indeed, solutions to mitigate distracted driving have not been well-evaluated so our knowledge of what works is severely limited.

The high level of complexity and diversity of available information in mainstream media does little to inform decision-makers about concrete and viable strategies to manage the issue. To put the issue into proper perspective, this article shares insight into many different facets of distracted driving that draws upon existing research, policy documents, and activities in North America.

What is distracted driving?

While a number of definitions exist (Tasca 2005), one of the most widely accepted in Canada is acknowledged in the proceedings from an [international conference on distracted driving](#) co-hosted by the [Traffic Injury Research Foundation](#) and the [Canadian Automobile Association](#) in 2005. It states:

"Distraction involves a diversion of attention from driving, because the driver is temporarily focused on an object, person, task, or event not related to driving, which reduces the driver's awareness, decision-making, and/or performance, leading to an increased risk of corrective actions, near-crashes or crashes" (Hedlund 2006, p.2). This definition incorporates three important aspects of the problem – the source, the effects, and the consequences.

A lot of the early focus on distracted driving was generated by concerns over cell phone use. For much of the driving public, distracted driving is synonymous with cell phone usage, but the reality is this is just one small part of the problem. Distracted driving encompasses a wide range of activities, many of which have become typical in our daily driving environment.

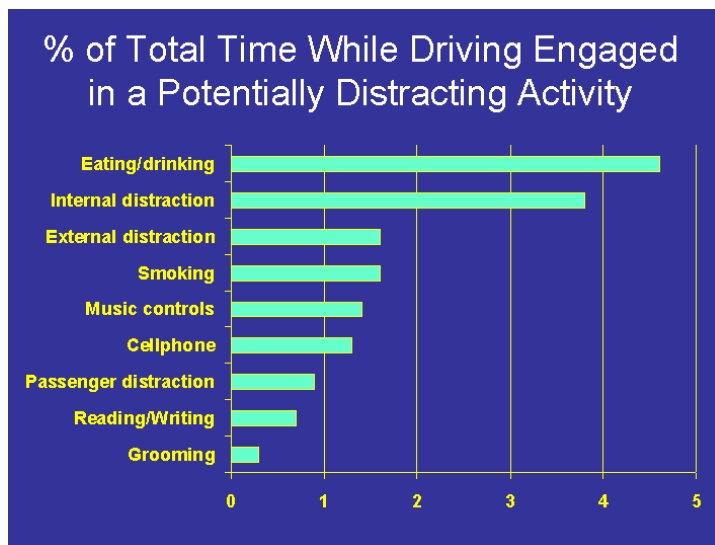
Cars themselves are continuously being equipped with new and potentially distracting "convenience technologies" (entertainment systems, navigation systems, multifunction controllers, talking cars). These are on top of the ubiquitous distractions – minding kids, talking to passengers, eating, grooming, reading billboards, and rubbernecking at stopped vehicles.

To reinforce this point, consider the data illustrated below from U.S. surveys and observational studies. Clearly there are more significant distraction sources than cell phone use.

81% talk with passengers	2.38 billion trips weekly
66% change radio or CD	1.92 billion
49% eat or drink	1.25 billion
26% make or take cell phone calls	792 million
24% deal with kids	776 million
12% read maps	414 million
8% personal grooming	349 million

Source: Beirness 2005

Figure 1



Source: Stutts 2005

In this context, there is some (conflicting) evidence that cell phone discussions are actually less disruptive than conversations with passengers or manipulating the music system (McCartt et al. 2006; Horry and Wickens 2006).

Summary. More recently, a comprehensive 2008 review of existing research funded by the U.S. National Highway Traffic Safety Administration (NHTSA) reported that “Although existing data is inadequate and not representative of the driving population, it is estimated

that drivers engage in potentially distracting secondary tasks approximately 30% of the time their vehicles are in motion” (Ranney 2008, p.iii). Research also shows that the vast majority of distractions (70-80%) are due to sources internal to the car (Stutts et al. 2001; Trezise et al. 2006).

What causes distraction?

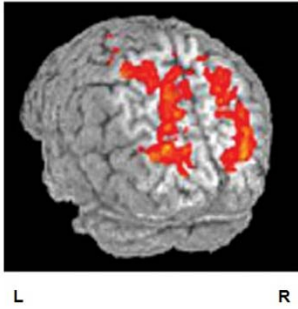
Humans are serial processors of information. They are only capable of consciously focusing attention on one task at a time (Smiley 2005). The fact that people can rapidly switch their attention back and forth across tasks leads many of them to believe that they can “multi-task”. The reality is that they can’t, and, by trying to do so, neither task may receive optimal attention or focus.

