

CLIENT PROJECT REPORT CPR2607

Investigation of international best practice
regarding specific driving offence penalties

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Executive Summary

The Irish Government's 2013-2020 Road Safety Strategy has the overall target of reducing road fatalities to 25 per million population or lower by 2020. As part of this strategy, the Road Safety Authority (RSA) is seeking to optimise the penalties aimed at deterring dangerous driver behaviours – specifically speeding, mobile phone use while driving, non-wearing of seat belts, and carrying unrestrained children in a vehicle – with the aim of, in turn, reducing the number of collisions and fatalities on the network.

This report details work conducted to address two key research questions in pursuit of this aim, namely:

1. What does international evidence tell us about the optimal penalties to put in place to successfully deter speeding, mobile phone use while driving, non-wearing of seat belts, and carrying unrestrained children in a vehicle?
2. What do countries with excellent road safety performance records currently use to deter these traffic offences?

In order to answer these questions, a literature review was first undertaken to identify evidence of the effectiveness of different types (and implementation) of penalties in deterring the targeted behaviours. The rationale behind the review was that if there are well-evaluated penalty systems that demonstrate an increase in compliance then any developments in the current penalty system in Ireland should be aligned with these where possible. This was then followed by a case study investigation of existing practice in selected countries that share a similar driving culture to Ireland and also have good safety records in general, in order to ensure that the recommendations are realistic and applicable in practice.

The review has provided support for the existing penalty points system in use in Ireland, for all four driving offences. Based on the findings from this review, the following recommendations are suggested to enhance the existing system:

1. The Road Safety Authority could consider increasing the severity of the penalties already in place for the four targeted offences.
2. The Road Safety Authority could consider issuing different penalties based on the severity of the offence.
3. The Road Safety Authority could consider a graduated framework of penalties for speeding offenders, including trialling the use of Intelligence Speed Assistance (ISA) technologies as a form of penalty.
4. The Road Safety Authority could undertake research to better understand the effect of different combinations of widely-used penalties such as fines and penalty points. Evaluation of innovative ideas, such as double points for repeat offences, should also be conducted.
5. It is important to ensure that sufficient enforcement strategies are in place at national level to uphold regulations; these must be visible, able to deliver penalties swiftly, and ensure that public awareness of regulations is maintained. Further research into the relative importance of penalty severity, swiftness of punishment and likelihood of apprehension could also be conducted.

1 Background

Ireland's road safety performance has improved substantially in the past 20 years, reducing from 458 fatalities from road traffic collisions (RTCs) in 1998 to 158 in 2017. The Irish Government's 2013-2020 Road Safety Strategy aims to reduce this further with the overall target of reducing road fatalities to 25 per million population or lower by 2020. As part of this strategy, the Road Safety Authority (RSA) is seeking to optimise the penalties aimed at deterring dangerous driver behaviours – specifically speeding, mobile phone use while driving, non-wearing of seat belts, and carrying unrestrained children in a vehicle – and in turn the number of collisions and fatalities on the network. The Road Safety Authority regularly carries out observational studies and a driver attitudes and behaviour survey to examine these offences. They also work with collision investigation files from An Garda Síochána and Coronial data to examine the impact of these offences in relation to road deaths. This section briefly outlines the prevalence of these four offences and their impact in Ireland.

Speeding is widely recognised to be a key contributory factor in road traffic collisions. In Ireland, it was found that 32% of fatal collisions between 2008 and 2012 were caused, either in full or in part, by the excessive speed of the driver (RSA, 2016). The observational studies in 2016 indicated that there are a significant number of car drivers breaking the speed limit; during the observation periods the incidence ranged from 22% breaking the speed limit on rural roads to 57% breaking the limit on urban roads. The attitudes survey in 2017 also revealed that 35% to 48% of participants admit to speeding by between 1 and 10 km/h excess, with 21% to 27% admitting to speeding by more than 10 km/h excess, depending on road type.

Mobile phone use while driving is also widely recognised as a key factor increasing the risk of road traffic collisions. The observational studies in 2017 recorded that the incidence of this offence, while lower than that of speeding, is still significant with 4.5% of drivers observed with their phone in hand. The incidence was higher on urban arterial roads at 7.3%. In addition, the attitudes survey in 2017 showed that 10% of participants admitted to 'sometimes' or 'always' using a handheld phone whilst driving.

Seat belt offences have a fairly low incidence in the 2017 observational studies, with non-wearing of seat belts by 6% of adults observed overall. When considering position in the car, only 4% of drivers and front passengers observed were noncompliant compared with 17% of adult rear passengers. Seat belt wearing does not impact the likelihood of collisions but there is international consensus that non-wearing of seat belts increases the severity of injury in the event of a collision; in Ireland in 2016, approximately 1 in 5 of drivers and passengers killed in road traffic collisions were not wearing seatbelts (RSA, 2017).

Carrying unrestrained children in a vehicle is a similar offence in nature and consequence to not wearing seat belts, and the responsibility rests with the driver to ensure a restraint appropriate to the child's height and weight. The attitudes survey from 2017 revealed that 99% of respondents reported using the appropriate restraint 'some' to 'all' of the time for children under 4 years old, reducing to 94% for children between 5 and 12 years old and to 92% for those between 13 and 17 years old. Although these are relatively high rates of compliance, the consequences of noncompliance in the event of an incident are severe and deterring this behaviour further can be expected to have a positive impact in reducing fatalities and serious injuries on the Irish road network.

2 Aim of this study

The Republic of Ireland currently has a penalty point system for driving offences. Originally introduced in October 2002, this system is in place to deter unsafe driver behaviour and subsequently reduce the levels of death and injury on the Irish road network and is understood to have played an important role in the reduction achieved so far. The offences associated with all four of the dangerous driver behaviours listed above are subject to the penalty point system. In all four cases, penalty points are accompanied by a monetary fine, with different offences carrying a different number of points and fine value (typically reflecting how serious the driving offence is). An accumulated total of 12 penalty points within a three-year period will result in a licence suspension for a period of six months (a lower threshold of seven penalty points applies to learner drivers and to novice drivers during the first two years after they pass their driving test). Full details of the penalty points and fines are provided in Section 4.3.2.

The Road Safety Authority wishes to identify ways in which this existing penalty system for the four targeted offences can be improved and enhanced, based on current knowledge of the effectiveness of different penalties in deterring dangerous behaviours, and on existing international practice.

Therefore this report details work conducted to address two key research questions:

1. What does international evidence tell us about the optimal penalties to put in place to successfully deter speeding, mobile phone use while driving, non-wearing of seat belts, and carrying unrestrained children in a vehicle?
2. What do countries with excellent road safety performance records currently use to deter these traffic offences?

The remainder of the report is structured as follows:

Section 3 presents the literature review, which summarises the evidence of effectiveness of currently used penalty systems.

Section 4 presents the case study investigation which details the penalty systems used in selected countries.

Section 5 presents conclusions and recommendations based on the evidence from the literature and case studies reviewed.

3 Literature review

3.1 Introduction

As noted previously, the Road Safety Authority wish to optimise the penalties aimed at deterring four specific dangerous driving behaviours based on international best practice and evidence.

This section focuses on the first research question; what does international evidence tell us about the optimal penalties to put in place to deter speeding, mobile phone use while driving, non-wearing of seat belts, and carrying unrestrained children in a vehicle?

The rationale behind this research question is that if there are well-evaluated penalty systems in place in other jurisdictions that demonstrate an increase in compliance – and subsequently showing a reduction in driving fatalities and serious injury – then any developments in the current penalty system in Ireland should be aligned with these where possible.

3.2 Method

A list of search terms (Appendix A) relevant to the research questions was generated to run the literature search. These search terms were applied in a number of research databases (TRID¹, ScienceDirect, GoogleScholar, BASE² and CORE³) as Boolean search expressions. Multiple searches were conducted in each database to refine the output to the most manageable number of relevant references. Additional filters were applied to limit the majority of the output to research conducted within the past ten years to ensure that the most up to date best practice was being identified.

After conducting and refining the literature search, literature was then compiled in a spread sheet for systematic review. Search output that was clearly irrelevant based on the title was removed at this stage. The completed framework included 78 pieces of literature that were to be scored on the inclusion criteria (Appendix B). After scoring, 61 pieces of literature were taken forward for full text review.

Literature was reviewed in full with findings recorded systematically in the review spread sheet. Each individual source was presented in a row, with summaries of the research goals, methods and findings detailed in columns. Conclusions were drawn from each reference relating to the research questions of the current project.

¹ Transport Research International Documentation Database that covers a million records of references to books, technical reports, conference proceedings and journal articles within the field of transport research

² Bielefeld Academic Search Engine is one of the world's most voluminous search engines especially for academic resources, providing more than 120 million documents from more than 6,000 sources

³ Connecting Repositories is a research search engine built for the purpose of aggregating all open access research outputs from repositories and journals worldwide

3.3 Results

This section presents the main findings relating to the optimal penalty systems that were drawn from the literature review. The majority of the literature that was generated from the search largely focused on penalties for speeding, with little specific evidence being provided for the other behaviours in question (mobile phone use while driving, non-wearing of seat belts, and carrying unrestrained children in a vehicle). Some research discusses optimal penalties in a broad sense with no focus on a specific offence, which provides additional evidence for those three problem behaviours. With this in mind, this section will discuss the following points that emerged from the literature review:

- Increase in penalties and fines
- Behaviour change and training programmes
- Intelligent Speed Assistance (ISA) technologies
- Increased enforcement and public awareness of penalties
- ‘Hardcore’ problem drivers

Key findings are broken down and discussed accordingly.

