TRAFFIC INJURY RESEARCH FOUNDATION

ROAD SAFETY BULLETIN

DISTRACTED DRIVING POLICY
A CRIMINAL JUSTICE PERSPECTIVE ON PENALTIES

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Distracted driving legislation was first introduced in Canada in 2008. Due to its growing role as a contributing factor in fatal crashes, in the past decade this issue has emerged as a top road safety priority. For this reason, distracted driving has been the focus of escalating penalties and policies to curb this risky behaviour on Canadian roads in more recent years. Indeed, many jurisdictions in Canada have increased distracted driving penalties since 2014 and this has been, in part, due to a lack of alternative effective distracted driving countermeasures.

However, it is important to acknowledge the limitations of relying solely on this traditional approach as a solution to this pervasive problem. While harsh penalties may have an intuitive appeal to discourage would-be violators, the truth is harsher penalties are most effective at changing behaviour among those individuals who are least invested in it. In other words, penalties are more likely to deter persons who are largely pro-social and who drive distracted more due to a lack of awareness than a firm belief they are capable of doing so. Conversely, significant penalties alone are less effective at changing the behaviour of those more persistent in it because it is convenient, or they do not perceive themselves to be part of the problem.

This raises an important question about the path forward to deal with distracted drivers and the strategies needed to deter violators and reduce road deaths and injuries. To answer this question, this fact sheet describes the prevalence and recent trends in distracted driving on Canadian roads and examines changes in distracted driving penalties. It also explores the potential impact of escalating penalties on society and human behaviour using the proportionality principle. The potential of alternative strategies such as well-designed awareness and education programs to help shift attitudes and behaviours is explored along with the potential of harnessing social norms.

How big is the distracted driving problem?

According to **TIRF's** National Fatality Database, distracted driving was a factor in 24% of motor vehicle fatalities in Canada in 2020. Among fatally injured distracted drivers 75.2% were male compared to 24.2% female. Drivers aged 25-34 and

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65 and over each accounted for 23.1% of fatally injured distracted drivers. Within subgroups of fatally injured drivers, a larger percentage of female drivers (20.3%) were distracted than male drivers (14%) and the age groups with the largest percentage of distracted drivers were 20-24-year-olds (23%) and 16-19-year-olds (20%). Most concerning, in 58.9% of distracted driving fatal collisions, someone other than the distracted driver was killed (i.e., a passenger, pedestrian, or another driver in the crash who was not distracted).

In addition, TIRF's Road Safety Monitor (RSM) series on distracted driving containing 2021 self-report survey data revealed:

- 31.7% of respondents reported they often talked on their hands-free phone while driving
- 14.1% indicated they often talked on their handheld phone while driving
- 13.1% reported they often texted on their phone while driving (Robertson et al., 2022).

In real numbers, this means that among the estimated 26,000,000 licenced drivers in Canada approximately:

- 8,242,000 Canadians said they often talked on their hands-free phone while driving
- 3,666,000 admitted they often talked on their handheld phone while driving
- 3,406,000 indicated they often texted on their phone while driving

More concerning, these results represent a statistically significant increase as compared to 2010 in terms of often talking on a hands-free phone (21.7%) (Robertson et al., 2011). Additionally, a significant 173% increase in the percentage of respondents who reported they often texted on their phone while driving occurred between 2010 (4.8%) and 2021 (13.1%). When comparing 2021 to 2019, two behaviours (talking handheld while driving and texting while driving) increased (from 11.7% to 14.1% and from 9.7% to 13.1% respectively) while one (talking hands-free) decreased (from 32.4% to 31.7%). Of greatest concern, in 2021 more than one in four respondents (26.2%) admitted often taking their eyes off the road for more than two seconds while driving (Lyon, Vanlaar, & Robertson, 2019).

These increases are also evident in police-reported collision data from several jurisdictions. For example, in Ontario on July 1st, 2019 (Canada Day) the Ontario Provincial Police (OPP) laid over 8,000 distracted driving charges and investigated nine deaths potentially caused by distracted drivers (Wallace, 2019). During Canada Road Safety Week, May 17-23, 2022, the OPP laid 177 distracted driving charges across the province (Observer, 2022). In 2019, the Victoria Police Department in British Columbia handed out 85 distracted driving tickets on a single day in March (Reid, 2019). In Edmonton, AB, the Operation 24 Hours initiative was completed on October 13, 2022. A total of 1,588 traffic violations were issued by Edmonton Police Service and City of Edmonton photo radar operators, 17 of which were distracted driving violations (Edmonton Police, 2022). Overall, the growing prevalence of these risky behaviours is a source of political and public concern.

