TRAFFIC INJURY RESEARCH FOUNDATION

DISTRACTED DRIVING:
A NATIONAL ACTION PLAN

Canadian Coalition on
DISTRACTED DRIVING

TIRF

The knowledge source for safe driving

Traffic Injury Research Foundation

The mission of the Traffic Injury Research Foundation (TIRF) is to reduce traffic-related deaths and injuries. TIRF is an independent, charitable road safety research institute. Since its inception in 1964, TIRF has become internationally recognized for its accomplishments in identifying the causes of road crashes and developing program and policies to address them effectively.

Drop It And Drive

Drop It And Drive (DIAD) is a non-profit, international, British Columbia-based organization that has presented its reality-based seminars to more than 55,000 students, faculty and workers throughout Canada and the United States since its launch in late 2010. DIAD's mission is to prevent injuries and fatalities caused by distracted driving, distractions in the workplace and distracted walking. DIAD actively promotes the need for societal change to effectively address road, pedestrian and workplace safety.

This initiative was made possible by collaboration with, and a charitable contribution from

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DISTRACTED DRIVING:
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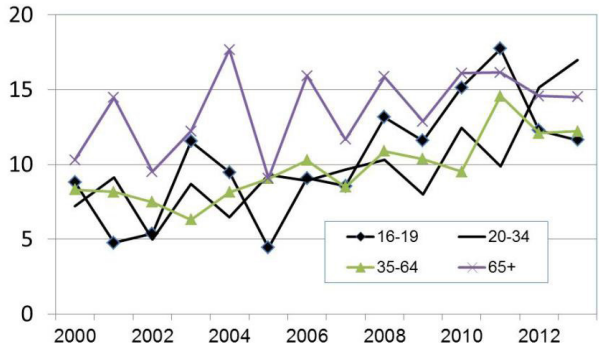
To: ross@
To:
Cc:
Subject: Re: message
I would not send it yet because

INTRODUCTION

Distracted driving has become a primary focus of road safety planning in jurisdictions across Canada. Not only has research increased awareness of the breadth of distractions that can affect driver behaviour, but understanding of the risks they pose has also grown. At the same time, initiatives to improve data collection have provided new insight about the magnitude and characteristics of the problem. Most notably, distracted driving fatalities have surpassed impaired driving fatalities in several jurisdictions across the country, albeit some of this growth may be due to improvements in data collection. In fact, distracted driving fatalities have generally increased across all age groups from a low of 16.8% in 2000 to a high of 25% in 2013. While distraction among teen drivers may have been a predominant concern, a closer examination of the data in 2013 reveals that drivers aged 20-34 are most likely to be distracted in fatal crashes, followed by drivers aged 65 and older (TIRF 2016). Of course, the total number of fatally injured distracted drivers has fluctuated from year to year and there have been some variations during this 14-year period, however, there has been a general upward trend in the percentage of fatally injured drivers across age groups. This upward trend is troubling and suggests that more concerted efforts are needed to reverse it.

Figure 1: Percent of fatally injured distracted drivers by age group, 2000-2013



* Source: Traffic Injury Research Foundation 2016

To date, governments have invested heavily in three primary strategies that have been mainstays in road safety. First, all Canadian jurisdictions have implemented provincial/territorial bans of handheld phones as a first step towards curbing distraction. These bans have often been partnered with strong enforcement and education about the risks and the consequences, which is the second strategy that has been widely utilized. To date, law enforcement has been challenged to consistently enforce these bans. While the variety of campaigns has been considerable, the assortment of messages may have inadvertently competed for public recognition, and this may have, in turn, undermined their effectiveness. Third, governments have worked to strengthen data collection in relation to enforcement activities, observational surveys and fatal crashes. This has been essential not only to justify resource allocations to the issue, but also to evaluate strategies to address it. Although good progress has been achieved, much more work is needed in this area.

Efficient methods to track and build upon new learning emerging from the experiences of diverse stakeholders are lacking.

In addition, many other sectors, including non-profit organizations, communities and industry have aimed to tackle this problem with complementary approaches such as education campaigns, public opinion surveys, and the development of company policies to target specific audiences. Collectively, this work represents an important and much-needed step forward to address distracted driving. However, an environmental scan across Canada, that was sponsored by The Co-operators and conducted by the Traffic Injury Research Foundation (TIRF) in partnership with Drop It And Drive (DIAD) in 2015, underscored gaps that required attention and action.

In particular, it revealed that mechanisms to facilitate coordination and exchange of information across groups of stakeholders and jurisdictions were lacking. The absence of such mechanisms suggests that valuable opportunities to capture and share knowledge and lessons learned from initiatives to date, or integrate strategies to reach a broader audience may be missed. This situation is untenable in an economy of shrinking capacity, competing priorities and finite resources. Also, while it is believed that technologies have the potential to help alleviate distractions in vehicles, awareness of these technologies is limited, and optimal strategies to implement such tools are unexplored. For example, while many phone apps have been developed that can block texts and incoming calls to help drivers avoid distractions, these technologies are generally voluntary in nature, and the most distracted drivers may not be inclined to use them. Perhaps most concerning is the lack of efficient methods to track and build upon new learning emerging from the experiences of diverse stakeholders. This is an impediment to progress in reducing distracted driving.

To overcome these gaps, TIRF, DIAD and The Co-operators formed the Canadian Coalition on Distracted Driving (CCDD). The CCDD represents a broad cross-section of 24 agencies representing diverse stakeholders across the country, including various levels of government, enforcement, academia, health, industry and the not-for-profit sector. Their expertise is varied, including road safety education and research, injury prevention and health care, policy, enforcement, as well as the insurance, automotive and trucking industries.

A priority objective of the CCDD is to develop a National Action Plan to reduce distracted driving in Canada. A main goal is to establish mechanisms and practices to facilitate the communication and coordination of distracted driving strategies that are implemented across sectors and across jurisdictions. Other goals include creating user-friendly tools and resources that can support practical and relevant prevention strategies, exploring the potential of new approaches and technologies to reduce distraction in vehicles, and building a centralized, accessible repository of research and resources on distracted driving that can benefit all stakeholders. The first annual meeting of the CCDD was held in Ottawa on June 15-17, 2016. This report describes key features of Canada's National Action Plan on Distracted Driving that emerged from this two-day meeting.

Distracted Driving in Canada

The current scope of the distracted driving problem in Canada provides much-needed context for the National Action Plan. Key factors that require attention and consideration in the development of this Plan are briefly summarized below. Factors include: driver behaviour, penalties, enforcement, device and vehicle-based technologies, emergency rooms, auto insurance, transportation industry, automated vehicles and criminal legislation.

Driver behaviour. According to TIRF's annual Road Safety Monitor (RSM) public opinion poll, in 2010, 27% of drivers admitted to having to brake or steer to avoid a crash in last the 30 days due to external distractions and

12% reported doing so due to internal distractions (Robertson et al. 2011). In addition, 4.3% of drivers admitted to crashes from external distraction and 2.7% indicated they had a crash due to an internal distraction. While these proportions may appear small, the numbers are substantial in light of the estimated 22 million licensed drivers in this country. Of greater concern, data from TIRF's RSM revealed that 30% of Canadians thought that talking on a phone behind the wheel was only dangerous if it was hand-held (Robertson et al. 2011).

Penalties. To address this problem, penalties for distracted driving offences have escalated rapidly across the country in the past few years. Currently fines range from $127 to $1,200 (CAD), and demerits on the driver's licence range from 0 to 5 (Robertson et al. 2015). However, the application of penalties may be inconsistent due to variations in the frequency of enforcement. Some police agencies have reported placing a focus on distracted driving only twice yearly with others reporting that enforcement occurs at least quarterly and, to a lesser extent, monthly. While police agencies have utilized both overt and covert enforcement tactics to detect drivers, both tactics have similarly resulted in large numbers of citations that resulted in penalties. To illustrate, Alberta Transportation reported that there were 27,281 convictions for distracted driving from April 2015 to March 2016 (Alberta Transportation 2016); the Insurance Corporation of British Columbia reported that 54,600 tickets were issued in BC in 2014 for email or texting violations or using an electronic device behind the wheel (CTV Vancouver 2015).