3.3.1 *Increase in penalties and fines*

Evidence from the literature review suggests that any increase to the penalties incurred through committing a driving offence – whether that is an increase in monetary fines, increased threat of licence revocation, or threat of vehicle impoundment – should show some immediate improvements in compliance. Furthermore, the introduction of stricter sanctioning has demonstrated a reduction in fatal crash frequencies (Redelmeier, Tibshirani & Evans, 2003; El-Sadig et al., 2004; Dong, Xie, Zeng & Li, 2018) and improvement in road safety (Sheng et al., 2018). Failing to introduce appropriate sanctions can negatively affect public safety, as was seen between the years of 2012 and 2014 in the state of Minnesota where the state introduced a more lenient traffic law that exempted certain speeding violations from driver records, which saw a 15% rise in road fatalities (Minnesota Department of Transportation, 2015). However, there are several important caveats that need to be taken into consideration when applying an increase in driving offence penalties to ensure a stronger, more observable effect. These caveats are discussed throughout this section.

Several papers within the review investigated the effects that stricter sanctions had on traffic offence behaviour by comparing the time periods before and after the introduction of increased penalties. Watson, Siskind, Fleiter, Watson and Soole (2015a) carried out analysis on two cohorts of speeding offenders in Queensland, Australia (with a combined sample of over 84,000 motorists who had committed a speeding offence) both before and after the introduction of penalty increases (increase in monetary fines and automatic licence suspension) to determine the deterrent effects of these stricter sanctions. Their results showed a reduction in the overall number of speeding offences committed after the introduction of the increased penalties, demonstrating a specific deterrent effect for some drivers with statistically significant reductions in the proportion of drivers who reoffended. Studies conducted by Gargoum and El-Basyounya (2016), Hössinger and Berger (2012), Jayatilleke, Dharmaratne and Jayatilleke (2012), and Moolenaar (2014) provide similar findings and support for the argument that an increase in penalties should demonstrate an

improvement in compliance with road traffic law and subsequent reduction in road fatalities. These research studies were conducted in a variety of different countries including Canada, Austria, Sri Lanka, and the Netherlands; and either had a main focus on the effects on speeding behaviour (Gargoum & El-Basyounya, 2016; Hössinger & Berger, 2012) or general compliance and road safety (Jayatilleke, Dharmaratne & Jayatilleke, 2012; Moolenaar, 2014).

As well as their focus on speeding behaviour, Hössinger and Berger's (2012) study also investigated the effects of increased penalties on seat belt use. Compared with the effect observed for speeding offences, the effect on seat belt use was shown to be much more limited. They argue that this is due to individuals believing there is a low likelihood of being caught for such an offence. On the other hand, Elvik and Christensen (2007) pose the argument that as a conscious choice has to be made whether to wear a seat belt or not, it is more likely to be affected by stricter penalties compared to speeding, providing there is sufficient enforcement in place to uphold the stricter penalties. The difference between these two studies' findings begins to bring to light one of the caveats that need to be taken into consideration when interpreting the finding that stricter sanctions will reduce dangerous driving behaviours (discussed fully in Section 3.3.4). This reasoning stems from classical deterrence theory, which states that law breaking is inversely related to the certainty of apprehension, severity of sanctions, and swiftness of punishment (Davey & Freeman, 2011). With an increased belief that they will likely be caught if committing an offence, a driver should be more likely to make the choice to wear a seat belt or give more attention to better manage their speed so as to avoid any lapse leading to unintentional speeding.

A further caveat that needs to be highlighted here is a point raised by Ng, Law, Wong and Kulanthayan (2013). Their study, focusing on seat belt use in Malaysia, suggested that any increase in enforcement or legislation would likely only create a short-term improvement in compliance with seat belt use following the introduction of stricter sanctions. The length of the effect can likely be increased by maintaining a high level of public perception of the likelihood of being caught committing an offence (again, this is a point which is further discussed in Section 3.3.4).

Piper and Easton (2012) – who argued that an increase in fines will not create any deterrent effect by itself – conducted a literature review on deterrence in relation to road traffic law and concluded that monetary fines can be increased to emphasise the wrongfulness of a particular offence. This is the logic underpinning the stepwise penalty system observed in Traxler, Westermaier and Wohlschlegel (2018), wherein one will receive a greater penalty for a greater misdemeanour (e.g. a larger fine for going 30mph over the speed limit than for 10mph). However, this has to be done within reason as very high fines can lead to non-payment (Donnelly, Poynton & Weatherburn, 2016). At the very least, if the monetary fine is perceived as far outweighing the seriousness of the offence it has been shown that people are less willing to pay the cost (Jou & Wang, 2012). Fines could instead be determined based on the economic status of the offender; however it may be worth considering a cost-benefit analysis of the best and most efficient monetary fines fit for any particular region. This is an idea touched on by White (2008) who constructed a model of individual speeding behaviour that emphasises the time and monetary costs of speeding, in an attempt to determine optimal penalties for authorities to maximise a given objective (e.g. maximising revenue or safety). White's (2008) model suggests that the time cost of being stopped for speeding (i.e. how much time an offending driver is left stood at the roadside) can have an effect on

detering repeat speeding offences as this outcome negates the perceived benefit of speeding (saving time); argued to have a more pronounced effect on high-wage earners due to their higher value of time. Monetary fines can therefore be increased for high-wage earners to increase the revenue gained. In theory, this model seems reasonable; however, there is no evidence to demonstrate its effectiveness in practice.

The strongest deterrent appears to be the threat of licence revocation. Both Corbett et al. (2008) and Sagberg and Ingebrigtsen (2018) provide evidence to support this. This is typically enforced through a penalty point system wherein an offender will be disqualified from driving after accruing a specified number of penalty points (which are typically accompanied by a monetary fine) within a given period of time. A driver will be less likely to re-offend if they have already accrued penalty points as they will be at greater risk of losing their licence (Corbett, Delmonte, Quimby & Grayson, 2008; Sagberg & Ingebrigtsen, 2018). Lee, Park and Lee (2018) elaborate on this, providing evidence arguing that licence revocation (exclusion from traffic participation for up to five years) is a stronger deterrent than licence suspension (typically a break of a few months from driving). Li, Sze and Wong (2013) provide further evidence from survey findings supporting the beneficial effects of a demerit point system that has a high risk of licence withdrawal; however, it is necessary to highlight that this study focused on drunk-driving within China, and the findings observed here may not necessarily apply to the specific driving offences in question. Immediate licence suspension has also been shown to be strongly effective as the threat of a swift punishment creates a stronger deterrent effect compared to suspension through the accrual of penalty points (Soole, Haworth & Watson, 2008).

The threat of vehicle impoundment appears to have a comparable deterrent effect as the threat of licence revocation. Stricter sanctions employed against excessive speeders in Canada include immediate licence suspension, higher fines and vehicle impoundment. Gargoum and El-Basyounya's (2016) investigation of these increased penalties demonstrated that they reduced fatal collisions. As these legislation changes were introduced simultaneously, it cannot be precisely determined from their findings which of the stricter penalties had the greatest effect. However, Clark, Scully, Hoareau and Newstead (2011) provide some support from focus groups exploring the effectiveness of vehicle impoundment legislation in Victoria, Australia. Participants discussed what the worst aspects of having their vehicle impounded would be, highlighting such factors as the loss of mobility, the impact on finances, and having their expensive vehicle removed from their own care. This suggests that there may be a small deterrent effect to this approach; however, what is most beneficial about vehicle impoundment legislation is that it guarantees that the individual is unable to drive their vehicle, removing a dangerous driver from the road completely (providing they do not have access to another vehicle). It is important to bear in mind that if vehicle impoundment laws are to be implemented, there would need to be sufficient vehicle holding facilities in place to accommodate the increase in demand.

To summarise this section, there is evidence that supports the introduction of stricter traffic offence penalties for deterring dangerous driving behaviours and reducing the number of road traffic collisions. In particular, a penalty point system with a high risk of licence withdrawal should create the strongest deterrent effect. In the context of the existing penalty system in Ireland (see Section 4.3.2), stricter penalties could, for example, mean increased fines and an increased number of penalty points for each offence. However, the

introduction of stricter sanctions needs to go hand in hand with an increase in enforcement and public awareness of said penalties, maintained at such a level to increase the length of the effect on reducing traffic offences, and considered with regards to existing infrastructure (i.e. can the current system accommodate the changes in sanctions?).

The studies in this section have considered speeding offences and seat belt offences primarily and have not explicitly considered either child restraint offences or mobile phone use whilst driving, except where the studies consider penalties more generally. Theoretically however the evidence may also apply to these other offences; indeed, child restraint offences are, in many countries, categorised as a subset of seat belt offences.

3.3.2 Behaviour change and training programmes

Aside from introducing stricter sanctions and increased penalties for driving offenders, there is some evidence to support rehabilitation programmes that seek to change and improve dangerous drivers' behaviour. Such programmes are based on best practice behaviour change principles, typically requiring drivers to become aware of and reflect on the negative implications of their aberrant behaviour, as well as providing other tools and techniques to support people in changing their behaviour in the future (for a review of the use of such techniques in road safety, see Sullman, 2017). They are typically not mandatory, but are often offered to driving offenders under the basis that their penalty will be reduced (e.g. smaller monetary fine, fewer penalty points).