The way in which information is processed is important, since driving is a “divided attention” task involving continuous interaction of manual, visual, and cognitive components. As well, the amount of attention that drivers must allocate to driving is a function of the driver’s experience, the complexity of the driving task and the nature of the driving environment. To illustrate, inexperienced drivers must consciously focus on remaining within their lane while for experienced drivers this is very reflexive (Smiley 2005). Someone inexperienced in driving a car, particularly a technologically complex car, has to focus far more on controls and systems than someone familiar with the vehicle.

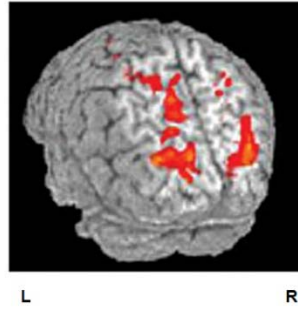
Biology is the fundamental limitation. Drivers can suffer from cognitive overload, at which point the brain must decide what information will receive attention. Some of these decisions are conscious and can be controlled whereas other decisions are subconscious (Tromblay 2010).

To illustrate, a simulator study conducted at Carnegie Mellon University examined MRI pictures of the brain while subjects drove on a simulator and listened to spoken statements. Participants had to determine if these statements were true or false. The results showed that activity in the brain’s parietal lobe (an area associated with navigation and spatial processing) decreased 37% and activity in the occipital lobe (associated with processing visual information) also decreased (Just et al.2008).

Driving alone



Driving while listening to statement



Functional magnetic resonance imaging images

Source: Carnegie Mellon University

So, as drivers focus more of their attention on secondary tasks unrelated to driving they begin to suffer from “inattention blindness”, particularly as secondary tasks become more complex. They may look but not “see” what is happening in the driving environment. It is estimated that drivers using a cell phone may fail to see up to 50% of the available information in their driving environment (Strayer 2007). Research shows that pedestrians talking on cell phones also fail to effectively monitor their environment (Nasar et al. 2008; Hatfield and Murphy 2007; Neider et al. 2010).

To illustrate changes in drivers’ visual inspection patterns, Transport Canada conducted an on road study involving 21 drivers driving an 8km city route using a hands-free technology. Drivers were required to perform no additional cognitive task, an easy cognitive task, and a difficult cognitive task. Results revealed that drivers spent less time looking in peripheral areas and more time looking centrally ahead. Reductions in the visual monitoring of instruments and mirrors by some drivers was apparent; other drivers stopped doing this entirely. Drivers also glanced less frequently at traffic lights



Forward driving view: Central and Peripheral Areas

Source: Transport Canada

compared to the No Condition task and reduced their scanning of intersection areas to the right. Drivers’ control of the vehicle was also affected in that there were more occurrences of hard braking during the most difficult cognitive tasks (Harbluk et al. 2007).

Summary: The combination of experience, driving environment and cognitive limitations places every driver at risk of significant distraction.

What is the importance of the source of distraction?

A number of simulator and observational studies have measured the effects of distracted driving. While the focus has tended to be on cell phone distractions, the results are illustrative for distraction generally.

A Canadian simulator study in Calgary involving both novice and experienced drivers using cell phones revealed that both types of drivers restricted their visual scanning while using a phone. However, while experienced drivers also slowed down, novice drivers drove at similar speeds whether on or off the phone. Novice drivers also wandered more in their lane when on the phone. Of note, experienced drivers’ perceptions and response times to pedestrian hazards deteriorated to novice levels when they were talking on the phone (Smiley et al. 2008).

In 2006, the 100-Car Naturalistic Driving study conducted by the Virginia Tech Transportation Institute examined data from 69 crashes and 761 near-crashes in conjunction with baseline data from 20,000 randomly selected, uneventful driving segments. It revealed that distraction resulting from a secondary task was reported in 33% of crashes and 27% of near-crashes. Using these data to calculate the relative risk of crashing, researchers concluded that performing a complex secondary task (e.g., reaching for a moving object, applying makeup or dialing) exposed drivers to approximately three times the risk of involvement in a crash or near-crash; moderate secondary tasks (talking/listening, eating, inserting a CD) were approximately twice the risk, and for simple secondary tasks (e.g., drinking, smoking) there was no appreciable increase in risk (Klauer et al. 2006). It should be noted that there are limitations to this study; most importantly, only a small number of crashes were studied, and many of the distraction-related crashes involved minor damage and would not have resulted in a police report (Ranney 2008).