How has distracted driving legislation evolved?

Most jurisdictions first implemented distracted driving legislation more than a decade ago. Since 2014, many licensing authorities across Canada have moved to institute harsher provincial penalties for distracted drivers in response to a growing problem:

- In 2015, Prince Edward Island increased maximum penalties to $1,200 and five demerit points.
- As of November 2018, Manitoba distracted drivers faced a $672 fine, five demerit points, and a three-day licence suspension on the first offence and a seven-day suspension on the second offence.
- In 2018, Quebec distracted drivers faced a $300-600 fine and five demerit points.
- In 2019, New Brunswick increased the fine for distracted driving to $172.50 in addition to three demerit points.

- As of 2019, Newfoundland and Labrador drivers faced a $300-500 fine for a first distracted driving offence and four demerit points.
- In 2020, Nova Scotia increased distracted driving fines to $233.95-578.95, depending on the number of distracted driving offences, in addition to four demerit points.
- In 2020, British Columbia implemented a $368 fine and four penalty points for distracted driving offences.
- As of January 2020, Ontario drivers convicted of their first distracted driving offence faced a $615-1,000 fine, three demerit points, and a three-day licence. Subsequent convictions face increased fines, demerit points, and licence suspensions.
- In 2020, Saskatchewan fines for distracted driving were increased to $580 for a first offence and included four demerit points. Subsequent offences include increased fines and vehicle seizure.
- Alberta's distracted driving laws are stricter compared to other provinces as they include more than cellphone use, such as operating electronic devices (laptops, cameras, etc.), entering information on a GPS, reading, writing, and personal grooming (i.e., flossing, putting makeup on, clipping nails, shaving, etc.). As of 2021, distracted drivers faced a $300 fine and three demerit points.

Have harsher penalties reduced distracted driving?

To date there have been few Canadian evaluations of cell phone laws, however, the Ontario Ministry of Transportation has evaluated their cell phone legislation as it has evolved. Notably, the legislation first introduced in October 2009 which banned handheld communication/entertainment devices and viewing screens not relevant to driving while driving, revealed this early law had a negative effect and distracted driving increased. Further enhancements to penalties were introduced from February 2010 to 2014 to increase the total fine to $155 for cases settled, and up to $500 if convicted at trial. In addition, the minimum fine was raised to $280 in 2014. Finally, in 2015 financial penalties again increased to $300 up to $1,000, but there were also additional elements introduced in conjunction with penalties which were quite important. In particular, the province imposed 3 demerit points on the driving licence and longer licence suspension periods along with a public education campaign titled It Happens Fast – Put Down the Phone. This campaign was designed to raise awareness around the dangers of distracted driving and showed positive results based on engagement and self-reported driver behaviour. So, while the 2009 ban was likely not effective in reducing distracted driving behaviour and in fact, the ban associated with worse driver performance, the 2015 countermeasures (combined effect of the 2014 fine increases, 2015 penalty increases with demerits and licence suspensions, and the 2016 public education campaign) appear to have been effective in deterring distracted driving behaviour.

In addition, a 2020 study by Wickens et al. collected data from the 2015-2016 cycles of the Centre for Addiction and Mental Health (CAMH) Monitor, an ongoing cross-sectional telephone survey of adults aged 18+ years in Ontario, Canada. Interviews with 1,849 drivers were examined to assess the proportion of drivers who texted while driving before and after the law was introduced. Results showed the reporting of texting while driving declined significantly from 37.6% before the law was introduced to 24.2% after the law was introduced. Adjusted odds of texting while driving declined 42% following introduction of the legislation and associated enhanced public education and enforcement (Wickens et al., 2020).

Some comprehensive evaluations of laws have also been conducted in the US. As of January 2020, US bans included 18 of 50 US states banned almost all handheld cellphone use while driving. Three states and the District of Columbia banned calling and texting, 27 states banned texting on a handheld cellphone, and two states had no general cellphone ban for all drivers (Zhu et al., 2021). A longitudinal panel analysis of traffic fatality rates by state, year, and quarter was conducted to evaluate whether cellphone bans were associated with fewer driver, non-driver, and total fatalities nationally (Zhu et al., 2021). From 1999 through 2016, 616,289 persons including 344,003 drivers died in passenger vehicle crashes in the United States. Relative to no ban, comprehensive handheld bans were associated with lower driver fatality rates but not for non-driver fatalities or total fatalities. No differences were found in driver fatalities for calling-only bans, texting-only bans, texting plus phone-manipulating bans, or calling and texting bans (Zhu et al., 2021). Thus, comprehensive handheld bans allowing primary enforcement were associated with fewer driver fatalities.