The National Speed Awareness Course (NSAC) aims to influence, challenge, and change drivers' attitudes towards speeding and is offered by nearly all police forces in England and Wales. Eligible offending drivers have the option of taking part in this short retraining course as an alternative to punishment for low-level speeding offences. Ipsos MORI (2018) conducted an evaluation of the impact the NSAC had on participant reoffending rates and subsequent road safety outcomes, making a comparison to the effects of fixed penalty notices. With a total sample of nearly 2.2 million separate driving offences, findings indicated that the NSAC has a larger, more persistent effect on speed reoffending than fixed penalty notices, with the effect still visible up to three years after participation in the course. This particular rehabilitation course appears to provide a strong case for the benefits of such programmes over more traditional penalties. However, there are a few key concerns regarding the Ipsos MORI (2018) evaluation that need to be highlighted: 1) the use of administrative data limited the potential for analysis; 2) the data lacked important driver characteristics and contextual details regarding collisions, limiting how far it was possible to control for individual differences; and 3) imbalanced sample sizes. As such, the limitations of this work must be acknowledged when considering the findings and implications.

Although the conclusion from the Ipsos MORI (2018) study can be put into question, other studies conducted in various countries looking at similar behavioural change programmes can provide additional support for this alternative means to traditional penalties. Driver speeding rehabilitation courses – coupled with a measure of commitment to encourage behaviour change such as an action plan – have been shown to be an effective means of improving compliance with speed limits in France (Delhomme, Grenier & Kreel, 2008). Similar evidence can be seen in Victoria, Australia, where a group-based behaviour change intervention was trialled on drivers with a history of speeding offences (Duck & Cavallo, 2011). Findings from this trial suggested that after attending the programme, participants

were more likely to endorse negative attitudes towards speeding and were more likely to be motivated to drive safely. In the Netherlands, an interactive multimedia computer program was developed and trialled to change speeding offenders' attitudes towards speeding (Steyvers, Menting & Brookhuis, 2002). This trial – albeit not the strongest example as it suffers from a small sample and only focuses on attitudes, failing to follow-up with an investigation looking at actual behaviour change – did manage to demonstrate a significant change in drivers' attitudes towards speeding, becoming much more negative (i.e. 'anti-speeding').

As a complement to behaviour change programmes, Molloy, Molesworth and Williamson (2018) investigated different types of content-based feedback and what positive effects they can have on young driver speeding behaviour. Feedback summarising a young driver's speed-related performance along with information regarding the financial and safety implications of such speed was found to be an effective method of modifying young drivers' speed management behaviour. Although not considering the method in relation to traffic offences and penalties (instead considering it more as an additional training method to further promote good driving practices) this feedback approach could reasonably be implemented as part of a larger behaviour change intervention to further support and encourage compliance with speed limits.

Eensoo, Paaver, Vaht, Loit and Harro (2018) investigated a preventative training intervention conducted at the novice driver training stage (prior to any traffic offence) within a sample of over 1800 student drivers in Estonia. This intervention included a lecture and group work (carried out as a typical driving school lesson) and was found to have a significant impact on traffic safety within the following four years after its introduction. Similar to the content-based feedback option proposed by Molloy et al. (2018), Eensoo et al.'s (2018) training intervention has the potential to be adapted and applied as part of a larger behaviour change programme, ideally one that incorporates other elements discussed within this section. Such an amalgamated programme would require sufficient trialling to understand its full effects and benefits, before being fully implemented into a traffic penalty system.

Fear-based approaches to behaviour change programmes have also been attempted, with little supportive evidence. Nirenberg, Baird, Longabaugh and Mello (2013) included a visit to an emergency department for motor vehicle crash related injuries as part of their motivational counselling programme to improve young-novice drivers' compliance with speed limits. A similar approach can be seen in Thomas, Blomberg, Fairchild and Cosgrove's (2014) study that discusses 'Trauma Nurses Talk Tough' (TNTT) programme to improve seat belt use in seat belt violators. The rationale behind these programmes is to show drivers the extreme negative consequences of their dangerous driving behaviours. Nirenberg et al. (2013) did not manage to show any benefit of this method, making the argument that such fear-based tactics create a resistance to change behaviour in individuals. On the other hand, Thomas et al. (2014) did manage to show a positive behaviour change which they managed to attribute to the introduction of the TNTT programme. This could suggest that this approach is only effective at changing seat belt use as opposed to speeding behaviours; however, the contradicting evidence provided by these two studies is not strong enough to draw any robust conclusions on this approach. Carey, McDermott and Sarma (2013) support this, concluding their systematic review of fear-based approaches with the same idea that the inconsistent research findings likely reflect a lack of understanding in this area, arguing

that experimental research likely hasn't yet reached a stage where valid replicable findings can be achieved.

With the exception of Thomas et al. (2014), all the studies mentioned in this section have looked at behaviour change for speeding offenders; this is because this is by far the most common offence to be targeted in this way. Behaviour change courses for the other three targeted offences are available in the UK (see Section 4.3.3) however they are used relatively little, and so far, there has been no evaluation of their effectiveness.

What can be taken from the evidence provided in this section is that behavioural change programmes may offer a promising alternative to traditional penalties in some circumstances. This approach would require more resources to implement (such as having staff trained to deliver such programmes), and would require more time to deliver than simply administering a fixed penalty notice. However, current research suggests that there is some potential for long-term safety effects associated with this approach; though how these effects compare to traditional penalties would require further investigation.

3.3.3 Intelligent Speed Assistance (ISA) technologies

Some studies have trialled the use of ISA technologies as a punishment for those who have committed speeding offences. These systems can limit and/or monitor a driver's speed while driving in order to encourage adherence to speed limits. Due to the nature of these systems they are only applicable for speeding offences although the same approach could in principle be used with regards to other offences; for example, seat belt reminder (SBR) systems have been mandatory in the driver's seat of new passenger cars sold in Europe since November 2014, with fitment of passenger and rear SBRs on the rise since then (Hynd et al., 2015). Seat belt reminders have been shown to have a significant effect on increasing seat belt use and reducing serious injuries and fatalities (McCarthy & Seidl, 2014). No similar technologies currently exist to prevent the use of mobile phones while driving within the reviewed literature.

As ISA devices have the potential to actively prevent drivers from speeding entirely, they prove to be one of the strongest methods for improving compliance with speed limits in repeat speed offenders, as is supported by the research (Cairney, Styles & Imberger, 2009; Stephan et al., 2014). Van der Pas, Kessels, Vlassenroot and Van Wee (2014b) discuss the three categories of ISA technology: informative/advisory, which provide immediate feedback to the driver; supportive/assisting, which can actively intervene when the speed limit is exceeded; and restrictive/intervening, which prevents the driver from exceeding the speed limit entirely. The latter two *enforce* compliance with speed limits, while the former *encourages* compliance.

In-vehicle data recorders (IVDRs) with visual and/or audio feedback have been shown to have a positive effect on speeding offenders (Stephan et al., 2014; Etzioni, Erev, Ishaw, Elias & Shiftan, 2017). The effectiveness of such informative/advisory ISAs can be seen in Duck and Cavallo's (2011) study, where drivers were shown to respond quickly to this immediate feedback and proved useful at assisting habitual speeders to recover from lapses in maintaining appropriate speeds. Intervening ISA systems that actively limit and prevent drivers speeding have also been demonstrated to have positive effects on road safety (Van der Pas, Kessels, Veroude & Van Wee, 2014a; Van der Pas et al., 2014b), theoretically even more so when combined with an IVDR (Cairney et al., 2009). The sample of participants in

Van der Pas et al.'s (2014b) report indicated that the ISA system had several positive effects on their driving behaviour, including tailgating less, anticipating more and being overall less aggressive. The penalty of being fitted with an ISA system was also reported to be preferred over licence suspension, presumably as this had less of an overall impact on their life (i.e. an individual could maintain their ability to travel in their own vehicle without being forced to rely on others/public transport).

Although ISA systems have an observable immediate effect, there is one significant problem that surrounds them. Within the reviewed literature that discussed ISA technologies, a number of papers highlighted that the effect could only be observed while the device was fitted and did not create a permanent change to behaviour, with drivers typically reverting to their habitual speeding habits immediately upon the removal of the system (Stephan et al., 2014; Van der Pas et al., 2014a; 2014b). This problem means that as a form of penalty designed to reduce traffic offences and fatalities on the road, its effect is entirely limited to the period when an ISA device is fitted and will not have the desired long-term improvement. As such, ISA technologies cannot be advised as an optimal penalty in isolation. If this form of penalty is to be considered, it would be recommended to have it implemented alongside a behavioural change programme. Together, an ISA device should complement information being taught through a behavioural intervention as a means of encouraging correct driving practice. However, this combination would require assessment and validation before being fully integrated as part of a traffic offence penalty system. ISA systems are planned to become mandatory for all new vehicles (category M and N; vehicles with at least four wheels designed for the carriage of passengers or goods) from September 2022 (Seidl et al., 2017). It is currently undecided which form of ISA is to be used; however, if possible, restrictive ISA systems could be reserved as a form of penalty for recidivist speed offenders to ensure they are entirely prevented from speeding.

3.3.4 *Increased enforcement and public awareness of penalties*

This section intends to elaborate and provide greater evidence on a point that was touched on briefly in Section 3.3.1. In essence, the point is that to have a strong demonstrable effect from a change in traffic penalty laws, it is a necessity to increase public awareness and understanding of those changes, as well as ensure that there is a level of enforcement to uphold the changes. In other words, the severity of a punishment only creates a deterrent effect when the perceived likelihood of apprehension is high (Truelove et al., 2017). The underlying logic behind this argument stems from classical deterrence theory, which proposes that individuals will avoid offending behaviours if they believe they are likely to be apprehended, and that the punishment will be severe and delivered swiftly (Davey & Freeman, 2011). This argument holds regardless of the specific offence being targeted and therefore applies to all four driving offences considered.