Few studies have considered the distracting effects of operating vehicle entertainment systems because these secondary tasks are generally considered harmless. However, studies that have examined in-vehicle technologies have demonstrated that tuning or simply listening to a radio can degrade driving performance (Young et al. 2003). With regard to navigational systems, destination entry (cognitive and physical distraction) is considered the most distracting component of their use (Tijerina et al. 1998; Young et al., 2003).

Finally, a meta-analysis by Caird et al. (2008) found that either talking on a cell phone or with a passenger had approximately equal effects on driving performance. Conversations increased reaction time to events and stimuli around and within the vehicle. A similar meta-analysis of 23 experimental studies of distraction effects of phone use was conducted by Horrey and Wickens (2006). It found similar distraction impacts from handheld and hands free cell phone use, concluding that the main effect was the cognitive distraction, not the physical use of the phone.

McCartt and colleagues (2006) published a comprehensive review in which they synthesized the results of 125 studies on driver distraction and cell phone use. Slowed reaction time was the most consistent finding and degraded performance was more pronounced among older drivers (age 50 to 80).

Summary. Research shows that distracted drivers commit a wide variety of driving errors, from control sloppiness (wandering/weaving, irregular speed), to loss of situational awareness (following too close, sign/signal disobedience). These errors increase the likelihood of being involved in or causing crashes. For example, distracted drivers are more likely to be involved in rear-end crashes or single vehicle crashes and approximately 70% of distracted driver crashes involved one of these two crash types (Ranney 2008).

How big is the distracted driving problem?

Distracted driving is a very difficult problem to measure and data sources are limited for a couple of reasons. People may under-report the extent to which they engage in distracting activities, distraction may not be reported to police or noted on crash reports, and distractions can be difficult to directly observe in traffic, particularly if they take place inside the vehicle. Of importance, whereas it may be possible to identify distraction as a factor in a crash, it is more challenging to

determine if it was a causal factor. So, while measuring seat-belt use or drinking and driving are relatively straightforward, measuring distraction is not.

Estimates of the problem vary widely. As early as 1979, data from the Indiana Tri-level study were used to conclude that some form of "recognition failure" was responsible for 56% of crashes (Treat et al. 1979). A more recent study attributed driver distraction to approximately 10.5% of crash occurrences (Stutts et al. 2001; 2005). Most recently, since 2000, the 100-Car Naturalistic Driving Study showed that some form of distraction due to a secondary task was reported in 33% of crashes (Klauer et al. 2006).

However, it is generally believed that driver distraction is involved in 20-30% of road crashes (Hedlund 2006). This estimate is derived from a number of different sources including self-report data, crash data, and observational data from Canada and the U.S. which are described below. In addition, according to the NHTSA, in 2008 there were an estimated 11% of vehicles whose drivers were using some type of phone (handheld or hands free) while driving at any given time (NHTSA 2009b).

Self-report data. TIRF conducts an annual public opinion poll of Canadian drivers called the [Road Safety Monitor](#) (RSM). In 2002, the survey looked at distracted driving and found that approximately 20% of drivers reported using a cell phone while driving in the past seven days. Many (58%) drivers who used the phone while driving did so sparingly -- for less than ten minutes a week (Beirness et al. 2002).

A follow up RSM in 2006 revealed that drivers reporting cell phone use in the past seven days had increased to 37% but the proportion reporting use for less than ten minutes per week increased to 69%. So, while more Canadians are using cell phones while driving, data suggest they are using the device for shorter periods of time (Vanlaar et al. 2007).

When probed about crash involvement, the 2006 TIRF poll further revealed that almost 10% of Canadians admitted they had to brake or steer to avoid a crash because of distractions inside the vehicle, and 20% because of a distraction outside the vehicle (Vanlaar et al. 2007).