Laws have also been evaluated using data from the US Fatality Analysis Reporting System (FARS) data to compare the efficacy of legislation between jurisdictions. For example, a 2020 time-series analysis of fatal crashes was conducted involving drivers and passengers aged 16-19 years using data from 2007 to 2017. Crash rates were compared between states based on different types and strengths of distracted driving laws. States with primarily enforced texting bans were shown to have lower motor vehicle collision (MVC) fatality rates overall involving drivers aged 16-19 years old. Bans of all handheld device use and texting bans for all drivers were associated with the greatest decrease in fatal MVCs (Flaherty et al., 2020).

More recently, Reagan et al., 2022 examined the impact of laws prohibiting holding or using a phone in the driver's seat on a public road. Researchers specifically examined rear-end crashes in Oregon (OR), Washington (WA), and California (CA) before and after law changes. Rear-end crashes were chosen as a measure because past research has demonstrated cellphone use is associated with a much larger increase in the odds of those crashes than any other type. Monthly crash rates from 2015-2019 were examined and compared to two control states (Colorado (CO) and Idaho (ID)) which had texting bans in place.

Results revealed monthly crash rates per 100,000 people dropped substantially in OR and WA after stronger laws were adopted; however, CA failed to achieve such gains. Compared with CO and ID, monthly rear-end injury crash rates dropped 9% in OR and 11% in WA. These findings indicate that a clear, plain language ban on all handheld cellphone use while driving, including simply holding a phone, may not only boost driver compliance but also make police more willing to issue tickets by making infractions easier to identify and less likely to be dismissed in court.

Yet, despite this pattern of increasing penalties, and some positive evaluations of laws, data from self-report surveys and enforcement campaigns suggest penalties alone are insufficient to deter distracted drivers. Anecdotal experience from police services indicates this is particularly true for drivers who do not recognize themselves as distracted, believing it *was just a second* instead of several seconds. There are also those drivers persistent in the belief they can safely multi-task behind the wheel because *they do it all the time*, and who are blissfully unaware they have simply been lucky with regard to time and place.

Perhaps most troubling is self-reported data about beliefs and attitudes collected in 2021 as part of TIRF's RSM series:

- Half of respondents (50.1%) agreed talking on a handheld or a hands-free device was dangerous, however the other half did not agree.
- Less than half of respondents (42.9%) agreed the use of cell phones while driving should be banned, a significant decline since 2010 at (67.7%).
- Slightly more than one in 10 drivers (13.3%) agreed they can drive safely while texting, an increase from 6% in 2018 (Robertson et al., 2022) which represents a very large number when extrapolated to the driving population.

In the face of these trends, policymakers may want to re-assess the value of continued increases in penalties to discourage unsafe driving and consider other alternatives. While crafting sanctions to *fit the crime* has long been a key component to deter individuals from committing criminal action, evidence suggests the implementation of harsher penalties alone may not achieve desired reductions in the behaviour.

What makes penalties effective?

Underpinning deterrence theory is the principle of proportionality which emphasizes a punishment must be proportional to an offence in order to deter people from engaging in the behaviour. It has been well-established in criminal justice research and Cesare Beccaria is perhaps best known as an advocate of this principle for his work On Crime and Punishments (Beccaria, 1764; Husak, 1994). He argued if a punishment is not proportional, then unintended harm may result. To illustrate, if the punishment for both theft and murder is death, then a potentially non-violent thief would be incentivized to kill any witnesses as a form of self-preservation. Thus, if enshrined in law, it would be perceived as more favourable to an individual to be a thief and a murderer. Likewise, in the context of road safety, a driver might be encouraged to flee the scene of a collision if the sanction is overly severe, which in turn creates an additional road safety hazard or risk to other road users.

In addition, laws imposing sanctions that are perceived to be excessive in comparison with the resulting harm can result in unintended consequences such as trapping individuals committing minor offences in the revolving door of punishment (Andrews & Bonta, 2010). Perhaps the most extreme illustration of this circumstance

is Ashley Smith, a Canadian youth initially charged with causing a disturbance, but violations of increasing bail sanctions resulted in her long-term imprisonment and eventual suicide, demonstrating extreme, but nonetheless true, consequences of disproportionate sanctioning (Kerr, 2017).