The combination of these factors appears to be essential in creating an effective penalty system that reduces the number of dangerous driving offences. There is strong support for this idea with a large number of research papers from various countries emphasising the importance of increased public awareness (e.g. De Waard & Rooijers, 1994; Porter, 2011; Piper & Easton, 2012; Gras, Font-Mayolas, Planes, & Sullman, 2014). Phillips, Ulleberg and Vaa's (2011) meta-analysis of 67 studies on the effectiveness of road safety campaigns showed that such campaign strategies – in particular, those that used personal communication, roadside and/or enforcement strategies – were effective in reducing

number of traffic related collisions. This method presents itself as an effective means of raising public awareness. Further to this, Watson, Siskind, Fleiter and Watson (2010) conducted a comparison study of different measures of recidivism in speeding offenders in Queensland, Australia. One of their key findings states that “the success of increased penalties relies on drivers being aware of the increase in penalties, perceiving the new penalties as sufficiently severe enough to warrant avoiding them, and believing that the new penalties will be applied if caught”. Fleiter, Watson, Guan, Ding and Xu.’s (2013) survey study, based in China, unfortunately could not draw truly reliable conclusions due to limitations with their available data; however they do manage to provide support for Watson et al.’s (2010) finding, highlighting the importance of a driver believing they will be penalised if they are caught in creating a deterrent effect. Furthermore, it is suggested that a public perception of the effectiveness of road safety interventions (such as education and communication; i.e. behavioural change programmes) should be encouraged as this should further promote compliance with driving norms (Auzoult, Lheureux, Hardy-Massard, Minary & Charlois, 2015).

Similarly, there is ample research supporting the need for an increase in enforcement – or at least a sufficient level of enforcement to uphold the change in penalties (e.g. Ryeng, 2012; Ng et al., 2013; Gras et al., 2014; Moolenaar, 2014). This is highlighted very clearly in Porter’s (2011) chapter on enforcement. He reviews the theoretical underpinnings of behaviour change and how enforcement fits therein, as well as how it has been effectively used to target speeding, non-wearing of seat belts, and impaired driving. Hössinger and Berger (2012) directly investigated the extent to which traffic offences in Austria (namely speeding and driving unbelted) can be reduced through increased enforcement, higher penalties and the provision of information to road users. Using data collected from interviews and surveys, they demonstrated that the combination of stronger enforcement and stricter sanctions was a promising means of achieving these reductions, going so far as to state that even the mere announcement of these changes can account for a significant reduction in speeding offences. One further example by Smith et al. (2015), who conducted an extensive study including a detailed literature review, analysis of relevant data and a series of compliance surveys, stated that an increase in perceived risk of detection and perceived certainty of punishment can be created through visible policing and appropriate media campaigns; the authors elaborated that unpredictability of location and time of day of enforcement can also add to the deterrent effect. De Waard and Rooijers (1994) manage to sum this idea up with their finding that the larger the probability of apprehension, the larger the decrease in average speed – a finding they drew from two field experiments that were conducted to establish the most effective method of enforcement in reducing driving speed.

To further complement the combination of increased public awareness and enforcement, it is also important to ensure that punishment is delivered swiftly, with an immediate penalty (e.g. immediate licence suspension, on the spot fine) creating a stronger deterrent effect than a delayed one (Soole et al., 2008). How quickly a penalty is delivered goes hand in hand with the level of enforcement, with findings from Leal, Watson, Armstrong and King’s (2009) focus group study emphasising that dangerous driving behaviours should be reduced if drivers perceive the likelihood of detection as high, and that the penalty they receive is certain, severe, and will be applied swiftly. Although this evidence is arguably not as robust as that provided by Smith et al. (2015), Leal et al.’s (2009) findings clearly reflect the key

themes of deterrence theory (certainty of apprehension, severity of penalty, swiftness of punishment; Davey & Freeman, 2011), providing some additional support for the need to have swift and strict enforcement. In essence, the sooner an offender receives a penalty (e.g. being pulled over by a police officer as opposed to being captured by a speed camera), the less opportunity they will have to try and avoid or ignore the penalty altogether.

This section highlights what is arguably the most important factor that needs to be considered when aiming to apply best practice within a traffic penalty system; that is that the effectiveness of introducing changes to a penalty system is directly linked to how much public awareness of such changes is delivered, and how much active enforcement is in place to uphold and maintain the changes. This is independent of which driving offences are being targeted.

3.3.5 *'Hardcore' problem drivers*

The literature review also highlighted the fact that there exists a group of drivers who, regardless of offence or penalty, will continue to engage in dangerous driving behaviours. The studies discussed in this section refer to speeding offenders and other aberrant behaviours and do not specifically consider the targeted non-speeding offences, however the findings can be considered as theoretically relevant for other offences.

The most extreme example of this group can be seen in the research investigating 'hooning' behaviour in Australia (Leal et al., 2009; Leal, Watson & Armstrong, 2010; Clark et al., 2011). 'Hooning' in this context refers to anti-social driving behaviour typically associated with 'boy racers', such as driving too fast and too dangerously. This research has largely focused on the effectiveness of impounding the vehicles of those caught committing hooning offences. This stricter legislation for these dangerous driving behaviours could see an offender's vehicle impounded for a period of 48 hours, three months, or permanently depending on number of previous offences. Findings from the focus groups featured in these research papers showed that hooning offenders were not deterred by these stricter sanctions, with the majority of participants admitting that they still frequently engage in these aberrant driving behaviours.

Some research has looked at other groups. For example Watson et al. (2015a) undertook an analysis on two cohorts of speeding offenders before and after the introduction of penalty increases; after the introduction of the stricter sanctions, there remained a group of persistent offenders who were less susceptible to a change of behaviour. Similar findings were present in research by Corbett et al. (2008) who also managed to highlight a small group of 'hardcore' drivers who remained undeterred from speeding in spite of the increased risk of collisions and penalties.

An additional problem surrounding this recidivist driving offender group can be seen in the work by Delhomme et al. (2008). Their research had a focus on commitment within driver rehabilitation training courses. As these training courses typically offer a reduced penalty upon completion (such as fewer penalty points or a smaller monetary fine), their research raised concerns about the hardcore driver group taking it as an opportunity to reduce their penalty while not actually demonstrating a change in their driving behaviour. Participants were also found to postpone taking part in the course hoping that their offence would be cancelled as a result. This unfortunately appeared to have a negative knock-on effect as – according to the instructors of the training course – these drivers in particular were more

aggressive and more hostile when compared to other drivers who were administered a similarly designed rehabilitation course in a previous study by Delhomme et al.

It is important to highlight the steps that individuals will go to in order to continue engaging in dangerous driving behaviours while avoiding detection, rather than simply driving at the allocated speed limit or wearing their seat belt. Corbett et al. (2008) noted practices such as the illegal passing on of penalty points to another driver, and the use of technologies such as navigation systems that can be used to avoid speed cameras. Further investigation of these behaviours would be recommended in order to ascertain some means of countering them.

The points raised here should be borne in mind and considered with regards to what has been discussed in the previous sections as it is highly likely that even when best practice is applied within a driving offence penalty system, there will be drivers on the road whose dangerous behaviour will remain unaffected and unchanged. This is particularly concerning when one considers that this problematic group of recidivist driving offenders are more likely to be involved in traffic crashes (Watson, Watson, Siskind, Fleiter & Soole, 2015b).

3.4 Implications

Based upon the findings from the literature review, an effective means to reduce dangerous driving offences with a subsequent improvement in safety can be outlined as follows.

Firstly, the review suggests that it may be effective to introduce a stricter penalty point system with a greater risk of licence withdrawal, for example increased penalty points to reemphasise the seriousness of the dangerous behaviours in question (speeding, mobile phone use while driving, non-wearing of seat belts, and carrying of unrestrained children in a vehicle). This could be introduced alongside a reasonable increase in monetary fines, making them of sufficient cost to ensure that drivers would not want to receive them. This would need to go hand in hand with sufficient awareness campaigns to ensure the public is actually aware of the changes, as well as ensuring that there is a level of enforcement to uphold the stricter sanctions and make drivers believe that they will be caught and punished swiftly if they are to commit a dangerous driving offence.

An offer of a reduced penalty alongside mandatory attendance to a behavioural change programme could be made to first-time offenders, while repeat offenders could be penalised with incrementally more severe monetary fines. A well-developed trial of ISA technologies as a penalty (potentially administered as part of a mandatory behavioural change programme) could be of value as this should show the greatest reduction in repeat offences; however, further research into how to maintain the effect over the long term (i.e. after the ISA device has been removed from the offender's vehicle) is required.

3.5 Limitations

There are number of limitations to note within the current work. First of which was the lack of literature that had a specific focus on the problem behaviours of mobile phone use while driving, non-wearing of seat belts, and the carrying of unrestrained children in a vehicle; with the majority of literature focusing on speeding offences. As such, findings have largely had to be generalised to apply to all offences in question.

Secondly, it is worth bearing in mind that the majority of the research on this topic has relied on either self-report data or data that have been collected for administrative purposes as opposed to for research. Self-report data is known to suffer from social desirability bias (particularly when it is in relation to offending behaviour); this may not matter for the purpose of understanding whether legislative changes have an impact on safety in relative terms, although the absolute levels of offending or the behaviour in question may be difficult to estimate without direct observation. Data recorded for administration can often lack information relevant to a research study, and in the case of offending levels can be heavily influenced by the amount of enforcement, as well as any changes to the penalty system. Further to this, many studies – in particular those that relied on such administrative data – typically failed to account for additional changes in traffic law or infrastructure that may have had additional effects on the data in question. This means that some studies’ reported findings may not be entirely accurate.