In the U.S., data from two national opinion polls conducted by the [American Automobile Association Foundation for Traffic Safety](#) (AAAFTS) in 2007/2008 revealed that more than half of drivers reported using

a cell phone while driving at least some time and of these, approximately 16% said they did so regularly. In addition, one in seven drivers admitted to text messaging. With regard to age, younger drivers reported higher levels of cell phone use and text messaging as compared to older drivers. However, the proportion of drivers aged 35-44 who report using cell phones is not significantly lower than drivers aged 18-24 (AAAFTS 2008).

Fatality data. An examination of 2008 national data in Canada that is collected by TIRF reveals that driver distraction was a factor in 13-16% of fatal crashes and between 23-27% of injury crashes. These data should be interpreted with extreme caution as distraction is clearly under-estimated in some jurisdictions (due to differences in data reporting protocols) and over-estimated in others. Similarly, an examination of Transport Canada's National Collision Data Base or NCDB suggests that distraction in fatal crashes may range from 8-18% and in injury crashes it may range from 10-21%. Again, these data should be interpreted with considerable caution due to limitations and inconsistent practices associated with data collection.

However, a growing amount of data is being collected in the U.S., beginning as early as 1995 when "driver distraction" data elements were added to NHTSA's Crashworthiness Data System (CDS). The most recent data are from 2009. During this period, 5,474 people were killed on U.S. roadways and an estimated 448,000 were injured in motor vehicle crashes that were reported to have involved distracted driving – these numbers represent approximately 16% of all fatal crashes and 20% of all injury crashes (NHTSA 2010b).

Drivers under the age of 20 accounted for the greatest proportion, with 16% involved in distraction related fatal crashes. Of all drivers involved in fatal crashes who were reportedly distracted, 30-39 year olds had the highest proportion of cell phone involvement (NHTSA 2010b). Crash studies show that distracted drivers are 50% more likely to have been killed or seriously injured as compared to attentive drivers (Ranney 2008).

Observational data. While observational data are more difficult to gather, it does reveal that the percentage of drivers visibly manipulating handheld devices while driving appears to be declining. In the U.S., it was reported that the proportion of drivers observed doing this dropped significantly from 1.0% to 0.6% in 2009.

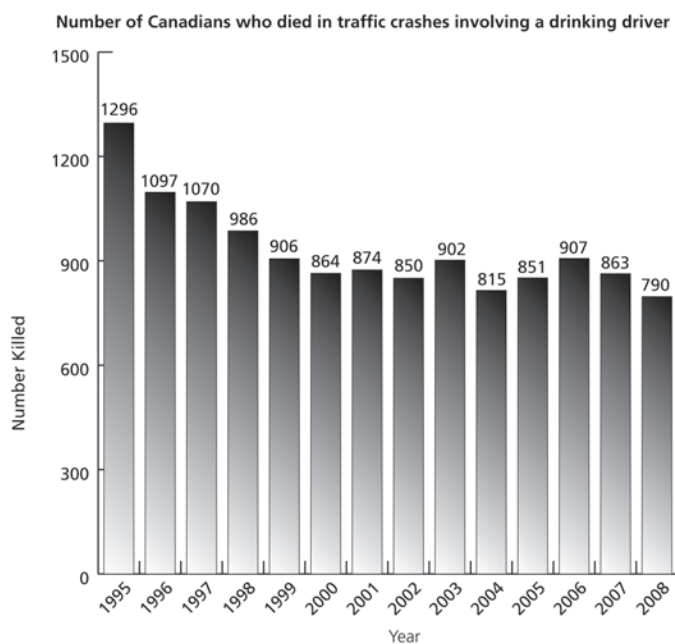
Similarly the use of handheld phones by drivers also dropped significantly from 6% in 2008 to 5% in 2009 (NHTSA 2010a).

How does distracted driving rank in relation to other road safety issues?

The three main contributors to road fatalities and serious injuries are drinking and driving, speeding and non-use of seatbelts. This is true not just in North America but in many developed countries around the world. More recently, both fatigue and distraction have also emerged as significant contributors to the crash problem. Of note, many fatal and injury crashes involve more than one causal factor.