To this end, road safety issues are difficult to legislate and enforce because of their duality. On the one hand, even innocuous actions (e.g., adjusting the radio) represent a distraction that can cause a fatality, whereas some of the worst offenders (e.g., serial texters) remain undetected and rarely face sanction. It can therefore be challenging to devise corresponding penalties for road safety offences that embody the proportionality principle. Yet, legislators must be cognisant of this duality because, although every violation could cause a fatality, not every violation will. As such, imposing escalating penalties and ultimately sanctioning every distracted driving violation as though it was a fatal collision lessens the legitimacy of the proportionality principle.

How does enforcement influence the effectiveness of penalties?

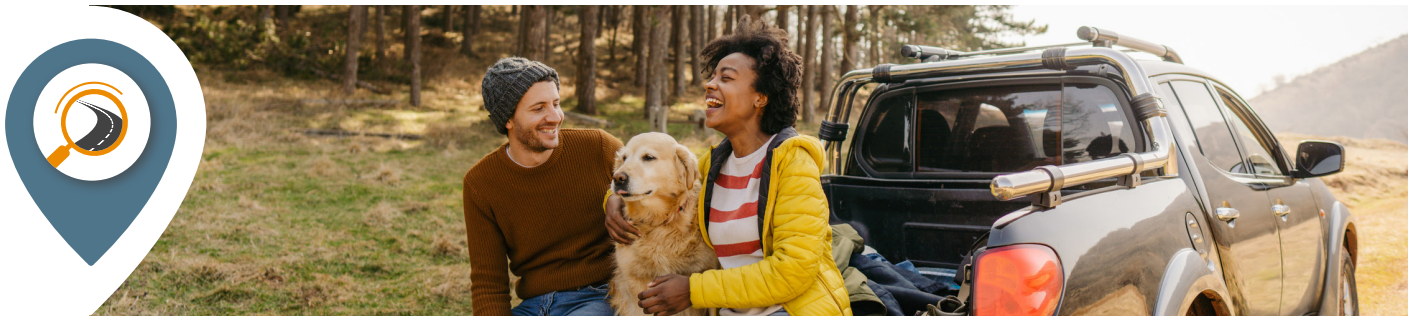
Effective legislation and enforcement are major components of deterrence. Specifically for road safety, highly visible targeted enforcement over a short period of time has consistently been cited as a crucial factor in achieving measurable deterrent effects on specific road user behaviours (Thomas et al. 2008). However, although such efforts can help influence driver behaviour, the adoption of safe driver behaviour functions largely as a social norm. By enforcing the law in a targeted and visible fashion in a specific area for a unique issue, broad societal adoption can be achieved to a limited extent. It should also be noted that the regularity of these targeted enforcement efforts is necessary to maintain the perceived risk of detection (Vadeby et al., 2018; Robertson & Pashley, 2015).

Yet, sustained and consistent enforcement of road safety issues across an entire population is difficult to achieve because of the size of the road network and the sheer number of drivers. In other words, it is always not feasible to expect law enforcement to be able to effectively police the entire driver population for all issues; it is simply too large (Voas & Lacey, 2011). For example, although there is no clear way to determine how many drivers commit offences without sanction, research has demonstrated that depending on the jurisdiction (urban or rural), the chance of being caught and sanctioned while committing a road safety offence is anywhere between 12%-25% (Voas & Lacey, 2011). The odds of being caught and sanctioned are therefore low because law enforcement does not have the necessary tools or resources to consistently police all road users (Voas & Lacey, 2011; Robertson et al., 2018). Instead, law enforcement must be strategic in how they use their resources to affect driver behaviour. Therefore, targeted and limited enforcement efforts can be more effective in achieving long-term road safety benefits.

How do harsh penalties influence enforcement?

Overly severe consequences can also negatively impact enforcement. This may be a particularly notable issue in locales with low population density where officers may be active members of the community. In such instances, officers may know individuals stopped at the roadside and, as a result, may be reluctant to impose a substantial financial burden for a perceived minor offence not resulting in injuries. To avoid these consequences, individual law enforcement officers can use discretion as to how certain laws are applied in specific instances when the consequence of an offence is not proportional to its severity.

Although it may seem logical that the solution is for law enforcement to more aggressively enforce the legislation, this can be challenging. Distracted driving can be multiple different behaviours which constitute distraction (Young et al., 2007). As such, it requires judgment and discretion on the part of officers to determine which actions qualify as such. Current research suggests road users require anywhere from two to five seconds to respond to a hazard (Lyon et al., 2019). Not being focused on the



driving task for longer than two seconds qualifies as a distraction. But, if law enforcement were expected to apply this standard to every driver, it may cause an undue burden upon members of their own communities. This level of enforcement would also be incredibly resource-intensive.