4 Case study investigation

4.1 Introduction

The aim of the case study investigation is to use the knowledge gained through the literature review and apply it to existing penalty systems to identify the current international good practice and develop applicable and realistic recommendations for the system in Ireland.

As shown in the literature review, there is little robust evidence available regarding the effectiveness of different types of penalties and even less evidence that directly links different penalty systems with safety outcomes. Whilst countries have been selected according to criteria aimed at maximising their relevance, it is important to note that the recommendations from this study are not based on the existing practice in these case studies. The case studies are included to support the recommendations and illustrate ways of implementation in practice.

4.2 Method

In the specification for this review it was stated that preference should be given to examining the penalty systems in countries that are promoting international good practice and those that currently have a similar driving culture to Ireland. The former of these criteria was because Ireland wishes to make changes in order to meet current road safety targets and ensure that safer driving behaviour is encouraged; the latter criterion was in place in order to ensure that realistic and applicable recommendations were provided. Due to the scarcity of evidence as to exactly what international best practice should comprise, the proxy used was to select those countries with a good safety record, according to the 12th Annual Road Safety Performance Index (PIN) Report (ETSC, 2018). (Although note that this covers EU countries only.)

Based on these criteria, and in order to meet the aims of the review, the pre-defined shortlist of countries (in addition to Ireland) was therefore:

- United Kingdom
- Australia
- Norway
- Sweden
- Switzerland
- Denmark

Many penalty methods are used around the world, for example: fines, penalty points, loss of licence, behaviour change programmes and interventions, imprisonment, and vehicle confiscation. Some of these are in use in all the countries considered – in particular fines seem to be ubiquitous – others are used less often. The case study investigation looks at the existing practice in some of these countries to illustrate both the various methods and greater detail of how they are implemented.

Based on the findings of the literature review and the implications discussed in Section 3.4, the areas of interest were:

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- monetary fines,
 - penalty points systems,
 - criteria for licence withdrawal,
 - use of any alternative options.

The final list of countries (and in the case of Australia, the individual states) selected were those for which the most up to date information was readily available and, in the opinion of the authors, which were most relevant and illustrative. The final case studies included are:

- Ireland
- United Kingdom
- Norway
- Sweden
- Switzerland
- Queensland
- New South Wales

4.3 Results

4.3.1 *Summary of case studies*

Table 1 details the key features of the penalty systems from the seven case studies examined in relation to the four offences in question, i.e. speeding, mobile phone use, incorrect seat belt use and incorrect child restraints. The information included is as follows:

Mandatory fines? Whether the country or state imposes mandatory fines – either in the form of fixed penalty notices or on-the-spot fines - for the four offences (as opposed to fines resulting from a court).

Variable fines (and points) for speeding? Specifically for speeding offences, whether the mandatory fines imposed vary in value and, if so, the factor on which the value depends.

Penalty points for offences? Whether the country or state has a penalty point system in place and if so, to which of the four offences it applies.

Licence loss? The criteria under which licence disqualification can occur. Note that in all case study countries disqualification can occur as a result of a court order and on a case-by-case basis; the information included below describes where licence loss is part of a standard fixed penalty structure.

Additional subsequent penalties? Any circumstances where the fines and / or penalty points are increased.

Alternative options. Any alternatives offered or imposed that form part of the penalty system and are worthy of note.

The following sections then show further detail for each country individually, including specific information regarding the gradation of penalties for speeding offences, where applicable. (All monetary values included – and approximate Euro equivalents where appropriate – were correct as of November 2018.)

Table 1: Overview of elements of the penalty systems for the case studies

Country	Mandatory fines?	Variable fines (and points) for speeding?	Penalty points for offences?	Licence loss?	Additional subsequent penalties?	Alternative options
Ireland	For all four offences	No	For all four offences	For exceeding the penalty point threshold (stricter for new drivers)	Fines increase if not paid after 28 days Fines and number of penalty points increase if taken to court*	
UK	For all four offences	No	For speeding and mobile phone use offences	For exceeding the penalty point threshold (stricter for new drivers)	Fines and number of penalty points increase if taken to court*	Awareness courses available in some cases (for all four offences but most commonly for speeding offences)
Norway	For all four offences	Yes, value dependent on speed limit and excess speed	For speeding and child restraint offences	For exceeding the penalty point threshold (stricter for new drivers) Can also occur on-the-spot (without a court order) for speeding offences and for high speed excess as part of fixed penalty structure	No	Community work and short-term imprisonment possible for speeding offences
Sweden	For all four offences	Yes, value dependent on speed limit and excess speed	No penalty point system	For high speed excess, as part of fixed penalty structure	No	

Country	Mandatory fines?	Variable fines (and points) for speeding?	Penalty points for offences?	Licence loss?	Additional subsequent penalties?	Alternative options
Switzerland	For all four offences	Yes, value dependent on speed limit and excess speed	No penalty point system	For high speed excess, as part of fixed penalty structure	No	1 year imprisonment for very high speed excess (as part of the fixed structure)
Queensland	For all four offences	Yes, value dependent on excess speed	For all four offences	For exceeding the penalty point threshold (stricter for new drivers) Can also occur for high speed excess, as part of fixed penalty structure	Double points applicable for repeat offence within 12 months	For non-learners, option of a 'good driving behaviour period' of 1 year where 2 more penalty points means double the original suspension
New South Wales (NSW)	For all four offences	Yes, value dependent on excess speed	For all four offences	For exceeding the penalty point threshold (stricter for new drivers) Can also occur for high speed excess, as part of fixed penalty structure	Double points applicable in holiday periods or in school zones Fines increase if taken to court	For non-learners, option of a 'good driving behaviour period' of 1 year where 2 more penalty points means double the original suspension Vehicle impoundment also possible for excessive speeding

*Note: it is assumed that this is true for all case study countries but it is not always explicitly stated in the data.

4.3.2 Ireland⁴

Ireland is included in this case study investigation as a baseline against which recommendations can be made. The penalty system in place is comparatively simple and based around fixed fines and a penalty points system. Table 2 shows more details of the penalty system in place in Ireland.

Table 2: Penalty system information – Ireland

Offence	Penalty	Other details
Speeding	€80 fine (if paid within 28 days) plus 3 penalty points	Fine increases to €120 if not paid within the 28 days. On conviction at court, there is a max of €1,000 in court and 5 penalty points
Seat belt offences	€60 fine (if paid within 28 days) plus 3 penalty points	Fine increases to €90 if not paid within the 28 days. On conviction at court, there is a max of €2,000 in court and 5 penalty points
Child restraint	€60 fine (if paid within 28 days) plus 3 penalty points	Fine increases to €90 if not paid within the 28 days. On conviction at court, there is a max of €2,000 in court and 5 penalty points
Mobile phone use	€60 fine (if paid within 28 days) plus 3 penalty points	Fine increases to €90 if not paid within the 28 days. On conviction at court, there is a max of €2,000 in court and 5 penalty points
Licence loss information		
Penalty points threshold: 12 or more points in 3 years means automatic disqualification. (For new drivers the threshold is 7 points.)		

One element of interest, which was not present in the other penalty systems examined and should be noted, is the increase in fines if not paid within 28 days of the offence occurring.

⁴ References

<http://www.rsa.ie/Documents/Licensed%20Drivers/Penalty%20Points%20Offences%2017%20April%202016.pdf>

http://www.citizensinformation.ie/en/travel_and_recreation/motoring_1/driving_offences/penalty_points_for_driving_offences.html

http://www.rsa.ie/Documents/Campaigns/Mobile%20Phone/RSA_Mobile_DL.pdf

4.3.3 UK⁵

Table 3 shows more details of the penalty system in place in the UK. The UK system is broadly similar to Ireland, again based around fines and a penalty points system, although not all four offences considered incur points (only speeding and mobile phone use do).

Table 3: Penalty system information – UK

Offence	Penalty	Other details
Speeding	£100 fixed penalty notice (€115) plus 3 penalty points	Maximum penalty at court: £1,000 fine (€1,146), £2,500 (€2,865) for motorway offences. Also, discretionary disqualification and 3-6 penalty points.
Seat belt offences	£100 fixed penalty notice (€115)	Maximum penalty at court: £500 fine (€573)
Child restraint	£100 fixed penalty notice (€115)	Maximum penalty at court: £500 fine (€573)
Mobile phone use	£200 fixed penalty notice (€229) with 6 penalty points	Maximum penalty at court: £1,000 fine (€1,146), £2,500 (€2,865) for a passenger-carrying vehicle or goods vehicle. Also discretionary disqualification and 6 penalty points
Licence loss information		
Penalty points threshold: 12 or more points in 3 years means disqualification for a minimum of 6 months (For new drivers the threshold is 6 points in their first 2 years of driving.)		

One difference of the UK system is that most police forces also offer the possibility of attending an awareness course, either instead of receiving the penalty, or to reduce the penalty (although note that attending the course is chargeable to the offender). Speed awareness courses are eligible to drivers caught speeding between 10% +2mph and 10%

⁵ References

<https://www.gov.uk/guidance/the-highway-code/annex-5-penalties>

<https://www.gov.uk/speeding-penalties>

<https://www.gov.uk/penalty-points-endorsements/endorsement-codes-and-penalty-points>

<https://www.theaa.com/driving-advice/legal/fixed-penalty>

<https://www.rac.co.uk/drive/advice/legal/speeding-fines/>

+9mph above the legal speed limit, providing they have not already completed a speed awareness course within the last three years. Although the speed awareness courses are by far the most offered and taken, there are awareness course options for the other offences as well. There is an online seat belt awareness course available that can be offered to people caught not wearing a seat belt, or those who have failed to use a child car seat when required; there is also a general ‘safe driving’ course that can be taken instead of various fixed penalty notices – including those for mobile phone offences – but very few police forces make use of these by referring offenders.