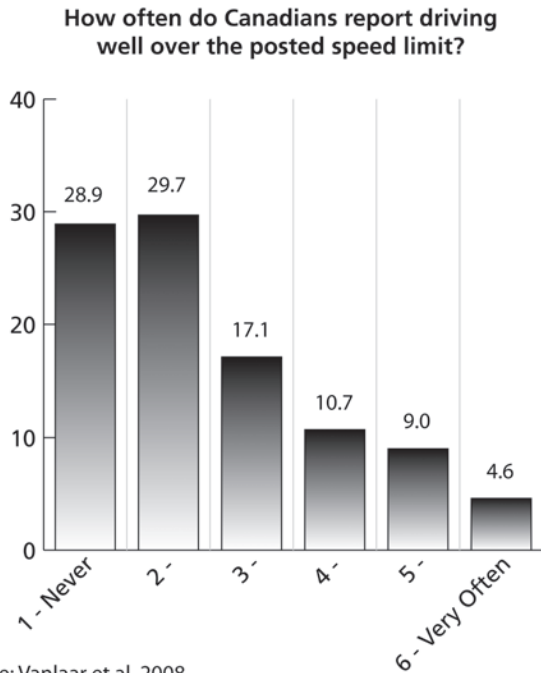
Drinking and driving. Alcohol impaired driving continues to be a significant source of crashes with 30-40% of fatalities being attributed to alcohol involvement in many developed countries. In Canada, in 2008, 33.6% of crashes involved a drinking driver (TIRF 2010a).

The most recent Road Safety Monitor (2010) from TIRF on impaired driving showed that 24.7% of Canadians reported driving after consuming any amount of alcohol in the past 30 days. However, just 5.5% of Canadians reported driving when they thought they were over the legal limit. So, the majority of drunk driving trips are accounted for by a relatively small percentage of drivers (Vanlaar et al. 2010).



Source: Vanlaar et al. 2010

Speeding. Over 20% of collisions in Canada involve excessive speeding or driving too fast for conditions. In 2006, such collisions resulted in about 800 fatalities and about 3,000 serious injuries in Canada. A 2008 Road Safety Monitor by TIRF that examined speeding revealed that 24% of Canadians (an estimated 5.4 million drivers) indicated that they drive well over the speed limit.



Source: Vanlaar et al. 2008

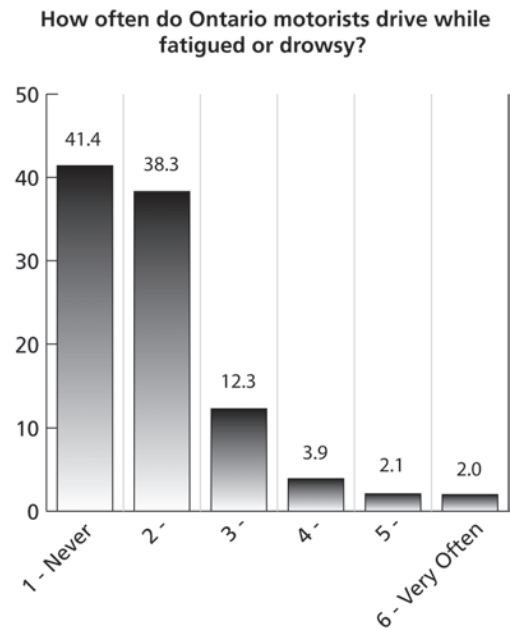
Non-use of seatbelts. In Canada, non-seatbelt use is a factor in 35-39% of fatalities and 15-22% of serious injuries among both drivers and passengers. These numbers have been declining slightly for the past few years (Transport Canada 2010a). The rate of seatbelt usage among passenger vehicles is approximately 95%. A slightly higher percentage of female drivers wear a seatbelt. And generally seatbelt usage increases with age (Transport Canada 2011).

Percentage of Driver and Passenger Fatalities and Serious Injuries Where Victims Were Not Using Seat Belts 2003–2007

	2003	2004	2005	2006	2007
Drivers					
Fatalities	38.8	40.2	34.9	36.9	35.4
Serious Injuries	15.5	16.3	14.3	16.2	16.3
Passengers					
Fatalities	39.4	39.6	35.4	38.7	38.8
Serious Injuries	20.9	23.4	19.9	24.6	24.9

Note: "Serious injuries" include victims admitted to hospital for treatment or observation.
Source: Transport Canada 2010a

Fatigue. Fatigued driving is estimated to be a factor in approximately 20% of crashes in Canada. Hard crash data to quantify fatalities and injuries in Canada is lacking, for many of the same reasons as data on distracted driving. A 2007 public opinion poll in Ontario conducted by TIRF revealed that nearly 60% of drivers admitted they have driven fatigued at least sometimes and 14.5% reported they had nodded off or fallen asleep while driving at least once in the past year (Vanlaar et al. 2007). Research by the Ontario Ministry of Transportation shows that some 26% of all fatal and injury crashes are estimated to be related to fatigued driving and that as many as 167,000 Ontario drivers may have been involved in at least one crash due to fatigued or drowsy driving in 2006 (Elzohairy 2007).