Enforcement. Yet, reports from police have suggested that drivers perceive distracted driving citations as the "cost of doing business," and while some drivers have switched to hands-free devices, and others may use their phone less often, it is estimated that more drivers have aimed to merely avoid detection by holding their phone out of sight. The sheer magnitude of the problem is poignantly illustrated by recent news reports from the Ottawa Police Service that distracted driving fines had totaled one million dollars in the first 10 months of 2016 (CBC Ottawa October 2016). This has led to the development of more innovative enforcement approaches with police agencies in Quebec, London, Toronto, Sudbury and Victoria, among others, using public transit or busses to observe inside the passenger compartment of vehicles and detect drivers with a cell phone in their lap. This speaks to the persistence of drivers (CTV Toronto February 2012; Toronto Sun September 2013; Global News February 2014; Sudbury.com April 2016; am980 July 2016; CBC Montreal October 2016).

Reports from police have suggested that drivers perceive distracted driving citations as the "cost of doing business."

Device and vehicle-based technologies. In sharp contrast to legislation and enforcement to reduce distracted driving, technology-based distractions are increasingly available and becoming standard on vehicles for purchase. This has created an untenable situation for vehicle manufacturers who must compete in the marketplace and respond to demand by consumers. While there has been some effort to mitigate distractions by making available voice-based features which intuitively appear to be less distracting, recent evaluations of both voice-based phone applications as well as vehicle features revealed that such voice-activated features are considerably more distracting, and place greater cognitive demands on drivers than traditional, manual features (Strayer et al. 2015a, 2015b). This research indicates that the unintended negative consequences of such innovations may be profound in the absence of strategies to better manage and control the integration of such options to promote safety and protect consumers (Chaker 2016).

Emergency departments and trauma system. Reports from health practitioners have also revealed that the consequences of distracted driving are equally well-recognized in emergency departments and the trauma system across the country, including acute and tertiary care, as well as rehabilitation services. While injury data relating to pre-crash information may be collected to varying degrees by these entities, it is less easily queried due to the variety of distractions and inconsistent coding of events. However, anecdotal evidence indicates this problem is concerning, and that middle-aged adults represent a larger portion of the problem as compared to young drivers. More concretely, to date, in 2016, the Ontario Provincial Police has investigated 38 road deaths due to distraction (OPP 2016).

Auto insurance. Insurers have been similarly challenged by this issue and are not equipped to consistently identify distracted drivers for a variety of reasons. In particular, while insurers can determine that traffic violations have occurred, it may not be readily apparent that violations were for distracted driving. As such, the ability of the insurance industry to take action in the form of increased premiums has been inconsistent. This issue has been less pronounced in jurisdictions with public insurers because they manage the driving record.

For example, in Manitoba this has made it possible for Manitoba Public Insurance (MPI) to gauge risk by tracking violations and analyzing of distracted driving as a contributing factor in collisions. In this regard, MPI now assesses premiums on the basis that the crash risk from distracted driving is equitable to that of impaired driving. However, many insurers are,

at present, unable to consistently identify distracted drivers and adjust their premiums accordingly.

Transportation industry. Finally, in a country as large as Canada in which goods are primarily transported by trucks, employers in the transportation sector are increasingly concerned about distracted driving. According to the Canadian Trucking Alliance, it is estimated that more than 90% of all consumer products and perishables are shipped by truck. Further, Transport Canada data revealed that the number of large trucks[1] on our roads has grown in the past decade from 740,000 registered large trucks in 2003 to 1,072,000 trucks in 2013 (Transport Canada 2015b). However, with respect to large trucks with a weight greater than 15 tonnes that are used by the trucking industry to transport goods, there are approximately 278,000 vehicles (Transport Canada 2015c). A motor carrier survey in Canada in 2011 revealed that driver distraction is currently being addressed mainly through laws about driver training, the use of education and awareness programs, and cell phone policies (Thiffault 2011). The survey also suggested that few carriers reported using crash avoidance or other technologies to address the problem arising from driver distraction. This has changed in recent years as more carriers have moved to adopt technologies, which are also becoming standard on some vehicles or in some fleets. However more work is needed on this front as the cost of distracted driving to employers is profound. Since for many large truck drivers, their vehicle is also their office, much like police and other emergency service staff, it is imperative that policies combined with the use of technologies are designed to permit drivers to accommodate job demands in ways that are balanced with safety.

Automated vehicles. Of interest, it has been anticipated that the emergence of automated vehicles may help to alleviate the consequences of distracted driving on both professional as well as passenger vehicle drivers. Yet expectations regarding potential crash reductions in the short-term may be premature as recently illustrated by a national public opinion poll on this topic by TIRF (Robertson et al. 2016). Notably, while just 4% of drivers self-reported currently engaging in non-driving activities while in control of a vehicle, an alarming 17% of respondents reported they would engage in such activities when using a semi-automated vehicle which would still require drivers to take control of the vehicle under more

[1] Large trucks are typically defined as vehicles that weigh 4,536 kg or more. These vehicles would include heavy unit trucks with or without a trailer, and also tractor trailers (Transport Canada 2015a).

challenging driving conditions. This data demonstrates the immediate urgency to implement strategies to change driver behaviour and create social norms that reinforce the unacceptability of distracted driving.

Criminal legislation. The pervasiveness and significance of this issue in Canada is perhaps best underscored by a recent call by the Quebec Coroner's Office for Federal Ministers to consider criminalizing texting and driving (Global News September 2016). To this end, the Federal Ministers of Justice and Transport met in Ottawa on September 28th, 2016 to discuss this proposal. A subsequent Fall meeting of Provincial and Federal Ministers did not reach consensus and opinions were varied regarding whether this approach may be practical. It was ultimately determined that laws about distracted driving should remain the jurisdiction of provincial and territorial governments. Notably, this proposal highlights the woeful need for a more coordinated strategy that leverages the initiatives of diverse stakeholders who share concern about this important issue.

This overview of the current context of distracted driving in Canada provides important insight to shape the development of a National Action Plan to reduce distracted driving. The conditions and experiences across sectors that are described above have helped guide the selection of priority issues that are addressed by the National Action Plan presented in the next section of this report.

DISTRACTED DRIVING PRIORITIES

The identification of gaps in existing strategies is an important first step to inform the selection of priorities. There is of course a broad spectrum of gaps in relation to distracted driving prevention. This is to be expected in light of limited knowledge about this issue and the lack of available, proven strategies to address it. In addition, some issues will be more easily overcome as compared to others. This section describes a series of priority issues that were collectively identified at the CCDD meeting in June 2016. These issues include: education and prevention, enforcement, data and research, and industry and technology. Some of the main facets of each of these issues are briefly described, along with a series of solutions that can enhance and augment existing strategies.

Education & Prevention

The issue. This section briefly summarizes important research findings that illustrate the challenges associated with changing distracted driving behaviour. It also explains some recognized gaps that require attention to improve education and prevention strategies.

- **Evidence-based behaviour change strategies.** There is consensus among experts in the field of road safety that the best road safety campaigns are based on research-driven, psycho-social theories of behaviour. Some of the leading theories that have been used in this regard include behaviour change theories, theories of social persuasion, and fear-based campaigns. Each of these theoretical models has the potential to provide a strong foundation to create an effective road safety campaign. It should be underscored that while these theories may utilize different terminologies and underscore that some behavioural elements or features are more important

than others, generally speaking they are not fundamentally that different (Delhomme et al. 2009); neither are they mutually exclusive. In essence, these theories suggest that a clear understanding of factors that shape the behaviour is essential, whether it is attitudes, intentions, social norms, perceived vulnerability, perceived barriers or consequences, or sources of social control, in order to identify how to effectively change it (Robertson & Pashley 2015).

The issue of habit development and change is just one example of how research can be used to inform behaviour change strategies. To illustrate, distracted driving, for many, is a habit. Unfortunately, a wealth of research and experience has made clear that habits are exceedingly hard to break. This is true for two fundamental reasons. First, people are generally unaware of the formation of habits which are reinforced by the release of dopamine in the brain in response to behaviour. Every time behaviour is repeated, this release increases the likelihood of repeating that behaviour. Second, habits are often unconscious, meaning that people do not recognize that they are behaving habitually (Duhigg 2014). To this end, habits that are natural or spontaneous require less thinking which make them harder to break (Massecar 2016).

Much work is needed to change social norms and reinforce the unacceptability of distracted driving through evidence-based behaviour change strategies.