These examples collectively demonstrate that although police services play a vital role to positively influence social norms to discourage this risky behaviour, they cannot be the sole tool relied upon to achieve public safety. Effective road safety requires a multi-pronged approach. One part of that is highly visible enforcement programs and proportional penalties to achieve deterrence. However, as stated, the penalties for distracted driving are already significant and have consistently increased over several years. This suggests that it may be time to examine alternative strategies to encourage safe driving behaviours. Further, enforcement may only be effective in targeting overt forms of distraction such as cell phone use. The more subtle, but equally dangerous forms of distraction such as cognitive distraction caused by in-vehicle infotainment or voice-to-text features may escape notice by law enforcement. This highlights a need for drivers to self-regulate by identifying and modifying their own distracted driving behaviours. To achieve this, an alternative approach to distracted driving may be warranted.

What other strategies can help to reduce distracted driving?

Although severe penalties are effective at deterring some segments of the driver population, it is unlikely they will deter all road users. In such cases, a more comprehensive approach, beyond substantial penalties is necessary. This section explores the effectiveness and potential of educational strategies and leveraging positive social norms.

Young driver education. Young drivers are one subset of drivers who often engage in distracted driving (Minjares-Kyle et al., 2018; Robertson & Pashley, 2015; Marcoux et al., 2012; Lyon et al., 2019). Integrating information about this problem, the risks and ways to avoid it should be included in driver education programs which have shown recent evidence of effectiveness in Nebraska, Oregon, Georgia and Ohio (Mayhew et al., 2017; Shell et al., 2015; Mayhew et al., 2014; Strategic Research Group, 2021; Walshe et al., 2022).

Driver education generally represents a strong opportunity to instill safe driving behaviour. Evidence has emerged that a focus on driver education can achieve long-term benefits, including reducing the prevalence of risk-taking and thereby the need for enforcement and penalties. To demonstrate, recent data has demonstrated young drivers have significantly lessened their consumption of alcohol (Wicklund et al., 2018; Beirness et al., 2019) which has been supported by zero-tolerance laws in graduated driver licensing programs. Effective driver education, over a span of decades, combined with highly visible enforcement as well as laws based on the proportionality of the offence, have consistently been cited as key factors to help achieve this outcome (DeJong & Hingson, 1998; Mann, Macdonald, Stoduto, Bondy, Jonah, & Shaikh, 2001; Elder, Shults, Sleet, Nichols, Thompson, & Rajab, 2004). Distracted driving will likely require an equally comprehensive approach given the scope of the problem.

The US high school prevention program titled *You Drink, You Drive, You Lose* educates high school students about the consequences of both impaired and distracted driving. A pre-post study of the prevention program was conducted by Buczek et al. (2022) with 349 students (n=177 who attended the program previously, n=172 who had not). Results showed statistically significant differences in several self-reported baseline behaviours and attitudinal responses were found between the two groups. For example, 47.4% of previous participants compared to 29.4% of first-time participants disagreed that reading text messages at a stop light was acceptable.

Public awareness campaigns. Similarly, targeted distracted driving awareness campaigns to strengthen social norms and educate drivers about risks can be a more effective use of dwindling

resources (Robertson & Pashley, 2015). Research has shown these approaches contributed to significant declines in alcohol-impaired driving in the past two decades. A large-scale and consistent focus on distracted driving prevention initiatives could help reduce risk-taking, as suggested by the Ontario evaluation (Javed et al., 2020). This could have a long-term impact across generations of road users, and, in turn, this shift could enhance the legitimacy of distracted driving penalties in legislation by providing drivers with tools to self-identify distracted driving behaviours and understand risks and their relationship to the severity of penalties.

Adult driver education. Programs to help distracted drivers recognize and self-identify their own distracted driving behaviours can also contribute to longer-term behaviour change. For instance, the Drop It And Drive® (DIAD) program delivered as a TIRF-education program is a targeted initiative for employers aimed to reduce distracted driving in the workplace. DIAD uses science and real stories to explain and demonstrate what behaviours increase risk and why, as well as share stories about the real consequences of these behaviours. This approach is designed to motivate behaviour change through personally relevant examples customized to each workplace (**https://diad.tirf.ca/**).