Source: Vanlaar et al. 2007

Summary. Distracted driving warrants concern and attention. It ranks among priority road safety issues in terms of the estimated number of crashes, and the number of fatalities and injuries.

However, several fundamental differences exist between distracted driving (and fatigued driving) and other road safety priorities. One is the breadth of drivers that engage in these behaviours and contribute to crashes. Alcohol impairment involves a relatively small portion of the driving population. Distraction (and fatigue), in all it causes, effects all drivers from time to time. The other difference is the depth of understanding and history of mitigation efforts. Issues such as impairment, speeding and non-seatbelt usage have been studied for decades,

are well understood, and a wide range of education, enforcement strategies and sanctions have been implemented to change driver behaviour.

Distracted driving (and fatigue) is at the other end of the spectrum. The extent to which offenders can be detected and traditional solutions such as enforcement and sanctions can be consistently applied is unknown. However, as long as public interest remains high, the opportunity exists to influence driver attitude and behaviour around distraction.

How concerned is the public?

Interest in and concern about distracted driving in Canada has grown substantially over the past decade. TIRF's 2002 RSM showed that just 40% of Canadian drivers believed that driver distraction was a serious road safety problem (Beirness et al. 2002). Cell phone use was of greatest concern with two-thirds reporting that cell phone use by drivers is a serious or extremely serious problem. A follow up TIRF RSM in 2006 revealed a substantial increase (69%) in the number of Canadians concerned about distracted driving (Vanlaar et al. 2007).

In November 2010 the Canadian Automobile Association released the results of a Canadian poll that showed distracted driving had for the first time surpassed impaired driving as the number one road safety concern with 85% reporting agreement (CAA 2010). A new TIRF RSM on distracted driving is slated for release in the Spring 2011. In the interim, the 2010 RSM on drinking and driving already confirmed that texting while driving (91.3%) has indeed surpassed drinking and driving (84.4%) as the number one road safety priority among Canadians (Vanlaar et al. 2010).



What actions are governments taking to address distracted driving?

The primary response in both Canada and the U.S. has been the passage of laws – many of which center on handheld cell phone use. Some jurisdictions have also pursued the development of educational strategies targeting the general public, employers and young drivers. A brief description of legislation and programs underway in Canada and the U.S. is provided below.

Canada. For many years, all jurisdictions in Canada have had the general offence of “driving without due care and attention”. Penalties can be quite hefty (court appearance; fines; demerits) (Wilson 2005). More recently, in response to public concern, most Canadian jurisdictions have passed legislation banning handheld devices. British Columbia and Saskatchewan have also banned hands free devices, but only among novice drivers (Transport Canada 2010b).

The main limitation of legislation targeting handheld phone use is that it gives a false impression that using a hands free phone is safe. As noted earlier, research does not bear this out.

Several jurisdictions in Canada are also implementing public awareness activities and conducting or planning an evaluation of legislation and initiatives. Actions are highlighted below. For complete details on initiatives please visit www.ccmta.ca/english/committees/rsrp/strid-distraction/strid-distraction-reports.cfm

United States. There has also been much legislation adopted in the U.S. According to the National Conference of State Legislatures, as of 2010 there are:

- > handheld phone bans for all drivers are in place in eight states and D.C.
- > handheld and hands free phone ban for school bus drivers in 18 states and D.C.
- > handheld and hands free phone ban for teen drivers in 28 states and D.C.
- > texting ban for all drivers in 30 states and D.C.
- > primary laws for texting for all drivers in 27 states
- > crash data collection in 36 states, U.S. Virgin Islands and D.C.