From a road safety perspective, drivers have become accustomed to responding to sound cues from their cell phones, as have many other road users including cyclists and pedestrians. The habit of responding to the phone, as well as other types of distractions, has been formed over time largely in the absence of consequences for distracted driving. In this regard, legislation and penalties for distracted driving are still relatively new and enforcement has been inconsistent due to the broad spectrum of competing priorities that challenge police daily. In addition, while reports of persons injured or killed in distraction-related road crashes have certainly increased, there is a disconcerting and prevalent misperception among drivers who have not personally experienced a crash event due to distraction that they can multi-task behind the wheel. Of concern, road users are unlikely to appreciate the consequences of their actions without personal experience. For this reason, the consequences of distracted driving are so profound that waiting for normal habit development process to occur may result in significant loss of life on the road. In this regard, much work is needed to change social norms and reinforce the unacceptability of distracted driving through evidence-based behaviour change strategies.

- **Inappropriate terminology.** The terminology used as part of prevention and educational initiatives for road safety generally, and distracted driving specifically, also requires careful consideration. Many stakeholders in this field increasingly rely on language that underscores the preventable nature of collisions and acknowledges the responsibility of drivers who cause them by using the term "crash" instead of "accident." However, this shift towards terminology that makes plain the accountability of drivers has not fully or universally permeated mainstream media and public discussion of this issue. Thus, the failure to consistently use the term "collisions" or "crashes" in educational messages for the public or media reporting of issues may unintentionally undermine recognition of the risks associated with distracted driving and reinforce the misperception among drivers that they are indeed able to multi-task.

- **Events instead of issues.** The power of the media to increase public awareness is well-recognized. However, the sheer prevalence of road crashes, and the practice of personalizing stories to make them relevant to audiences has meant that many road crashes are not consistently reported. As a consequence, the magnitude of the problem may not be readily apparent to drivers. In addition, distracted driving events that are reported tend to more often focus on individual offenders, victims, and the specific details of a crash, and at times contain some speculation which may cloud relevant facts. As a consequence, broader issues related to behaviour and risks may be overlooked, and distracted driving events may be unintentionally perceived as isolated incidents that were unavoidable, as opposed to unsafe behaviour that poses real risk to other road users. This approach overlooks educational opportunities to increase knowledge and awareness among the public on a large scale through media stories. This means that the power of the media may not be effectively harnessed and used to motivate changes in social norms as well as behaviour.

- **Diversity of messages.** To date, the consistency of educational messages directed at the public has been variable. For example, campaigns have been delivered during different times of the year, and the tone and style of messages have been varied. Some messages have focused more on penalties or on specific audiences;

others have underscored the risks, and different types of distractions. While each of these messages is important, there is concern that the diversity of messages has unintentionally made it difficult to establish a common base of public knowledge that is an essential foundation for social norming approaches. These fragmented and disconnected messages may have also undermined the clarity or urgency related to this issue.

Solutions. Several practical strategies to help strengthen education and prevention initiatives were identified during CCDD meeting discussions. Some important priorities in this area that can be addressed as part of a National Action Plan are briefly described below.

- **Inform education and prevention strategies with evidence-based methods to change habits.** There is considerable research about effective behaviour change strategies for road safety campaigns (Robertson & Pashley 2015; Phillips et al. 2009; 2011; SWOV 2009). Using again just one example regarding habit formation, the good news is that there are proven strategies to break habits and such learning can help inform the development of educational campaigns and messages about distracted driving. It should be noted that positive reinforcement of new behaviour can also help to reinforce them. Some proven approaches in relation to habit formation are briefly summarized below as illustration.
  - **Imagination and front-loading decision-making.** Imagining the desired activity in great detail prepares the neural pathway in the brain to execute the behaviour. The more we imagine a new reaction to the cue or stimulus that prompts the behaviour then the more likely that imagined behaviour will be substituted for the problem behaviour. For example, drivers can imagine ignoring the phone when it rings. Front-loading decision-making means removing any obstacles to good behaviour long before actually having to make a choice. In reality, when faced with distractions, making the right (safe) choice can be difficult. Removing those distractions in advance increases the likelihood of appropriate behaviour (e.g., putting the phone on silent and placing it out of sight at the start of a driving trip to avoid temptation).

Fragmented and disconnected campaign messages may have competed for public attention and undermined the urgency of this issue.

  - **Implementation intentions or "if-then" thinking.** The use of implementation intentions refers to the creation of a situation to train to execute the desired response. In other words, drivers can imagine "if" their phone will ring, "then" they will wait to return

the call when they are no longer driving. To this end, simple positive rewards can be enough to enforce good behaviour thus avoiding bad behaviour (Gollwitzer 1999).

» **Stacking tiny habits on larger habits.** This technique involves taking a behaviour that is routine and augmenting it with a behaviour that is desirable. Tiny habits involve making an agreement with oneself to make a small change as part of routine behaviour (Fogg 2012). For example, drivers may commit to placing their phone on silent for one trip (tiny habit) after fastening their seatbelt (large habit). In this regard, a tiny habit begins as a small behaviour with a low threshold (i.e., it is easily accomplished) that is associated with another behaviour that is more ingrained. This low threshold circumvents the normal fear of commitment associated with a much more complex and challenging behaviour change that requires more complex and difficult behaviour. When coupled with celebrating the victory of accomplishing that tiny habit, a path to developing long-term successful habits is created.

> **Reinforce the use of appropriate terminology in relation to road crashes in all public forums to underscore the preventable nature of road crashes.** All stakeholders that deliver public education and work with media across sectors are encouraged to consistently frame distracted driving events as well as other events due to other unsafe behaviours by road users generally, as crashes and collisions. Moreover, distracted driving events should be identified as such specifically when facts support this analysis, and speculation should be avoided. The use of the term "accidents" should be consistently replaced in public forums to convey the accountability of road users for their behaviour which can have negative consequences for other persons on the road.

> **Utilize media coverage of distracted driving crashes to increase awareness about the distracted driving problem as well as the associated risks and consequences.** In particular, government and law enforcement representatives have regular opportunities to work with media in response to crash events. Communication strategies that combine facts and data that are specific to communities and organizations with broader messages about distracted driving problems and its societal effects can help increase knowledge about this issue. For example, police spokespersons that provide important information about crash events can aim to emphasize the role of

distraction as a factor when facts support this analysis. Police officers can play a vital role in changing perceptions that "traffic" offences are a lesser priority not only among the public, but also among their peers and counterparts in the justice system. At the same time, other road safety stakeholders can rely on this approach in their respective media interactions.

> **Compile evidence-based examples of available road safety messages and education campaign materials to inform agency initiatives.** In the past few years, quite a wide range of stakeholders have created educational messages about distracted driving. Notably, these messages have been based on different approaches and content that targets diverse audiences. Increasing the accessibility of such examples at a single source can not only save agencies the time spent searching for these campaigns, but also provide much-needed insight to inform local or community-based initiatives.

In addition, evidence about the effectiveness of different approaches to educational campaigns, as well as evaluations of existing campaigns can also guide decision-making. To this end, evidence of effectiveness may include measurable changes in behaviour, as well as changes in knowledge and attitudes, or reductions in crashes, and evaluations of new campaigns should be encouraged. In 2015, TIRF released a comprehensive review of research that examined the effectiveness of road safety campaigns (Robertson & Pashley 2015) and explored the theoretical foundation of different approaches. Of importance, it revealed that, while there is much interest in the use of fear-based appeals which have received considerable attention, this approach should be used cautiously and selectively since these campaigns are not equally effective with all audiences. In particular, younger and male audiences are more difficult to influence using this approach, and the effects of fear-based appeals are often short-lived (SWOV 2009).

Evidence about the effectiveness of different approaches to educational campaigns, as well as evaluations of existing campaigns can also guide decision-making.

This compilation of evidence and available educational campaigns is an important first step towards developing key messages that can be incorporated in a selection of general and uniform educational messages that can be used nationally, provincially/territorially, and locally. These messages can not only increase uniformity and consistency, but also provide opportunities for stakeholders to select approaches that are tailored to their respective audiences. To this end, there was widespread agreement among Coalition members

that messages should emphasize the risks associated with distracted driving, as opposed to messages about laws and penalties. In addition, it was noted that the provision of contact information for agencies and speakers who can provide more detailed facts about these initiatives would be a valuable resource for road safety stakeholders.