Although the fixed penalty notice system described above does not vary by severity of the offence, if the offence is (successfully) prosecuted in court, the size of the fine will depend on the offender’s economic status and the excess speed recorded. Although prosecution will usually only be enforced for very serious offences, or where the offender does not accept the FPN, the decision is down to the police officer’s discretion and can apply to any level of speeding offence. Detail of the penalties that apply on prosecution of a speeding offence is shown in Table 4.

Table 4: Speeding penalties detail (on prosecution) – UK

Legal speed limit (mph)	Recorded speed (mph)		
	Band A	Band B	Band C
20	21-30	31-40	41 and above
30	31-40	41-50	51 and above
40	41-55	56-65	66 and above
50	51-65	66-75	76 and above
60	61-80	81-90	91 and above
70	71-90	91-100	101 and above
Penalties	Band A	Band B	Band C
Points / disqualification	3 points	Disqualify 7-28 days OR 4-6 points	Disqualify 7-56 days OR 6 points
Fine	50% of relevant weekly income	100% of relevant weekly income	150% of relevant weekly income ⁶

⁶ The court has the discretion to modify this by 25% in either direction.

4.3.4 Norway⁷

Table 5 shows more details of the penalty system in place in Norway. Unlike Ireland and the UK, the fixed fines (and penalty points) for speeding vary by both the speed limit on which the offence occurred and also the excess speed recorded. Table 6 shows the gradation of the penalties depending on these factors.

Norway is unusual, in that licence withdrawal is not subject to court order; the police have the power to remove an individual's licence at the roadside for up to 14 days – which may mean leaving their vehicle – even if the offence is not proven.

Table 5: Penalty system information – Norway

Offence	Penalty	Other details
Speeding	Fines and number of penalty points vary by speed limit and excess	
Seat belt offences	On-the-spot fine of 1,500kr (€157)	
Child restraint	On-the-spot fine of 1,500kr (€157) for the driver and 2 penalty points	Child restraint offences receive the seat belt offence penalty but also attract penalty points.
Mobile phone use	On-the-spot fine of 1,700kr (€178)	
Licence loss info		
Penalty points threshold: 8 or more points in 3 years means a 6 month suspension. Double penalty points apply for new drivers. Licence withdrawal is also part of the penalty structure for speeding*		

⁷ References

<https://www.vegvesen.no/en/driving-licences/driving-licence-holders/penalty-points>

<https://www.vegvesen.no/en/traffic/traffic-safety/safe-car/seat-belts>

<http://norwaytoday.info/everyday/cost-violating-traffic-rules/>:

<http://www.speedingeurope.com/norway/>

https://www.vegvesen.no/_attachment/1613480/binary/1146585?fast_title=English+-+Car+safety+%28children+%26+adults%29.pdf

Table 6: Speeding penalties detail – Norway

Speed excess	Speed limit		
	60 km/h or less	70 or 80 km/h	90 km/h or more
Up to 5 km/h	800kr (€84)	800kr (€84)	800kr (€84)
6 → 10 km/h	2,100kr (€220)	2,100kr (€220)	2,100kr (€220)
11 → 15 km/h	3,800kr (€398) + 2 points	3,400kr (€356)	3,400kr (€356)
16 → 20 km/h	5,500kr (€576) + 3 points	4,700kr (€492) + 2 points	4,700kr (€492) + 2 points
21 → 25 km/h	8,500kr (€890) + 3 points	6,400kr (€670) + 3 points	6,400kr (€670) + 3 points
26 → 30 km/h	Loss of licence + “heavy fine ⁸ ”	8,500kr (€890) + 3 points	8,500kr (€890) + 3 points
31 → 35 km/h	Loss of licence + “heavy fine”	10,200kr (€1068) + 3 points	10,200kr (€1,068) + 3 points
36 → 40 km/h	Loss of licence + “heavy fine”	Loss of licence + “heavy fine”	10,650kr (€1,115) + 3 points
Over 40 km/h	Loss of licence At 42 km/h excess minimum of 30 hours of community work; at 46 km/h excess minimum of 18 days in jail (unconditional)	Loss of licence + “heavy fine” At 50 km/h excess minimum of 30 hours of community work; at 55 km/h excess minimum of 18 days in jail (unconditional)	Loss of licence + “heavy fine” At 55 km/h excess minimum of 30 hours of community work; at 65 km/h excess minimum of 18 days in jail (unconditional)

⁸ The value of this fine is set at the discretion of the courts.

4.3.5 Sweden⁹

Table 7 shows more detail of the penalty system in place in Sweden. Like Norway, the penalties for speeding in Sweden vary by the speed limit and the excess speed recorded; details of these penalties are shown in Table 8. The speeding penalties structure is simpler than the gradation and categorisation used in Norway but is not dissimilar. Unlike the previous case studies however, there is no penalty point system in place for any of the offences. Sweden was the last EU country to ban mobile phone use whilst driving (legislation has been in place since Feb 1st 2018).

Table 7: Penalty system information – Sweden

Offence	Penalty	Other details
Speeding	Fines vary by speed limit and excess	Maximum 4,000kr (€387)
Seat belt offences	1,500kr fine (€145)	
Child restraint	2,500kr fine (€242)	
Mobile phone use	1,500kr fine (€145)	
Licence loss info		
Sweden does not have a penalty points system so there is no threshold at which licence loss occurs. Licence loss does however occur as part of the fixed penalty structure for speeding.		

Table 8: Speeding penalties detail – Sweden

Speed excess	Speed limit	
	50km/h or lower	Higher than 50km/h
1 → 10 km/h	2,000kr (€194)	1,500kr (€145)
11 → 15 km/h	2,400kr (€232)	2,000kr (€194)
16 → 20 km/h	2,800kr (€271)	2,400kr (€232)
21 → 25 km/h	3,200kr (€310)	2,800kr (€271)

⁹ References

<https://korkortonline.se/en/facts/fines/>

Swedish Prosecution Authority (2015). [Brott mot Trafikförordningen](#) (2015-12-29).

Swedish Prosecution Authority (2012). [Brott mot Fordonsförordningen](#) (2015-12-29).

<https://www.thelocal.se/20180520/swedes-flout-ban-on-texting-behind-the-wheel>

26 → 30 km/h	3,600kr (€348)	3,200kr (€310)
31 → 35km/h	4,000kr (€387) and licence loss of between 2 and 8 months.	3,600kr (€348) and licence loss of between 2 and 8 months.
Over 35 km/h	4,000kr (€387) and licence loss of between 2 and 8 months.	4,000kr (€387) and licence loss of between 2 and 8 months.

4.3.6 Switzerland¹⁰

Table 9 shows more detail of the penalty system in place in Switzerland; like Sweden there is no penalty point system. It is noteworthy that the fines for the non-speeding offences are much lower than in the other case studies. For speeding however, the system is both complex and potentially extremely financially punishing. Table 9 shows the detail of these speeding penalties. Where alternatives are given the penalty depends on the excess within that range (for full details see references⁸).

Table 9: Penalty system information – Switzerland

Offence	Penalty	Other details
Speeding	Fines vary by speed limit and excess	Lower speed excesses have fixed fines, higher speed excesses have fines equivalent to multiple days' income.
Seat belt offences	Fine of 60Fr (€52)	
Child restraint	Fine of 60Fr (€52)	
Mobile phone use	Fine of 100Fr (€87)	
Licence loss information		
Switzerland does not have a penalty points system so there is no threshold at which licence loss occurs. Licence loss does however occur as part of the fixed penalty structure for speeding.		

¹⁰ References

RS741.031 Ordonnance sur les amendes d'ordre. (Updated 7 May 2017) Annexe 1 Liste des amendes <https://www.admin.ch/opc/fr/classified-compilation/19960142/index.html> (Geneva municipality). For full details of *Tagessatz* speeding fine calculations see: <https://www.ch.ch/en/driving-over-speed-limit/> and http://driving.legal/innerorts_en.html

Again, the penalties depend on the excess speed and, in this case, on road type. For lower-level offences there is a fixed fine structure. However, once a certain threshold of excess speed is reached the offender receives a court summons; in most cases thereafter the size of the fine is expressed in terms of number of days of the offenders' usual income. This is known as "Tagessatz" (TS).

Table 10: Speeding penalties detail – Switzerland

Excess speed	Road type			
	30 km limit	Built-up areas	Outside built-up areas	Motorway
1 → 5 km/h	40Fr (€35)	40Fr (€35)	40Fr (€35)	20Fr (€17)
6 → 10 km/h	120Fr (€105)	120Fr (€105)	100Fr (€87)	60Fr (€52)
11 → 15 km/h	250Fr (€218)	250Fr (€218)	160Fr (€140)	120Fr (€105)
16 → 20 km/h	Summons: Warning Between 400Fr (€349) & 600Fr (€524)	Summons: Warning 400Fr (€349)	240Fr (€209)	180Fr (€157)
21 → 25 km/h	Summons: 1 month min licence loss 30 TS	Summons: 1 month min licence loss 600Fr (€524)	Summons: Warning 400Fr (€349)	260Fr (€227)
26 → 30 km/h	Summons: 3 months min licence loss 50 TS	Summons: 3 months min licence loss 20 TS or 30 TS	Summons: 1 month min licence loss 600Fr (€524)	Summons: Warning 400Fr (€349)
31 → 34 km/h	Summons: 3 months min licence loss 90 TS	Summons: 3 months min licence loss 50 TS or 60 TS	Summons: 3 months min licence loss 20 TS	Summons: 1 month min licence loss 600Fr (€524)

35 km/h or more	Summons: 3 months min licence loss	Summons: 3 months min licence loss	Summons: 3 months min licence loss	Summons: 3 months min licence loss
	Minimum 120 TS	70 TS or 90 TS	Between 30 TS and 90 TS	Between 20 TS and 90 TS
	At 40 km/h excess: min 1 yr imprisonment	At 40 km/h excess: min 120 TS	At 50 km/h excess: min 120 TS	At 65 km/h excess: min 120 TS
		At 50 km/h excess: min 1 yr imprisonment	At 60 km/h excess: min 1 yr imprisonment	At 80 km/h excess: min 1 yr imprisonment

4.3.7 Australia¹¹

Australia largely has similar regulations across the whole country, with some slight differences in the details between states. In this section these details are provided for Queensland (Table 11) and New South Wales (Table 13). Both states have a gradation of penalties for speeding, based on excess speed but not on the speed limit of the road; these are shown in Table 12 and Table 14 respectively.