The program aims to teach drivers to identify their own user behaviours which can contribute to distraction and to correct those behaviours while driving. The program highlights the importance of creating employee awareness of prohibited behaviours to motivate behaviour change and workplace reminders to reinforce policy through action. This training can be delivered to managers and is unique because online pre- and post-seminar surveys are used to identify issues, trends and measure change and outcomes. Results have been overwhelmingly positive across several industries including forestry, oil and gas, mining and hydro companies as well as in the healthcare sector. To this end, employers can play a critical role in delivering adult driver education as part of workplace safety programs to help shift social norms in workplaces and communities.

Offender-based programs. At present, there are no targeted programs designed for distracted driving offenders, similar to the long-established offender-based impaired driving programs. To fill this gap, TIRF partnered with Restorative Justice Victoria in British Columbia, and the Victoria Police Department to deliver a DIAD pilot program to distracted drivers receiving their first ticket. TIRF worked to re-structure the DIAD program using research evidence and best practices regarding the effective components of other remedial programs for driving violators. Notably, data emerging from this small pilot, conducted in December 2017 and November 2018, indicated this program had the potential to change behaviour and reduce distracted driving among offenders.

The program was developed for drivers receiving a ticket for a first offence. Eligible participants were offered the opportunity to complete the pilot program in lieu of paying the fine by the Victoria Police Department at the time the ticket was issued. The objective of the program was to try and change risky behaviours among these drivers by shifting their beliefs and attitudes using a combination of science, facts, real-life stories, interactive exercises and facilitated discussion.

Early results from this initiative were promising with initial feedback and follow-up surveys reporting these drivers had increased awareness about the dangers of driving while distracted. A total of seventy-one (71) participants attended the two DIAD seminars and completed both onsite and post-seminar online surveys created and analyzed by TIRF. Seventy-three (73) DIAD seminar follow-up surveys were completed for both pilots with identical questions asked at three, six and twelve months in order to maintain consistency in the analysis of responses over a specific timeframe following program participation. Slightly more than half (59%) of respondents were male and 41% were female. Most respondents (38%) were aged 25 to 50 years old, just under one-quarter (22%) were older than age 50 and six percent were aged 18 to 25 years old.

Results revealed participants' self-reported knowledge increased immediately following the seminar. On a scale of one to six, most participants ranked their knowledge as a three pre-seminar and a six post-seminar. In addition, follow-up surveys fielded at three, six and 12 months after the seminar showed a longer-term positive impact on driver behaviours from the knowledge gained. Nearly all participants (97%) reported their driving behaviour changed since participating in the pilot program and they now used a variety of options to reduce distractions when driving, such as turning off or silencing their phone, pre-planning GPS routes before driving and handing their phone to a passenger. A large majority (87.7%) of participants shared what they learned with family, 74% shared with peers and 57.5% shared with co-workers. Of note, 100% of participants agreed the pilot program can help reduce distracted driving and just one case of distracted driving recidivism was reported from both pilots combined.

Although a larger-scale pilot is needed to confirm initial findings, this initiative demonstrates that delivering education focused on the core features of the distracted driving problem using personally relevant and relatable information can be effective in changing behaviours and empowering people to speak up and influence their peer group to make safe choices. This comprehensive and proactive solution to the problem can be implemented to augment the use of appropriate penalties.

In other words, new policy initiatives for distracted driving may find success by diversifying available countermeasures. Educational initiatives, in conjunction with proportional legislation and targeted enforcement that is highly visible, is one such example jurisdictions may want to explore. Looking forward, this approach could accelerate progress in reducing distracted driving much more quickly than was achieved with impaired driving.

Conclusions

Distracted driving is a growing concern for stakeholders. Many and varied sources of distraction have been shown to pose a true risk to drivers on the roadways. In the face of such a problem, the instinct to rely solely on traditional approaches based on penalties alone as a first step to address it is understandable. Yet, an overreliance upon only driver penalties does have drawbacks such as those discussed here. As such, it is important to understand the limitations of this solution on its own. Much like previous research on alcohol-impaired driving and speeding, a multi-faceted approach is necessary to address the varied nature of the problem. As such, stakeholders have a responsibility to critically engage with these issues and explore a spectrum of approaches in an effort to mitigate unintended negative consequences of penalties alone.

Highly visible and targeted enforcement is important, but in the long term it is not sustainable to achieve a lasting deterrent effect on its own in the absence of technological solutions like automated enforcement. Likewise, the strategic use of driver education programs can also be harnessed to implement long-term change in the driving culture, but this strategy will not change the behaviour of adult drivers today. To this end, employers and targeted programs for violators represent an opportunity to achieve the next big gain in making roads safe. The delivery of effective workplace safety programs that include a road safety component, as well as evidence-based remedial programs for violators are worthy of more exploration to encourage and strengthen positive social norms which make distracted driving unacceptable.