One recent example of a highly visible educational campaign that targets distracted drivers is from the Ministry of Transportation of Ontario. Since this campaign was just released in June 2016, evaluation results are not yet available. The tagline for the campaign is "Put down the phone". It powerfully illustrates a young driver that picks up their phone and abruptly transitions to their life in a wheelchair as a result of distracted driving. A stronger and more compelling approach to this campaign was adopted in light of the substantial increases in distracted driving deaths that have occurred since 2000. The objective was to highlight how fast things can happen when a driver takes their eyes off the road, even briefly, and this message should certainly resonate with drivers. The campaign was also adapted to television (after 8pm), radio, social media, in movie theatres (before films rated 14A and above) and was available before music plays on Spotify, a music streaming app (see: https://www.ontario.ca/page/distracted-driving).

Retrieved from the Ontario Ministry of Transportation Twitter Feed: https://twitter.com/ontransport?lang=en

Tools that empower audiences (e.g., youth, passengers, family/friends, and co-workers) as part of campaigns are equally important. Examples of concrete strategies and practical tactics to address the distracted behaviours in ways that are constructive and non-confrontational are essential elements of any campaign. Other key components may include:

- the use of peer-to-peer strategies;
- discouraging strategies that create new distractions (i.e., pedestrians or other drivers gesturing to distracted drivers to pay attention to the road);
- the value of reaching audiences with the right message at the right time using the right medium; and,
- the benefits of tailoring messages to distracted drivers or their passengers as appropriate.

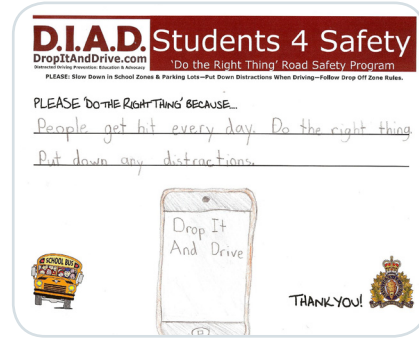
More broadly, the value of doing more to address road safety from an overall traffic safety culture was acknowledged. In particular, it

was noted that efforts were also needed to change the way that people think about road safety to underscore that everyone should be concerned about traffic safety generally and distracted driving specifically. Initiatives to promote peer-to-peer conversation and influence, particularly among new young drivers, can help to encourage an important shift in thinking about this issue.

An example of an educational resource for teen drivers is Manitoba's Distracted Driving Simulator which is used as part of a multi-faceted education campaign under the title "if you're texting – who's driving?" The simulator is used in the high school driver education program and a full-experience event-based simulator is used at road safety and community events throughout the province to demonstrate the risks and consequences of driving while distracted.

Youth prevention educational initiatives are also believed to be a high-priority to provide very young persons with tools to protect themselves as they are at risk as passengers of distracted drivers. Examples of the benefits of this approach include efforts by fire services to increase awareness among school-aged children about home fire escape plans for decades with the message 'Stop, Drop & Roll.' Not only has this prepared children to protect themselves, but the education tools used were designed to enable children to take home and actively engage their parents. To illustrate, the British Columbia Professional Fire Fighters' Burn Fund[2] has dedicated resources to educating elementary-aged kids about fire safety since 1996, both with in-class visits and annual poster contests.

A similar approach to educate young children about road safety, to protect themselves by being smart passengers and aware pedestrians, can also empower them to share this knowledge with their parents and other family members. Drop It And Drive has organized a number of successful elementary school road safety art campaigns, including their 'Do the Right Thing' poster contest in 2013 specifically addressing three areas of concern in school zones: speeding, distracted driving and drop-off zone safety. In addition, elementary-aged children are less affected by social filters which make them powerful advocates for road safety.



Retrieved from Drop It And Drive Do The Right Thing 2013 Posters: http://dropitanddrive.com/youth/do-the-right-thing-2013-posters/

[2] http://burnfund.org/prevention-and-education/

At the same time, it must be acknowledged that the developmental abilities of children are an extremely important consideration in the creation of programs for youth. Children must not only be able to remember a critical message, but they must also be capable of acting on it. For example, while young children can remember to look both ways before crossing the street, they lack the developmental abilities to accurately judge the distance and speed of oncoming vehicles and decide whether they have time to cross the street. In addition, this overall approach may not be appropriate in all contexts (e.g., children in high-risk living situations). As such, prevention programs for children should be developed with these factors in mind.

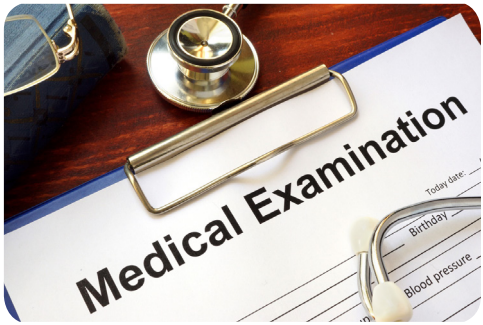
Additional related resources that can augment these campaign materials may include resources that inform advocacy efforts to help influence and change policy or develop better policies.

> **Leverage existing communication mechanisms between manufacturers of relevant products (e.g., vehicle and cellphone/ personal entertainment devices) and their distributors/retailers as well as consumer audiences to increase education/awareness.** Many manufacturers have built-in strategies to share company and new product information with a broader network in the supply chain as well as consumers. For example, many manufacturers have an internal communication system and the use of this system by dealers or suppliers can be tracked. Similarly, manufacturers may measure the performance of dealers in terms of the sales process, and in particular, the pre-delivery interaction with customers, or their use of education programs. Opportunities for manufacturers to facilitate the dissemination of distracted driving information that is relevant to their products and services can increase the accessibility of information and awareness about this issue through existing channels that can be low-cost. Initiatives to incentivize distributors and retailers through rewards programs may augment the penetration and reach of these strategies.

Health practitioners need knowledge about the characteristics of distracted drivers, and appropriate tools to identify patients who may be at risk.

> **Consult with primary health care providers and public health agencies to determine effective strategies to engage health practitioners. Injuries and fatalities due to distracted driving are a public health problem.** Health practitioners can play an important role in raising awareness of this issue, and identifying populations at risk. However, they need knowledge about the characteristics of distracted drivers, as well as appropriate tools to improve the identification of patients who may be at risk.

As a starting point, the Canadian Medical Association Guidelines on Determining Medical Fitness to Drive provides medical information to clinicians about driving risks and medical interventions that can reduce these risks. While some information about distracted driving is contained in these guidelines, additional tools for physicians focused specifically on distracted driving may be beneficial because distractibility as a symptom is non-specific from a medical diagnostic perspective. In this regard, distractibility might be compared to a fever which could have a wide range of underlying causes. In general most of the medical conditions in the Canadian Medical Association guidelines for physicians could result in distraction, and by extension, distracted driving. For example, distractibility would be a symptom of emotional disorders with anxiety and depression being common examples. Psychotic illnesses such as schizophrenia and bipolar disorder are also associated with distractibility among patients that present in acute states. Similarly, cognitive decline with dementia, and all the substance use disorders, which would include alcohol and cannabis alone or in combination, would contribute to distraction as a symptom. As such, this broad spectrum of conditions can make it challenging for physicians to precisely gauge who among their patients may be at risk for distracted driving specifically.



However, one distraction-related condition that has been the subject of considerable research in relation to motor vehicle collisions is attention deficit disorder (ADHD). Distractibility is a routine symptom among persons with this common disorder, and it has particularly significant consequences for young, inexperienced new drivers with this condition. A small cohort of ADHD drivers is likely responsible for a high proportion of collisions and moving violations (Fuermaier et al. 2015). For example, clinical research shows that emergency room visits are more than twice as frequent for people with ADHD who are frequently assessed over an extended period of time as a result of injuries and accidents long in advance of involvement in a motor vehicle collision (Redelmeier et al. 2010, 2014; Jerome et al. 2006). In addition, there is research to suggest that ADHD untreated more than doubles the risk of motor vehicle collisions and moving violations (Jerome et al. 2006). Of concern, this group likely does not learn from enforcement interventions and are more likely to be repeat offenders.