It is important to note that all states in Australia have a graduated driver licensing system for new drivers; these have different categories of licence subject to different driver restrictions, and requiring a driving test to progress to the next level. The first licence is a learners licence, then provisional (P1) licence, then provisional (P2) licence, before the final unrestricted or ‘open’ licence is obtained.

In both Queensland and New South Wales, licence loss occurs when the threshold for penalty points is reached. However, for provisional and open licences, offenders who have reached this threshold can instead choose to take a ‘double or nothing’ good driving behaviour period. This means that the driver retains their licence but on the condition that if they receive a further two or more penalty points in the following year, they will receive double the licence withdrawal period that would have originally applied. (If the driver completes the one year period with no additional points, all prior points are removed.)

¹¹ References

<https://www.qld.gov.au/transport/safety/fines/demerit/points>
<https://www.qld.gov.au/transport/safety/fines/demerit/about>
<https://www.rms.nsw.gov.au/roads/safety-rules/demerits-offences/speeding-offences.html>
<https://www.rms.nsw.gov.au/roads/safety-rules/demerits-offences/seatbelt-offences.html>
<https://www.armstronglegal.com.au/traffic-law/other/speeding-penalties>

Table 11: Penalty system information – Queensland

Offence	Penalty	Other details
Speeding	Fines and number of penalty points vary by excess speed*	Double penalty points for repeat offenders within 12 months.
Seat belt offences	\$391 fine (€248) plus 3 penalty points	Double penalty points for repeat offenders within 12 months.
Child restraint	\$391 fine (€248) plus 3 penalty points	Double penalty points for repeat offenders within 12 months.
Mobile phone use	\$391 fine (€248) plus 3 penalty points	Double penalty points for repeat offenders within 12 months.
Licence loss information		
Penalty point thresholds for disqualification depend on licence type:		
<ul style="list-style-type: none"> • Learner or provisional licence – 4 or more points within a year means a 3 month suspension • Open licence – 12 or more points within 3 years means a suspension of length depending on the number of points incurred i.e.12–15 demerit points means 3 month suspension, 16–19 points means a 4 month suspension, and 20 or more points means a 5 month suspension). 		

Table 12: Speeding penalties detail – Queensland

Excess speed	Penalty
< 13km/h	\$174 (€110) + 1 point
14km/h → 20km/h	\$261 (€165) + 3 points
21km/h → 30km/h	\$435 (€276) + 4 points
31km/h → 40km/h	\$609 (€386) + 6 points
> 40km/h	\$1218 (€772) + 8 points Plus 6 months suspension

Table 13: Penalty system information – New South Wales

Offence	Penalty	Other details
Speeding	Fines and number of penalty points vary by excess speed.	Learner and P1 licences have (min) 3 month suspension for any speeding, plus fine depending on excess speed. Increased fines and an additional demerit point for each offence in school zones.
Seat belt offences	\$337 fine (€214) plus 3 penalty points	
Child restraint	\$337 fine (€214) plus 3 penalty points	
Mobile phone use	\$337 fine (€214) plus 3 penalty points Fine is \$448 (€284) in school zone	Learner, P1 and P2 banned altogether from phone use
Licence loss info		
Penalty point thresholds for disqualification depend on licence type:		
<ul style="list-style-type: none"> Learner or provisional licence – 4 or more points within a year means a 3 month suspension (For P2 licence holders, the threshold is 7 points.) Open licence – 13 or more points within 3 years means a suspension of length depending on the number of points incurred i.e.12–15 demerit points means a 3 month suspension, 16–19 points means a 4 month suspension, and 20 or more points means a 5 months suspension). 		

Table 14: Speeding penalties detail – New South Wales

Excess speed	Penalty	Penalty if convicted in court
< 10km/h	\$119 (€75) + 1 point	Up to \$2,200 (€1,394)
10km/h → 20km/h	\$275 (€174) + 3 points	Up to \$2,200 (€1,394)
21km/h → 30km/h	\$472 (€299) + 4 points	Up to \$2,200 (€1,394)
31km/h → 45km/h	\$903 (€572) + 5 points	Up to \$2,200 (€1,394) Plus 3 months licence loss

> 45km/h	\$2435 (€1543) + 6 points	Up to \$3300 (€2091)
	Plus 6 months licence loss	Plus 6 months licence loss
		Vehicles can also be impounded for 3 months

Both states considered apply double penalty points in specific situations. New South Wales applies double penalty points during holiday periods and this is also done in Western Australia and Australian Capital Territory. Queensland is the only Australian state to impose double penalty points for repeat offences (within the same offence group).

4.4 Implications

This case study investigation has looked at the details of the penalties imposed for speeding, mobile phone use when driving, seat belt offences and child restraint offences, in seven countries. As discussed previously, these should be viewed as illustrative only. The key points from these case studies are summarised in this section.

All case studies impose mandatory fines – either fixed penalty notices or on-the-spot fines – for all four offences. In most cases these penalties, applicable at the roadside, offer an opportunity to avoid going through the court system. If the offender insists on going to court, in most countries the penalties will be increased if subsequently found guilty and of a value determined by the court.

With respect to speeding offences, all the case studies except Ireland and the UK vary the value of the mandatory fines depending on the size of the speed excess; Switzerland, Norway and Sweden further vary depending on the speed limit of the road in question. Some of the speeding fine gradations are extremely elaborate; Switzerland in particular has a complicated structure of fixed penalty notices up to a certain level of excess speed (level depending on road type), after which a court appearance is mandatory and the fine will be expressed in terms of days’ income of the offender.

According to ETSC (2011), most EU Member States have introduced a penalty point system to deter repeat offenders; of our case studies, only Sweden and Switzerland do not have penalty point systems, although it should be noted that in the UK and Norway two of the four offences considered do not incur penalty points.

All case studies use disqualification or the loss of licence as a penalty, although sometimes only for speeding offences. For those countries with a penalty point system, licence loss comes after breaching a threshold within a time limit; for all of these considered the threshold is lower for new drivers. For those countries without a penalty point system, licence loss is a part of the fixed structure of penalties for excessive speed but does not appear to be a standard outcome for the other offences. (Note that some of the countries that do have penalty point systems still include disqualification as part of the fixed penalty structure for speeding.)

Licence loss is usually officially the result of court order, even when it is part of a fixed penalty structure; however in Norway the police can impose a roadside disqualification without court order and without prior notification.

For seat belt legislation, the driver is usually liable for their own seat belt wearing and for child passengers; adult passengers are usually responsible for themselves and liable therefore to the penalty; however in New South Wales and Queensland both the driver and the adult passenger can be charged. As drivers are responsible for all child passengers, use of the correct child restraint is usually included as part of the overall seat belt legislation and the penalties are the same. In Norway and Sweden, child restraint offences attract penalties in addition to the seat belt offence penalty – two penalty points in addition in Norway, and an increased fine in Sweden.

Norway and Switzerland also have imprisonment explicitly included in the fixed structure of penalties for speeding and it is implemented as a matter of routine based on the degree of excess speed. Norway also has the option of community work for high excess speeds which do not however merit imprisonment. Again, it is important to note that imprisonment is possible in other countries at the discretion of court, but it is not explicitly included in the standard penalty structure.

As mentioned above, most of the case study countries have systems where the penalties increase if the offender takes the matter to court; there are also some systems in which fines and points can increase, which are unique to individual case study countries, for example:

- Increasing fines if not paid promptly (Ireland)
- Double penalty points for repeat offences (Queensland)
- Double penalty points in holiday periods or school zones (NSW)

There are also some interesting alternatives offered in some of the case study countries, for example:

- Awareness courses for all four offences (UK)
- ‘Double or nothing’ good driving behaviour periods rather than licence loss resulting from exceeding the penalty points thresholds (Australia)
- Vehicle impoundment for excessive speeding (NSW)

4.5 Limitations

This case study investigation relied on some subjective judgement, in creating both the shortlist and the final selection of countries / states, in terms of those countries which were felt to have a similar driving system and culture to Ireland. In addition, although some of the countries were prioritised due to their good safety records as evidenced by ETSC (2018), this criterion is only a proxy for the effectiveness of the penalty systems in those countries. It has not been possible to establish a direct link between the overall safety record – in terms of killed and seriously-injured casualties or collisions – and the penalties imposed on dangerous behaviours. Whilst penalties may reduce the incidence of those behaviours, which may in turn reduce the number of collisions, there are many other factors involved. Data on offending rates, and crucially reoffending rates, before and after the introduction of

a penalty-based intervention could provide evidence of a more direct causal link but, even in that scenario penalty systems are not often introduced in a way that makes evaluation easy, for example being introduced as a package of measures or targeted at a range of behaviours, making it difficult to draw conclusions for these four behaviours specifically.