References

Andrews, D., & Bonta, J. (2010). Rehabbing criminal justice policy and practice. Psychology, Public Policy, and Law, 16(1), 39-55.

Beccaria, C. (1764, re.1986). On crimes and punishments. Indianapolis: Hackett Pub. Co.

Beirness, D.; Boase, P.; Beecroft, E.; Dupuis, R. (2019) Roadside Surveys of Alcohol and Drug Use in Canada's North. In Proceedings of the 2019 Canadian Association of Road Safety Professionals Annual Conference. Hotel Arts: Calgary, Alberta.

Buczek, L., Gryder, L. K., Slinkard-Barnum, S., Batra, K., Trummel, C., McNickle, A. G., ... & Chestovich, P. J. (2022, March). Evaluating long-term outcomes of a high school-based impaired and distracted driving prevention program. In Healthcare (Vol. 10, No. 3, p. 474). MDPI.

DeJong, W., & Hingson, R. (1998). Strategies to reduce driving under the influence of alcohol. Annual review of public health, 19(1), 359-378.

Edmonton Police. (2022). More than 1,500 traffic violation tickets issued during Oct. 13 Operation 24 Hours initiative. https://www.edmontonpolice.ca/News/MediaReleases/octop24s

Elder, R. W., Shults, R. A., Sleet, D. A., Nichols, J. L., Thompson, R. S., & Rajab, W. (2004). Effectiveness of mass media campaigns for reducing drinking and driving and alcohol-involved crashes: a systematic review. American journal of preventive medicine, 27(1), 57-65.

Flaherty, M. R., Kim, A. M., Salt, M. D., & Lee, L. K. (2020). Distracted driving laws and motor vehicle crash fatalities. Pediatrics, 145(6).

Husak, D. N. (1994). Is drunk driving a serious offence? Philosophy & public affairs, 23(1), 52-73.

Javed, M., Byrne, P.A., Haya, M., McGrath, M., & Elzohairy, Y. (2020). Evaluation of Ontario's 2009 and 2015 distracted driving countermeasures. Research and Evaluation Office, Ontario Ministry of Transportation.

Kerr, L. (2017). Sentencing Ashley Smith: How Prison Conditions Relate to the Aims of Punishment. Canadian Journal of Law & Society/La Revue Canadienne Droit et Société, 32(2), 187-207.

Lyon, C.; Vanlaar, W.; & Robertson, R.D. (October, 2019) Road Safety Monitor 2018: Distracted Driving Attitudes and Practices, 2004-2018. Ottawa, ON: Traffic Injury Research Foundation.

Mann, R. E., Macdonald, S., Stoduto, G., Bondy, S., Jonah, B., & Shaikh, A. (2001). The effects of introducing or lowering legal per se blood alcohol limits for driving: an international review. Accident Analysis & Prevention, 33(5), 569-583.

Marcoux, K. D., Vanlaar, W. G. M., and Robertson, R. D. (2012). The Road Safety Monitor 2011: Distracted Driving Trends. Ottawa, ON: Traffic Injury Research Foundation.

Mayhew, D., Marcoux, K., Wood., Simpson., Vanlaar., Lonero, L., &Clinton, K. (2014). Evaluation of Beginner Driver Education Programs: Studies in Manitoba and Oregon. Washington, D.C. : AAA Foundation for Traffic Safety.

Mayhew, D.R., Vanlaar, W., Lonero, L., Robertson, R., Marcoux, K., Wood, K., Clinton, K., & Simpson, H. (2017). Evaluation of beginner driver education in Oregon. Safety 3(1), 9; **https://doi.org/10.3390/safety3010009**

Minjares-Kyle, L., Das, S., Medina, G., & Henk, R. (2018). Knowledge about Crash Risk Factors and Self-Reported Driving Behavior: Exploratory Analysis on Multi-State Teen Driver Survey. In 97th Annual Meeting of the Transportation Research Board, Washington, DC.

Observer Staff. (June 2, 2022). OPP lay more than 9,000 charges during road safety blitz. Observer Police Report. **https://observerxtra.com/2022/06/02/opp-lay-more-than-9000-charges-during-road-safety-blitz**/

Reagon, I. J., Cicchino, J. B., Teoh, E. R., & Cox, A. E. (2022). The association between strengthened cellphone laws and police-reported rear-end crash rates. Insurance Institute for Highway Safety. Arlington, VA.