The good news is that medical treatment for ADHD has been shown to reduce the motor vehicle collision rate to that of the driving population, and can reduce motor vehicle collisions by 50% in this at-risk medical group (Chang et al. 2014). As such, one practical opportunity to engage family and emergency room physicians in distracted driving prevention activities could involve using educational strategies to enhance knowledge about the increased risk of crash involvement among young drivers with ADHD. It may also be beneficial to share knowledge about the availability of screening tools that can help identify patients who may be at risk, such as young drivers with repeat distracted driving violations. Several well-standardized instruments to screen for ADHD are available (see: https://www.caddra.ca/). Additional research is needed to gauge the potential for identifying at-risk drivers with this condition (Fuermaier et al. 2015). With appropriate medical diagnosis and interventions it may be possible to reduce their risk profile.

In addition, educational tools for health care practitioners to assist them in recognizing and tracking distracted driving events in hospital settings could be beneficial to improve understanding of this problem. Moreover, there are important lessons learned from strategies to reduce tobacco use and alcohol consumption that can inform distracted driving initiatives. Notably, policy changes play a critical role in changing behaviour. As a first step towards engaging these practitioners, TIRF and DIAD have published an editorial in the Journal of Orthopaedic & Sports Physical Therapy that contains a Call to Action for health care practitioners (Bowman & Robertson 2016).

Enforcement

The issue. This section briefly summarizes key barriers that impede the enforcement of distracted driving laws including the intermittent nature of distraction, and the competing priorities and finite resources that challenge police agencies. It also examines the unintended negative consequences associated with escalating penalties, as well as the varying levels of knowledge about distracted driving among police officers.

- **Intermittent nature of distraction.** A main challenge associated with detecting distracted drivers is the sporadic, intermittent nature of distraction. Whereas drivers that are alcohol-impaired or that do not use a seatbelt are more consistently affected throughout their trip, drivers that are distracted may only be distracted for short or variable periods of time. As such, it can be difficult for police officers to detect drivers, for example as a result of window tinting, at the specific instances when drivers are distracted.

- **Competing priorities.** Traffic enforcement is one of many duties that are routinely performed by general patrol officers, particularly as the presence of dedicated traffic units within police agencies is declining. This means that the time and capacity officers have for distracted driving enforcement may be limited as they are expected to respond to a wide range of calls for service. While some agencies, such as Manitoba Public Insurance, are able to provide enhanced funding to support distracted driving enforcement, more often resource allocations to this issue mean that priorities in other areas are eroded. As a consequence, although the use of fines and demerits has increased dramatically, deterrent effects of penalties are limited by low levels of enforcement. The perceived risk of detection is therefore quite low, and by the time drivers are actually stopped they will likely have driven distracted a substantial number of times.
- **Substantial penalties.** An unintended consequence of rising penalties is that both police officers and courts may be more reluctant to impose heavy penalties on members of their community who may otherwise be tax-paying, law-abiding citizens. This reluctance may be particularly pronounced among police officers who live and work in suburban and rural areas where communities are tight-knit and personal relationships are strong. At the same time, officers themselves recognize that, at times, they are equally affected by distractions in their vehicles which may be a result of the demands of their job. As such, the severity of sanctions can make it problematic for officers to issue penalties for behaviours that they engage in themselves. This may unintentionally lead officers to utilize warnings in lieu of fines and erode the deterrent effect of legislation.

  Distracted driving is intermittent and may only occur at certain points during a driving trip which can make it more challenging to detect.
- **Inconsistent knowledge among officers about risks associated with distraction.** Officers who are less familiar with research about the risks of distracted driving, or who have received limited training about this issue may be less motivated to enforce distracted driving laws in the face of other priorities. Further, low levels of knowledge combined with substantial penalties may unintentionally deter officers from prioritizing enforcement of distracted driving laws.

Solutions. Several practical strategies to help strengthen the enforcement of distracted driving laws were identified during CCDD meeting discussions. Some important priorities in this area that can be addressed as part of a National Action Plan are briefly described below.

- **Consider opportunities to create a different level of distracted driving offence.** It may be worthwhile to consider the feasibility and practicality of creating a higher level provincial offence with a lesser, included offence to facilitate enforcement and the processing of offenders. This strategy can also provide more options for police officers to apply sanctions for severe offences yet minimize due process issues associated with a criminal offence. Not only may this help to increase the efficiency of enforcement, but it can also streamline court processes and facilitate the use of plea agreements to avoid delays in case processing. This may be an important need as distracted driving enforcement increases.

- **Utilize penalties as part of a more comprehensive strategy to reduce distracted driving.** It must be underscored that penalties in the form of fines and licence suspensions alone will not change driver behaviour, particularly when enforcement of such penalties is low and/or inconsistent. Persistent distracted drivers require a more intensive approach to ensure that problem behaviour is addressed, and they are motivated to change their behaviour. In addition, in light of their risky behaviour, it is equally important that such drivers are retained in the licensing system so they can be monitored. This is preferable to merely imposing escalating sanctions that ultimately result in drivers becoming part of a suspended or revoked population of drivers who continue to drive despite such penalties. A cautionary approach to the use of demerits should be developed with this potential negative outcome in mind.

  Penalties in the form of fines and licence suspensions alone will not change behaviour among all drivers.

  While legislation and the imposition of sanctions are recognized as important first steps to curb problem behaviour, evidence must also be shared with legislators about other proven strategies to change it. Options may include educational programs for all drivers, remedial programs for distracted drivers, or other types of interventions that are directly linked to distracted driving. The inclusion of more penalty options (other than sanctions) in legislation also provides greater flexibility for licensing authorities to respond to this issue and implement strategies as knowledge evolves.

- **Reinforce distracted driving as a priority for police agencies.** The diversity and intensity of demands on police agencies are immense. Efforts are needed to promote and encourage leadership among senior police officials to reinforce that distracted driving enforcement is a priority. For example, senior police officials that also issue distracted driving citations from time to time may motivate such

enforcement among patrol officers. Distracted driving enforcement may be further incentivized by creating opportunities for police agencies and individual officers to be recognized for their consistent enforcement of laws. Such strategies have had positive benefits in terms of impaired driving enforcement.

In addition, enhancing training for police officers to convey the risks and consequences of distracted driving may help to overcome reluctance to impose penalties. In particular, sharing facts that demonstrate the negative effects of distracted driving on communities, for example in a short video, can increase understanding of the importance of enforcement and build buy-in among officers.

Perhaps most importantly, police officers play a critical role in changing social norms through the use of overt and covert enforcement techniques to create both a perceived and a real likelihood of detection. These approaches can be further balanced with initiatives by police to utilize warnings as appropriate to garner attention without imposing large fines. However, the use of warnings should be strategic so as not to erode the deterrent effect of laws. Officers can further encourage changes in social norms by consistently acknowledging the role of distraction in road crashes when facts support this analysis when speaking with media.

> **Ensure officers are able to manage distractions in their vehicle.** Police officers have a wide range of communication and information tools built into their vehicles which enable them to perform their duties. While police officers receive much more intensive driver training, these in-vehicle tools may also put officers at risk for distracted driving. As such, workplace policies to assist officers in using these tools and managing the flow of information while they are driving are much needed to protect them on the road.

Data & Research

The issue. This section briefly summarizes gaps in data that are barriers to research and that limit knowledge and understanding of this issue. Of concern, data are an essential foundation for research to inform the development of effective strategies to reduce distracted driving. Priority problems include inconsistency in the way that distracted driving is defined and data are collected across jurisdictions and agencies, and variations in the level of detail that is captured about the distraction.