As discussed previously, the recommendations resulting from this study are not based on these case studies, and so the limitations should not however cause concern; the case studies illustrate various methods of implementing fairly widespread penalty types and also some innovative types of penalty that may show potential in the future.

5 Recommendations and conclusions

The Road Safety Authority is seeking to optimise the penalties aimed at deterring four dangerous driver behaviours – specifically speeding, mobile phone use while driving, non-wearing of seat belts, and carrying unrestrained children in a vehicle – with the aim of reducing the number of collisions and fatalities on the network. This review sought to identify what the international evidence tells us about the optimal penalties to put in place to successfully deter these four traffic offences. Furthermore, the case study investigation sought to identify the details of penalties that countries with excellent road safety performance records currently use to deter these traffic offences.

The majority of literature found as part of this review focused on speeding offences in particular, with a relative lack of literature directly addressing the behaviours of mobile phone use while driving, non-wearing of seat belts and carrying unrestrained children in a vehicle. In addition, in the case studies considered, similar types of penalty were generally used to deter all four offences; even though the details and degrees of the punishment varied only speeding was generally addressed separately and targeted by specific measures. As such, recommendations cannot be made to address all four behaviours individually.

Ireland's current penalty point system is supported by this review. One of the strongest deterrents that was identified was the threat of having one's licence removed. Penalty point systems have been shown to reduce reoffending rates due to the increased threat of licence loss within those who have already accrued penalty points (Corbett et al., 2008). A key advantage of imposing the threat of licence withdrawal through the penalty points system is that it applies to, and therefore deters, all offences that incur penalty points. As illustrated by the case studies, some countries enforce licence withdrawal for major speeding offences, but where there is no penalty point system, this threat is not present for the other driving offences considered. Although out of scope of this review, it is arguable that benefit may be achieved from applying penalty points to other driving offences, which are not currently included in the system.

Having a lower point threshold for newly qualified drivers – a group with little driving experience and a high collision risk – encourages compliance with traffic regulations, potentially reducing new driver offending. It can also lower exposure to risk for those drivers who are caught offending, by preventing them from driving due to licence loss. This is also supported by widespread existing practice.

This review has therefore provided support for the existing penalty point system, for all four driving offences, with a lower threshold for newly qualified drivers. Based on the findings from this review, the following recommendations are suggested to enhance the existing system:

1. The Road Safety Authority could consider increasing the severity of the penalties already in place for the four targeted offences.

Evidence from the review suggests that any increase to the penalties incurred through committing a driving offence should show some immediate improvements in compliance. In the context of the existing Irish penalty system, this would mean increased monetary fines and / or an increase in the penalty points incurred for each offence. The latter provides an increased threat of licence revocation, which appears to be the strongest

deterrent for offenders. There are, however, several important caveats that need to be taken into consideration when applying an increase in driving offence penalties to ensure a stronger, more observable effect. Firstly very high monetary fines can lead to non-payment, either through financial inability or unwillingness if the fine is perceived to far outweigh the seriousness of the offence (see also Recommendation 2). Secondly the introduction of stricter sanctions needs to go hand in hand with an increase in enforcement and public awareness of said penalties, maintained at such a level to increase the length of the effect on reducing traffic offences, and considered with regards to existing infrastructure (see also Recommendation 5).

2. The Road Safety Authority could consider issuing different penalties based on the severity of the offence.

For penalties to be effective they must be credible and they must be perceived as proportional to the severity of the offence (Jou & Wang, 2012; Traxler et al., 2018), i.e. a more severe offence – whether in degree of noncompliance, or in consequence – should receive a more severe penalty; this is the case independent of the absolute value of the penalties, in terms of monetary fines or points for example.

The gradation of fines is one means of implementing this idea, with higher-level offences being assigned greater monetary fines and more penalty points. This gradation is typically seen for speeding offences (discussed further in Recommendation 3), but theoretically has the potential to be applied to the other offences being addressed. Care must be taken when defining severity levels for the non-speeding offences and further research may be required to identify the most dangerous behaviours based on the consequences of noncompliance, as it may not always be straightforward. For example, it is reasonable to assume that mobile phone use whilst driving is more serious when travelling on a high-speed road than when stopped at traffic lights, however it may be less clear whether a poorly-fitted child seat is more or less dangerous than no child seat at all. In addition, care must be taken to ensure the gradation does not provide implicit consent for the lower-level offences. Any gradation of penalties should include the possibility of licence revocation for the most serious offences, as there is evidence that this is the strongest deterrent.

3. The Road Safety Authority could consider a graduated framework of penalties for speeding offenders, including trialling the use of ISA technologies as a form of penalty.

As discussed above penalties must be perceived as proportional to the severity of the offence, and examples of applying a gradation in penalties for speeding offences are outlined within the case studies (see Section 4).

There is some evidence supporting the use of speed awareness courses for first-time, low-level offences. For higher-level speeding offences, immediate licence revocation should be implemented based on the evidence supporting the deterrent effect of threat of licence loss (Soole et al., 2008). The proposed framework could include these penalties, along with gradation of monetary fines and points and consider the inclusion of ISA technologies for serious offenders, either in place of licence revocation or following licence reinstatement.

Enforcing ISA technologies – particularly the more restrictive kinds – as a penalty for serious and repeat speeding offenders will have an immediate effect on reducing the number of speeding offences by preventing individuals from speeding entirely. This is similar to the rationale for the more widely-used alcohol-interlocks; drivers are physically unable to commit the offence whilst the technology is enabled. Evidence shows that ISA technologies are only effective while fitted, with drivers returning to their habitual speeding habits upon removal; as such, the Road Safety Authority should consider investigating how to produce more long-term effects from the use of ISA technologies.

- 4. The Road Safety Authority could undertake research to better understand the effect of different combinations of widely-used penalties such as fines and penalty points. Evaluation of innovative ideas, such as double points for repeat offences, should also be conducted.**

Although there is evidence for the effectiveness of such widely-used penalties as monetary fines and penalty points systems in deterring dangerous behaviours, there is little evidence considering the effect of different combinations of these penalties and how they should be integrated. Furthermore, innovative ideas such as double penalty points for repeat offences should be evaluated before being implemented more widely. The lack of evidence demonstrating the effectiveness of such novel ideas suggests the need for analysis.

- 5. It is important to ensure that sufficient enforcement strategies are in place at national level to uphold regulations; these must be visible, able to deliver penalties swiftly, and ensure that public awareness of regulations is maintained. Further research into the relative importance of penalty severity, swiftness of punishment and likelihood of apprehension could also be conducted.**

The evidence provided by this review supports the idea for ensuring there is sufficient enforcement – and awareness of that enforcement – for a strong deterrent effect to be observed. This is based on the underpinning logic of classical deterrence theory, which proposes that law breaking is inversely related to the severity of the penalty, the timeliness of punishment, and the perceived likelihood of apprehension (Davey & Freeman, 2011). If drivers believe they are likely to be caught if they commit an offence, and believe that the punishment they receive will be severe and administered swiftly, they will be less likely to commit an offence.

Further research investigating how to best weight the factors of penalty severity, swiftness of punishment, and likelihood of apprehension should also be conducted to better understand the relationship between these three factors, ensuring the greatest safety benefit and reduction in number of offences. This could be conducted through the use of a choice experiment wherein individuals are asked to select which option they would prefer if they were committing an offence, with the three key factors being varied throughout.

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Appendix A List of search terms

The search terms below were used for the literature search.

1 st Level	(AND) 2 nd Level	(AND) 3 rd Level
Penalt*	Speed*	Offence*
Compliance	Seatbelt*	Offend*
Comply	Seat belt*	
Deterrence	Restraint*	
Deterrent*	Car seat*	
Sanction*	Child seat*	
Fine*	Booster seat*	
Intervention*	Handheld device*	
Remediat*	Mobile phone*	
Remedial	Smart phone*	
Rehabilitat*	Car phone*	
Punish*	Carphone*	
Prevent*	Cell phone*	
Disqualif*	Cellphone*	
	Distract*	
	Text*	
	Call*	
	Music	
	Social media	

Appendix B Inclusion criteria and scoring

The inclusion criteria below were used for scoring the literature.

	Score = 1	Score = 2	Score = 3
Relevance	Not relevant to the objectives of the project	Some indirect relevance to the objectives of the review (e.g. research regarding similar offences, broader research on theory regarding deterrence and how to optimally design penalties)	Directly relevant to the objectives of the review (i.e. research which evaluates the impact of penalties to deter the specific offences)
Quality	Non-scientific article (e.g. online source, newspaper or magazine article)	Non-peer reviewed scientific article	Peer-reviewed scientific article (e.g. journal paper or conference procedure)
Provenance		Originating from a country without a similar driving system and culture to the ROI	Originating from a country with a similar driving system and culture to the ROI

Abstract

In order to reach the Irish Government's targets of reducing the number of road traffic fatalities in Ireland (outlined in their Road Safety Strategy) the Road Safety Authority (RSA) in Ireland were interested in how to best improve their driving offence penalty system. A review of current literature and case study analysis was undertaken to investigate what international evidence tells us about optimal penalty systems to have in place for specific driving offences. The specific offences were speeding, mobile phone use while driving, non-wearing of seat belts and the carrying of unrestrained children in a vehicle. The rationale behind the approach used was that if there are well-evaluated and effective penalty systems, and these systems can be seen within countries that have good safety records, then any developments to the current penalty system in Ireland should be aligned with these where possible. Based on the findings from the literature review and case study analysis, recommendations were given in order to inform the RSA on what changes could be made to their own penalty system.

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