According to a 2010 survey of distracted driving programs conducted by the Governors Highway Safety Association, many jurisdictions are also taking action:

	Considering Evaluation of Distracted Driving Law	Examining Effectiveness of Legislation	Using Targeted Enforcement to Reduce Distracted Driving	Conducting Public Education on Distracted Driving	Conducting Observational or Survey Research	Incorporating Information in Driver Handbook	Encouraging Employers to Adopt Policies on Distraction
AB			X	X		X	X
BC							
MB				X	X	X	X
NB		X				X	
NL						X	
NS					X	X	
NT & NU				X	X	X	X
ON		X		X		X	X
PE	X			X		X	
QC	X				X	X	
SK				X	X	X	
YT							

Source: STRID, 2010

- > 27 states, D.C. and Guam have included distracted driving in their state highway safety plan;
- > 7 states have held a summit or convened a task force on this issue;
- > More than 40 states collect distracted driving data on police and/or crash reports; only 34 states collect cell phone use data that meets minimum model criteria;
- > 23 states have created special materials for teen drivers on distraction; 37 states and D.C. have public education programs; in addition 8 states are delivering distracted driving education to the judiciary;
- > 15 states and D.C. are using social media to promote anti-distracted driving messages; and,
- > 35 states report partnerships with state agencies or private employers to target distracted driving.

Future legislative initiatives. Despite the existing focus on cell phones, it is expected that more attention will be given to other forms of distraction in the future, especially with the growth of portable devices and installed vehicle technology.

As evidence of this, the Association of International Motor Vehicle Manufacturers in Canada and the Canadian Vehicle Manufacturers Association made a presentation to the [Canadian Council of Motor Transport Administrators \(CCMTA\) Road Safety and Research Policy Committee](#) at the November 2010 meeting. Their



Source: Vermette 2010

focus was on the responsibility of the auto industry in introducing technology in the vehicle that minimizes distractions.

Their main concern centered on whether lawmakers are considering distraction-related regulations that would affect existing or upcoming in-vehicle technologies. They

recommended that any new legislation or regulations solely focus on “add-on” and portable consumer electronics and equipment (CCMTA 2010).

What are employers doing?

Limited information about employer initiatives to reduce distracted driving is available in Canada. However, in the U.S. employers’ concerns are clearer. This is not surprising given that road crashes are the number one cause of work-related deaths (U.S. Department of Labor 2009).

A U.S. survey conducted by the National Safety Council in 2009 of its member companies revealed that 469 (nearly 50%) have a cell phone policy in place; a dramatic increase over the 3% of companies that reported a cell phone policy in 1999 (Bello 2010). Reasons for implementation frequently include concerns about liability as well as employee safety.

Unfortunately, many of these policies are still “hands free only”, and it is believed that this trend is a reaction to state laws as opposed to research findings. The survey further revealed that employers have three main concerns associated with such a policy: decreased productivity, challenges associated with implementation, and employee resistance. Such concerns appear unwarranted. The survey revealed that of those companies with a policy, 10% reported increased productivity, 61% saw no change and just 2% reported decreased productivity. In addition, no effect on employee morale was reported by more than half of these companies (Bello 2010).

What are Federal governments doing?

In the U.S., Federal Transportation Minister Ray LaHood convened a national summit to address the issue of distracted driving in 2009; a second summit was convened in September 2010. The summit was designed to raise awareness and brought together leaders in research, industry, and government to discuss ways to address the problem (see www.distraction.gov).

In the Fall 2009, U.S. President Barack Obama issued an Executive Order to nearly four million U.S. government employees that banned them from texting while driving in government-owned vehicles or while on official business. In May 2010, at the United Nations headquarters in New York, Secretary General Ban Ki-Moon launched a global initiative to end distracted driving in partnership with U.S. and Russian

representatives. This effort included a directive to 40,000 U.N. staff that similarly banned them from texting while driving in any U.N.-owned vehicles (GHSA 2010).

How effective are cell phone laws to reduce distracted driving?

The first U.S. state law to ban handheld phones was implemented in New York in 2001. To evaluate its effectiveness, a study compared changes in phone use rates in NY relative to the neighbouring state of Connecticut which had no such law. Findings showed that the proportion of drivers observed using handheld phones declined by about half in the months immediately following implementation of the law, however, these declines were eroded approximately one year post-implementation (McCartt and Geary 2004). A similar study conducted in D.C. revealed similar declines although these declines were still evident one year post-implementation. It has been suggested that these differences are a result of more pronounced enforcement of the law in D.C. as compared to NY (McCartt and Hellinga 2007).

Another study in North Carolina, involving a law banning the use of any type of phone by drivers under age 18, showed few effects and phone use among this population actually slightly increased following implementation of the law. Of note, follow up interviews revealed that neither teenagers nor parents felt that the law was frequently enforced (Foss et al. 2008).