- **Inconsistency in distracted driving definitions.** A uniform definition of distracted driving that is used across agencies as the basis of data collection is the first step to accurately measure a problem. Distracted driving is most often defined in relation to the use of electronic communication devices (i.e., cell phones and entertainment devices), largely because these types of distraction are visible and easily detected by police officers. However, the precise definitions of distracted driving vary across jurisdictions in accordance with legislation. Alberta is the only jurisdiction in Canada with legislation that includes other types of distractions in addition to electronic communication devices. More generally, distracted driving fatalities and serious injuries that are reported as a proportion of all road crashes mainly reflects the use of handheld devices. While a much broader range of distractions exist and likely play a role in crashes (e.g., distractions outside the vehicle, passengers, grooming and the presence of unrestrained pets) the role of these distractions in road crashes is not well-recognized and they may not be recorded as distracted driving. Similarly, cyclists and pedestrians that use handheld devices or wear earbuds attached to an entertainment device are less easily identified and recorded as distraction-related in fatality and serious injury data. In summary, the inconsistent use of definitions not only makes it difficult to accurately measure the problem, but it is also an impediment to comparisons across jurisdictions.
- **Gaps in data collection.** There are several data sources that provide some insight into distraction-related factors on the road, including enforcement data, observational and self-reported survey data, and collision data. While these data sources are being improved, to date, many of them are incomplete.
  - **Enforcement data.** Police agencies are a valuable source of distracted driving violations and incidents relating to collisions, although data pertaining to the number of incidents or offences involving distraction are not consistently published. Notably, these data should be interpreted with caution since they are often a better measure of enforcement activity as opposed to the prevalence of distracted driving behaviour. In other words, an increase in distraction-related charges may merely reflect higher levels of enforcement as opposed to an actual increase in distracted driving. Nevertheless, the interpretation of the data with this context in mind serves to provide an important window on the problem.

» **Survey data.** Observational surveys of drivers on the road, and polling data based on self-reports are another common data source. Using a representative, weighted and stratified sampling design, these data can provide an important measure of driver behaviour. However, observational data are limited to what distractions officers or data collectors can actually observe. This means that these data only provide a snapshot of a single point in time, and analysis of these data requires specialized expertise. Moreover observational roadside surveys are conducted infrequently due to their cost.

Conversely, polling data can capture behaviour over a longer period of time (e.g., 30 days) and are typically more affordable. But these data are based on the ability of drivers to recall and accurately report their own behaviours. In Canada, the Canadian Council of Motor Transport Administrators has conducted observational surveys since 2009 (www.ccmta.ca), and several agencies including TIRF, the Canadian Automobile Association, State Farm, and other organizations have conducted national public opinion surveys. Positively, these surveys have reported similar results. However, due to differences in methodologies and questions, their findings may not be directly comparable.

» **Collision data.** Two national sources of collision data are available in Canada. Collectively, these national data facilitate the measurement of distracted driving in crashes and permit the analysis of trends. In addition, the role of distraction in collisions can be analyzed with respect to driver characteristics such as vehicle type, time of day, and number of passengers.

First, the National Fatality Database managed and maintained by TIRF (with funding from the Public Health Agency of Canada and State Farm) is the only collision-based data source in Canada that is derived from both police-reported collision data and coroner/medical examiner data. Since 2000, the National Fatality Database has included a variable which indicates whether distraction played a role in the collision, and if so, which road user involved in the collision was distracted. Its values include:

- not distracted (this applies to not only the fatally injured victim but also any drivers who were involved in the collision);
- fatally injured driver distracted;

- fatally injured pedestrian distracted;
- another driver was distracted; and,
- a driver involved in the collision was distracted but the collision data do not specify which driver was distracted.

Augmenting the data with information regarding the type of distraction that played a role in the collision would be beneficial.

Second, the latest version of Transport Canada's National Collision Database (NCDB2) does provide some information about the type of distraction that was involved in a collision. The values for this variable include:

- not distracted;
- distracted, inattentive;
- distracted by communications device (e.g., cell phone, pager);
- distracted by entertainment device (e.g., DVD player, CD player); and,
- distracted by vehicle displays (e.g., telematics, guidance systems).

The level of detail about the types of distractions is limited by variations in data definitions and the categories of distraction that are created and collected by provinces and territories in the respective crash report forms.

» **Health data.** Distracted driving data that is available in health data sources is generally limited due to the lack of pre-crash information that is available, particularly in emergency departments. Similarly, ambulance, first responders and fire departments also see first-hand the effects of distracted driving collisions and may have some data about these events, however, data collection may be fragmented and inconsistent. At present, while some data about distracted driving are collected, there is no standardized data collection strategy for health practitioners related to distracted driving.

» **Insurance data.** Insurance data are an additional source of data to complement enforcement, survey and crash data. These data typically contain information gathered from driver records and crash data maintained by licensing authorities, as well as non-serious collisions reported directly to the company by drivers. While these data may suffer from under-reporting of less severe crashes, they do contain more information about property-damage only events as compared to other data sources. In this regard, insurance data can be useful for research purposes to complete available information along the crash severity continuum. On the other hand,

these data may be less standardized and more difficult to obtain. Perhaps the most significant limitation of these data in relation to distracted driving is that although insurers may be able to identify a violation was added to a driver's record, it can be cost-prohibitive to do so and they may not be able to readily determine it was a distracted driving violation. Efforts to improve the identification of these drivers, as has been done with other types of offences, so that insurance premiums can be adjusted accordingly can provide another important tool to motivate behaviour change among problem drivers.

Hence while some important data are collected that can provide much-needed knowledge and insight into the distracted driving problem in Canada, there are a number of important gaps that exist. Most importantly, distraction is a relatively subjective contributing collision factor that makes data about this issue difficult to capture. Unlike other factors (such as alcohol use, drug use or vehicle speed) which are measurable, no such tools exist to enable police officers to measure the level of distraction in specific incidents. As such, it is possible that some distraction-related collisions may be coded in police-reported collision data as being attributable to other contributing factors (e.g., fatigue, inexperience, faulty brakes, wildlife) because distraction may not be readily apparent.

Distracted driving data is more difficult to capture because no tools exist to enable police officers to measure the level of distraction in specific incidents.

Another important gap relates to the inability to analyze the role of distraction in crashes at a national level due to the use of inconsistent definitions and variations in the level of detail collected by individual jurisdictions in terms of driver condition. To illustrate, the role of "distraction" as a driver condition is not as universal across jurisdictions whereas other factors such as "had been drinking," "inexperience," or "fatigue" are consistently indicated. Furthermore, in some jurisdictions, officers can report more than one driver condition or contributing factors according to a collision as opposed to an individual driver. In other jurisdictions, officers can only select one contributing factor each among driver condition, driver action, vehicle condition, and environmental conditions. In the latter scenario, officers must prioritize whether to report alcohol use, drug use, fatigue, or distraction as the foremost contributing factor related to driver condition. This means that while distraction may have played a role, officers may be unable to record it if it was not the most significant factor.

In most jurisdictions, there are also gaps associated with police-reported collision data which does not specify the type of distraction that played a role in a collision (e.g., cell phone, texting, passengers in vehicle). The only jurisdictions with any historical data that describe the distraction type are British Columbia, the Yukon, Quebec and Nova Scotia. Since 2013, Newfoundland and Labrador have included data on the type of distraction.

Solutions. While initiatives to improve data collection are underway, coordinated efforts with increasing standardization are much-needed to track outcomes and inform the development of effective countermeasures. Mechanisms to facilitate such coordination can have substantial benefits and are essential to progress. Practical strategies to help strengthen the collection of distracted driving data and that can help increase knowledge and improve understanding of this issue were identified during CCDD meeting discussions. Some important priorities in this area that can be addressed as part of a National Action Plan are briefly described below.

- **Establish a uniform operational definition of distracted driving.** A consensus-based definition of distracted driving is integral to more accurately gauge the magnitude of this problem, the characteristics of offenders and collisions, the most relevant types of distraction, and trends over time and across jurisdictions. In light of the complexities associated with modifying crash report forms, and the need to enable the efficient collection of data by police agencies, this undertaking is not insubstantial. As such, compiling current definitions that are used, and the types of distractions that are collected is an important first step that can provide a foundation for discussion by key stakeholders. Since the focus on distracted driving will continue to grow in the coming years efforts to facilitate the collection of standardized distracted driving data is an immediate need.

A consensus-based definition of distracted driving is needed to enable police agencies to collect distracted driving data.

- **Improve data collection to track more detail about the role of types of distraction in crashes.** While some agencies collect more detailed information about types of distraction, many agencies do not. Hence there is a need to identify the most relevant types of distraction that warrant collection based on current practices, needs and feasibility. For example:
  - driver use of communications/video equipment;
  - driver distracted by another person;
  - driver distracted by vehicle displays; and,
  - driver distracted by activity outside the vehicle.

Consultation with law enforcement, licensing authorities, insurance companies and health practitioners can inform discussion and guide the selection of the most essential types of distractions that should be included in data collection initiatives.