Robertson, R. D., Simmons, S. M., Woods-Fry, H., & Vanlaar, W. G. M. (2022). Road Safety Monitor 2021: Distracted driving attitudes and practices, 2004-2021. Ottawa, ON: Traffic Injury Research Foundation. Ottawa, Canada.

Robertson, R.D, Brown, S., Valentine, D., Vanlaar, W.G.M. (2018) Status of Alcohol-Impaired Driving In Canada. Ottawa, ON: Traffic Injury Research Foundation. Ottawa, Canada.

Robertson, R.D., Pashley, C.R. (2015). Road Safety Campaigns: What the Research Tells Us. Ottawa, ON.: Traffic Injury Research Foundation. Ottawa, Canada.

Robertson, R., Marcoux, K. Vanlaar, W., Pontone, A. (2011). The Road Safety Monitor 2010: Distracted Driving. Traffic Injury Research Foundation. Ottawa, Canada.

Shell, D.F., Newman, I.M., Cordova Cazar, A.L., & Heese, J.M. Driver education and teen crashes and traffic violations in the first two years of driving in a graduated licensing system. Accident Analysis and Prevention 2015, 82: 45 52.

Strategic Research Group. (2021). Grant Scholarship Program and Joshua's Law Evaluation Report. Atlanta, Georgia: Georgia Driver's Education Commission.

Thomas, F. D., Blomberg, R. D., Peck, R. C., Cosgrove, L. A., & Salzberg, P. M. (2008). Evaluation of a high visibility enforcement project focused on passenger vehicles interacting with commercial vehicles. Journal of Safety Research, 39(5), 459-468.

Transport Canada (2019) Distracted Driving. Government of Canada. Website. Retrieved at **https://www.tc.gc.ca/en/services/road/stay-safe-when-driving/distracted-driving.html on 23/09/2019**

Vadeby, A.; Forsman, A.; Sörensen, G. (2018) Evaluation of intensified speed enforcement in Police Region West in Sweden. VTI notat 13A-2018.

Vanlaar, W.G.M., Pashley, C.R., Mayhew, D., Robertson, R.D., and Mainegra Hing, M. (2014) Understanding Young Drivers in Ontario: Final Report. Ottawa, ON: Traffic Injury Research Foundation.

Voas, R. B., & Lacey, J. C. (2011). Alcohol and highway safety: a review of the state of knowledge (No. DOT HS 811 374).

Wallace, A. (July 5th 2019) OPP: 9 dead, 8,800 traffic charges laid on Canada Day weekend. Toronto Sun. Online News Article. Retrieved at **https://torontosun.com/news/provincial/opp-9-dead-8800-traffic-charges-laid-on-canada-day-weekend on 23/09/2019**

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Walshe, E.A., Romer, D., Wyner, A.J., Cheng, S.; Elliott, M.R., Zhang, R., Gonzalez, A.K., MS; Oppenheimer, N., & Winston, F.K. (2022). Licensing examination and crash outcomes post-licensure in young drivers. JAMA Network Open. 2022;5(4):e228780. doi:10.1001/jamanetworkopen.2022.8780.

Wickens, C. M., Ialomiteanu, A. R., Cook, S., Hamilton, H., Haya, M., Ma, T., ... & McDonald, A. (2020). Assessing the impact of the 2015 introduction of increased penalties and enhanced public awareness and enforcement activities on texting while driving among adults in Ontario, Canada. Traffic injury prevention, 21(4), 241-246.

Wicklund, C.; Mainegra Hing, M.; Robertson, R.D.; & Vanlaar, W.G.M. (2018) Alcohol-impaired driving in the United States: Results from the 2018 TIRF USA Road Safety Monitor. Traffic Injury Research Foundation USA. Ottawa, ON: Traffic Injury Research Foundation

Young, K., Regan, M., & Hammer, M. (2007). Driver distraction: A review of the literature. Distracted driving, 2007, 379-405.

Zhu, M., Shen, S., Redelmeier, D. A., Li, L., Wei, L., & Foss, R. (2021). Bans on cellphone use while driving and traffic fatalities in the United States. Epidemiology (Cambridge, Mass.), 32(5), 731.

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The vision of the Traffic Injury Research Foundation (TIRF) is to ensure people using roads make it home safely every day by eliminating road deaths, serious injuries and their social costs. TIRF's mission is to be the knowledge source for safe road users and a world leader in research, program and policy development, evaluation, and knowledge transfer. TIRF is a registered charity and depends on grants, awards, and donations to provide services for the public.

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