It is essential to underscore two things. First, while such studies evaluate the effectiveness of cell phone bans, they provide no indication of whether these laws actually reduce crashes. Second, as is well-recognized by researchers, such laws require both public education and sustained enforcement to produce the desired change in driver behaviour in the longer-term (McCartt et al. 2010).

Perhaps the studies of greatest interest with regard to cell phone bans are those that examine the cost-benefits. Three leading studies have concluded that the practice should not be banned, showing either a societal loss or zero gain from cell phone use prohibitions (Cohen and Graham 2003).

What is the role of social norms in addressing distracted driving?

A recent study examining social influences among young drivers using mobile phones while driving was

conducted in Kuwait. The purpose was to measure the influence of different types of social norms on talking on a cell phone while driving to determine why drivers may maintain behaviour despite social norms (Riquelme et al. 2010). This study is of particular interest given that social norms are well known to play a powerful role in shaping human behaviour, yet have been less often examined in relation to road safety issues in general, and distracted driving in particular.

This study specifically examined the role of injunctive norms – those which relate to individual's perceptions of how acceptable a given behaviour is in society. The findings suggest that when drivers believe that relevant others consider the behaviour is acceptable, and that there will be no consequences (e.g., weak law enforcement), they will continue to engage in the behaviour (Riquelme et al. 2010).

These results are instructive. It has taken more than two decades to achieve a substantial shift in social norms with regard to drinking and driving. During the 1980s and into the 1990s social norms reflected that drinking and driving was acceptable; with the level of acceptability gradually declining over time. Today, drinking and driving is broadly seen as an unacceptable behaviour. This shift occurred due several factors. First, there was a wealth of research that effectively illustrated the risks associated with drinking and driving. Second, a combination of new laws, sustained enforcement, and increasing sanctions were implemented to reinforce the unacceptability of the behaviour. And finally, intensive education programs and awareness campaigns were widespread to convey the risks, and the costs and consequences to those directly involved in crashes as well as the larger social costs.

At this time, there is insufficient research available about distracted driving, and there are limitations associated with the use of sanctions and enforcement to reduce distracted driving that will make this shift in social norms much more challenging to achieve. Hence, intensive education and public awareness campaigns will likely play a much greater role in shifting attitudes and behaviours.

What is the “big picture” conclusion?

Distracted driving is an important road safety issue that warrants our concern and attention. We can validly measure the effect of distractions on driving abilities and can demonstrate tangible performance decrements

in relation to the driving task across all types of drivers regardless of experience. The level of crash risk increases in relation to certain forms of distraction. And, the effects of distraction are particularly pronounced among younger drivers, although they span all age groups and may also be a larger issue for elderly drivers.

We also can demonstrate that distraction plays a significant role in relation to road fatalities and injuries with indications that the magnitude of the problem is comparable to the number of deaths and injuries resulting from other major road safety problems such as drink driving, speeding and non-usage of seatbelts.

The current focus on handheld phone use as part of the distracted driving problem is akin to picking the low-hanging fruit. Of all distractions, this one may be easier to address using traditional and proven strategies such as education, enforcement and sanctions. The issue can also be boiled down to a very simple message that the driving public can understand. However, the danger is, once these laws are in place, legislators and the public thinking “problem solved” when in fact cell phone use is the tip of the iceberg.

The good news is that significant efforts have been made and continue to raise awareness about distracted driving. Government commitment and leadership are essential to increase the visibility of this issue.

The bottom line is that, in order to substantially reduce risk, we need a much broader approach to distracted driving than the one currently taken; one that places a much greater emphasis on the many other sources of distraction. The expanding role of technology in the driving environment needs to be better understood and managed to reduce distraction. And, educational initiatives that leverage existing knowledge about social norms and ways to shape them should be at the forefront of these efforts.

Where can I find more information about distracted driving?

- > **Canada**
Road Safety Monitor: Distracted Driving 2010 (Coming Soon)
Traffic Injury Research Foundation
<http://www.tirf.ca/main.php>
- > Distracted Driving Monitoring Report
Canadian Council of Motor Transport Administrators, May 2010

<http://www.ccmta.ca/english/committees/rsrp/strid-distraction/strid-distraction-reports.cfm>

- > Road Safety Monitor Distracted Driving: 2006
Traffic Injury Research Foundation
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