Increase awareness of available data sources. Although several agencies collect certain types of distracted driving data, these sources of information are not necessarily well-recognized, and/or easily accessible. As such, efforts to document the types of distracted driving data that are collected, as well as the agencies that house these data would help to increase awareness and accessibility of publicly available data, including primary and secondary data sources.

Technology & Industry

The issue. Advances in vehicle and device technologies create new opportunities to achieve safety benefits and improve social life. Yet technologies that are not carefully developed with consideration of the ways they may be used, misused, or abused, can mean that safety benefits are not realized. While technology providers have an important role to play in this regard, to date there has been little discussion of this issue. Moreover, new technologies bring additional responsibilities that must be acknowledged and addressed to protect employers from legal liability in the event of workplace injuries or fatalities. Issues related to the safety testing of these products, and the obligations that are associated with their implementation in the workplace are briefly summarized below.

- **Safety testing of new features and products.** The rapid pace of technological advances has made it possible for vehicle and electronics manufacturers to respond much more quickly to consumer demand for new options and services that provide higher levels of convenience and customer satisfaction. However, often these features are developed and added to vehicles more quickly than they can be fully tested in real-world conditions and evaluated for risks as well as safety benefits. As such, while new technologies that are built into vehicles or added as aftermarket products may create important benefits, it is imperative that such advances are implemented thoughtfully to avoid unintended negative consequences.

  To illustrate, new vehicles sold today in North America and Europe can be optionally equipped with a voice-activated, in-vehicle information systems (IVIS). These systems permit drivers to use voice commands

to activate functions such as voice dialing, music selection and the selection of a destination using global positioning system (GPS) features. While voice-activated features intuitively appear to be less distracting, recent evaluations of both voice-based phone applications as well as vehicle features revealed that voice-activated features are considerably more distracting, and place greater cognitive demands on drivers than traditional, manual features (Strayer et al. 2015a, 2015b). To illustrate, Strayer et al. (2014) found that just listening to voice-messages without the possibility of generating a reply was associated with a cognitive workload rating comparable to that of conversing on a cell phone. But when drivers composed replies to these messages, the workload rating increased to an even more demanding level. In the same vein, Bergen et al. (2013) observed that there is a growing body of literature that cautions that these voice-based tasks may have unexpected consequences that adversely affect road safety. Potentially increasing consumer demand for such products, and in the absence of a better understanding of their unintended negative consequences on road safety, can create an untenable situation for vehicle and device manufacturers who aim to be socially responsible but must compete in the marketplace. Although in many instances technology providers have the ability to block distractions associated with electronic devices while driving, or built into the vehicle, they have not consistently done so in response to consumer demand combined with the absence of regulation.

- **Workplace safety responsibilities.** New technologies and the ways they are implemented in vehicles have specific consequences for employers that require staff to drive for the purposes of work. To be clear, these technologies may help to create efficiencies and cost-savings for organizations, but they also demand greater responsibility from employers. Notably, they may unintentionally increase legal liability if they are implemented without due care and attention. As such, technologies have important implications for employers who are obliged to provide a safe work environment and workplace safety strategies to protect their employees in the performance of all aspects of their jobs.

Solutions. Practical strategies to help enhance the safety benefits of new technologies and products, as well as promote safety in the Canadian workforce and its diverse sectors were identified during CCDD meeting

discussions. Some important priorities in this area that can be addressed as part of a National Action Plan are briefly described below. Promote industry and Federal government leadership to improve safety testing of products and features that are installed in vehicles and may distract drivers.

- **Promote industry and Federal government leadership to improve safety testing of products and features that are installed in vehicles and may distract drivers.** Consumer demand typically drives decisions to manufacture products and distribute them in the marketplace. This creates intense competition among manufacturers to be the "first to market" and provide the highest level of convenience to gain the largest market share. Unfortunately, in the absence of agreed-upon or fixed industry requirements relating to safety parameters, not all products may provide an equitable level of safety. Moreover, these differences may not be readily apparent to consumers and this places them at risk.

  This situation elicits challenging and, at times, untenable circumstances for manufacturers who rank safety as a top priority but who must also compete in the marketplace and respond to consumer demand. Technology providers are often able to block distractions as a built in feature of their device or vehicle but may not be encouraged to do so as a result of consumer demand. As such, strategies to better manage and control the integration of new technologies in ways that promote safety and protect consumers from distraction are much-needed. Moreover, convenience should not supersede safety, and the consequences of voluntary systems that permit drivers to "opt-out" of features designed to reduce distracted driving should not be disregarded.

- **Support technology innovation.** Investment in research and development of new technological products and services on the part of industry and government has produced substantial benefits for society. As such, innovation must be encouraged and incentivized. While there are some concerns that technological advances may have negative, distraction-related consequences, results of discussion among CCDD members acknowledged that technological solutions that are well-designed may be more efficient to reduce distracted driving. Technological applications associated with software for personal communication devices to prevent distraction, and in-vehicle features that help drivers recognize they are distracted, are most noteworthy. Of importance, research has demonstrated that the "human-machine interface"[3] is a critical safety feature of such products. In addition, other opportunities related to enforcement

[3] Human-machine interface refers to the ability of the driver to efficiently communicate with the vehicle (and vice versa) to exchange relevant information. The intuitiveness of the human-machine interface is a critical feature of technology to minimize distraction in the vehicle.

technologies and educational tools should not be overlooked. Educational tools that manufacturers make available to dealers and suppliers are just one example.

> **Develop a business case to demonstrate the costs to employers and effects on productivity to encourage the development of distracted driving policies in the workplace.** Road crashes are a substantial contributor to employee absences, and escalating insurance costs due to workplace injuries and fatalities are preventable. Although some information about the costs of road crashes to employers is available, oftentimes these data are not directly relevant to individual industries, nor specific to distracted driving. As a consequence, it can be challenging for employers to appropriately gauge risks, particularly as benchmarking in this area is limited. A well-documented business case based on tangible and direct costs, including insurance costs, resulting from distracted driving can help motivate employers to develop and proactively implement distracted driving policies.

Employers can be further inspired to prioritize strategies to reduce distracted driving in the workplace by sharing best practices and standard components contained in policies to inform policy development. Sharing templates and checklists can further help employers get started, and underscore the importance of identifying changes in operational practices that support policy. Recognition of the importance of personal information protections required by the new Personal Information Protection and Electronic Documents Act (PIPEDA) will be an additional consideration. At the same time, it is important that such approaches are transparent, and that both managers and employees are engaged in the development of strategies, and have a clear understanding of what data will be collected and how it will be used to support and protect employees.

Templates and checklists can help employers create strategies to reduce distracted driving in the workplace.

Industries that rely on fleet vehicles and professionals are a logical and essential audience to encourage the development of company policies about distracted driving. Certain sectors such as transportation and construction companies, as well as mining and forestry industries, among others, are important priorities in light of the sheer size of the vehicles and products that are transported. The good news is that these sectors have recognized the significance of this issue and action is underway in some companies.

At the same time, it will be vital that company policies acknowledge that there is a certain level of communication and functionality

needed by employees to accommodate demands of their role. This is particularly true as businesses are transformed by the need to efficiently access much more information in ways that are dependent upon communication devices and other technologies. In other words, it will be imperative that companies are able to balance safety with productivity and connectivity. Police agencies will be similarly influenced in this regard.

> **Cultivate leadership in the insurance industry to help coordinate the tracking of distracted driving violations to improve the assessment of risk and costs of insurance.** People change their behaviour when they are properly motivated to do so. Deterrence theory supports that at least some drivers will be duly motivated by increasing insurance premiums associated with identification as a distracted driver, particularly when such consequences are swift and certain. It would be tremendously beneficial to share data that demonstrate the risks associated with distracted driving with governments to inform research, and ensure that insurance rates appropriately reflect that risk.

Insurance companies can also be proactive by raising awareness within their workforce, and client base about the risks of distracted driving and providing creative incentives to encourage safe driving practices. One example is from The Co-operators who implemented a company policy combined with education for their workforce. This was followed by the launch of their "Drive out Distraction" campaign in 2015 to promote safe driving habits among their workforce and others. The policy was further reinforced in September 2016 with a distraction-free driving pledge and social good campaign[4] to encourage Canadians to publicly commit to drive distraction-free. As part of their commitment, The Co-operators donated one dollar to the Drop It And Drive free high school education program for each pledge that was received. This is a good illustration of a positive strategy for employers to tackle this issue in the workplace. Another example of an insurance company taking a proactive approach is the Manitoba Public Insurance campaign "If you're texting – who's driving?" that includes a pledge not to text and drive (see: https://www.whoisdriving.ca/).

[4] http://www.cooperators.ca/en/about-us/community/distracted-driving-pledge.aspx. The donation up to a maximum of $5,000.

NATIONAL ACTION PLAN

The priorities described in the previous section shed light on potential tools that can support agency strategies to prevent distracted driving. There are, no doubt, many other gaps that require attention. However, the components of this National Action Plan were selected because they represent some of the most essential actions that can best meet the needs of the many different agencies with a vested interest in this issue. Some of the tasks included in the Action Plan are repeatedly duplicated by individual agencies because natural mechanisms to share information are lacking. This approach creates inefficiency at great cost, and the collective expertise of the CCDD members can help mitigate demands on staff within agencies that perform these tasks.

Most importantly, it is essential that coordinated action begin immediately due to the seriousness of the problem, and the increasingly negative consequences that will result if it is left unaddressed. In an era of heavy workloads, staffing cuts, and overwhelming demands, the most challenging step of any change process is to get started. As such, TIRF, DIAD, The Co-operators, and the members of the Canadian Coalition on Distracted Driving are committed to helping agencies take the first step. In the next six months, the development of a series of tools that can guide and assist agencies in their respective efforts will be produced by the Coalition. These tools will be shared with agencies across Canada to inspire action and inform the development of agency strategies to tackle distracted driving and increase safety on our roads.

There are 15 components of the National Action Plan:

Education & Prevention

1. Create a fact-sheet that summarizes the research about effective behaviour change strategies, including habits and strategies to change them, to inform the development of distracted driving campaigns.

2. Summarize key talking points that stakeholders can use with the public and the media to encourage the use of appropriate terminology to describe crash events.
3. Prepare a fact-sheet for stakeholders to use as part of media communications to describe the facts about the size of the distracted driving problem, the consequences and the costs.
4. Build a distracted driving repository of relevant information and an associated toolkit to share evidence-based practices that can be considered by stakeholders and shared with policymakers.
5. Organize a working group of health practitioners to select feasible strategies to educate and engage health professionals in this sector to create health strategies to reduce distracted driving.
6. Build partnerships with media outlets and journalists to enhance fact-based media coverage of distracted driving, beyond individual crashes, and share current knowledge and research about this issue.

Enforcement

7. Establish a working group of knowledgeable practitioners representing licensing, law enforcement, and justice to explore options to strengthen legislation for distracted driving offences and promote a comprehensive array of strategies to change behaviour.
8. Develop brief, educational materials for police agencies to increase awareness among officers about the risks associated with distracted driving and the importance of enforcement to change driver behaviour.
9. Identify the most significant in-vehicle distractions that put officers at risk and create a practical policy to help them minimize distractions behind the wheel.

Data & Research

10. Consult with enforcement, transportation and health agencies to explore the development of a standard, uniform definition of distracted driving for the purposes of data collection, as well as determine what specific types of distractions can be reasonably, reliably and consistently included in data sources. Practices to facilitate the reasonable collection of data will also be considered.
11. Document the sources of distracted driving data that are publicly available, as well as the types of data that these sources contain in order to increase awareness of data collection initiatives and facilitate research activities.

Technology & Industry

12. Facilitate the development of industry leadership, including vehicle and electronic device industries specifically, in concert with government consultation (as appropriate) to strengthen initiatives to track and safety test new features and products that will be widely used in vehicles to ensure they minimize distraction. Opportunities for technology providers to proactively block distractions and develop technology solutions will also be discussed.
13. Convene a meeting of insurance industry representatives to identify opportunities to improve data collection and tracking of distracted drivers, and to properly assess the risk posed by these drivers.
14. Develop a concrete business case that illustrates the costs to employers associated with distracted driving. Supplementary actions to support the business case will include compiling available information, tools, materials, templates and resources to guide, support and inform the development of reasonable workplace distracted driving policies.
15. Organize a working group that represents industries with employees that are more prone to distraction to develop practical policies that balance safety and productivity. Vehicle manufacturers can play an important role in this working group to help mitigate distractions.

CONCLUSIONS

Road safety is ultimately local. Governments, industries, academia and non-profits have an important role to play in developing strategy and policy that must accommodate very large and diverse audiences either provincially or nationally. But it should not be forgotten that communities are unique. Strategies and policies that cannot be tailored to community issues are challenging to implement, particularly in the absence of funding mechanisms that support road safety initiatives. Municipalities have the smallest budgets but must deliver the highest level of services to their members. Distracted driving crashes that result in fatalities and serious injuries are most harmful to communities in which the victims and their families live every day.

With the increasing demands on operational budgets across government and private sectors, resources available to research and compile data on this issue continue to diminish. To this end, attention and energy must be focused on the development of a package of complementary measures to achieve reductions in distracted driving, and the building of alliances to deliver them. A pre-occupation with penalties alone will not produce the desired results. This means that a comprehensive package of initiatives, and integrated approaches based on partnerships and collaboration are needed to achieve progress.

The Coalition is committed to providing communities and other stakeholders with online, free access to research, data, examples of good practice, policies, tools and templates to enable them to customize strategies and prevention initiatives at the local level. As such, a CCDD Repository is being created by the CCDD that will contain all of the tools described in the Action Plan. Additional tools that are proposed or requested by communities can further be included in the Repository as needed. The Repository can be an

important resource to help communities tackle distracted driving, and also serve as a general educational resource for the Canadian public and media to track the status of this important issue. Key features of the Repository will include:

- **Research:** Summaries of new research with links to available publications and the agencies that produced them.
- **Data:** Descriptions of available data sources that include a brief description of the types of data that are contained, and agency contact information.
- **Education materials:** A series of educational fact sheets for use with communities, law enforcement, industry employers/employees, media and other interested persons.
- **Campaigns:** Examples of evidence-based distracted driving campaigns, any evaluation results, links to free campaign resources, and agency contact information.
- **Employers:** Resources to assist employers in developing company distracted driving policies.
- **Technologies:** Examples of types of technologies that are being developed to reduce distracted driving, including phone applications, feedback devices, in-vehicle technologies, and any enforcement tools.
- **Countermeasures:** Information about new programs and policies that are being developed or are available to manage distracted drivers.

The good news is that there is a vast amount of research, information, and tools that are already available from several reputable sources. The challenge often lies with agencies that lack staff and resources to spend time searching for it, ensuring the information collected is current or making sense of it in the context of their own environment. The CCDD Repository is designed to allow sectors to focus their efforts on development and implementation while informing strategies through access to shared content. Hence, one of the primary benefits of the online CCDD Repository is that as new research, data, tools and resources become available, stakeholders can easily and quickly access them to inform individual projects. To this end, input from key partners will be sought to help ensure the CCDD Repository is designed with intuitive navigation and search features to ensure ease of access to the information it contains.

The online CCDD Repository will give stakeholders quick and easy access to new research, data and tools as they become available.

Perhaps more importantly, sustained leadership and champions at Federal and provincial levels must be cultivated to ensure the relative priority of this issue is maintained, and there is continuity to address this urgent road safety problem. In other words, an inter-sectoral commitment from agencies is much-need to prioritize distraction and engage communities because this is where real change happens. There is also a critical need to innovate to establish funding alternatives and options for communities who are committed to reducing distracted driving. Not only can traditional funding sources be considered, but also partnerships with foundations and industry should be pursued.

In the coming months, the CCDD will also take action to facilitate this inter-sectoral commitment and explore funding options. This will be achieved by reaching out to a broader cross-section of key partners who have a vested interest in distracted driving and a strong track record in road safety. These partners will be invited to share knowledge, expertise, and provide leadership in important areas. Consultation with these partners to identify and develop innovative funding mechanisms with consideration of diverse strategies will also be pursued.

In other words, this National Action Plan includes a Call to Action to inspire and engage agencies who are concerned about distracted driving. The Canadian Coalition on Distracted Driving welcomes partners who are committed to effecting change to protect everyone who uses our roads from the adverse and entirely preventable consequences of distracted driving.

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