



# A Guide to the Use of **Penalties to Improve Road Safety**



GLOBAL  
**ROAD SAFETY**  
PARTNERSHIP

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# GLOSSARY

**Enforcement tolerance:** The margin above the posted speed limit within which drivers will not be cited for a speeding violation. This margin can be a percentage (e.g. 10% above the speed limit) or stated as an amount (e.g. 10 kms above the speed limit).

**General deterrence:** The extent to which people are deterred from doing a certain behaviour such as speeding, not because they have been caught, but because they believe they may be caught and the consequences are undesirable.

**LMIC:** Low- and middle-income countries

**Penalty:** In this Guide, it specifically refers to a legal punishment imposed for breaking the traffic law or rules

**Specific deterrence:** The extent to which a person is deterred from doing a certain behaviour because they have been caught and penalised for that behaviour before and do not want to experience the consequences again

**Traffic offence:** Unlawful activities that occur while an individual is operating a motor vehicle. It may also be referred to as traffic violations.

**Traffic offenders:** Individuals who commit unlawful activities while operating a motor vehicle

# EXECUTIVE SUMMARY

Issuing penalties for traffic offences is a key component of behaviour change techniques which have been used extensively in many jurisdictions. The use of penalties aims to encourage people to use the road system safely and to comply with traffic laws.

Deterrence principles suggest that people make behavioural choices based on their personal perceptions about the threat of associated penalties. This threat is said to be determined by a combination of the perceived threat of being caught for breaking the law (*perceived risk of apprehension*), and perceptions about the certainty, severity and swiftness of punishments when caught. The research evidence about which of these four aspects are most influential is mixed.

In practice, many factors influence compliance with traffic laws and levels of offending. Penalties for non-compliance with traffic laws are intended to modify road user behaviour but they are not tailored to individual circumstances. Different penalties are likely to impact people in different ways. The behavioural effects of a penalty may also vary from country to country because of a wide range of factors including: differences in the philosophy of crime and justice, perceived fairness of legislative processes, prevailing social norms and cultural beliefs, penalty administration processes (i.e. administrative versus judicial processes), coherence of licensing and registration systems, level and type of police enforcement, and the level at which a behaviour is considered illegal (e.g. speed limits, blood alcohol concentration [BAC] limit). Evaluation studies also tend to examine the effects of a package of sanctions rather than an individual sanction effect. Therefore, it is difficult to isolate specific effects of individual penalty types.

Experience and evidence suggest that there are multiple ways to increase the impact of penalties to bring about desired behaviour change. It is important to recognise that there is no specific way to easily determine how severe a penalty should be to deter people from committing a traffic offence. Different penalties are likely to impact people in different ways. For example, a monetary fine might be meaningful and influential for someone with limited financial resources, yet may have no influence on the offending behaviour of someone

who can easily afford to pay the monetary fine. Conversely, a person with greater financial means may be influenced more effectively by receiving a demerit point penalty than a monetary fine.

A suite of penalty options is available and includes:

- Fines (graduated penalty, whereby increasing seriousness of offence results in increasing fine amounts prescribed in a schedule)
- Penalty point system (Demerit points or Merit points)
- Licence sanctions (Licence suspension, Immediate licence suspension, Licence disqualification, Licence restriction)
- Vehicle sanctions (Vehicle impoundment, Registration plate withdrawal, Vehicle immobilisation)
- Alcohol interlock
- Remedial programmes (treatment / rehabilitation)
- Imprisonment

The choice of penalty may be determined based on the objectives, and the advantages and disadvantages of each type of penalty, as well as evidence relating to each penalty type (see summary Table in Appendix). The objectives of the penalties involve understanding of the penalty audience – whether to achieve general deterrence which targets the whole population (prevent offending overall), and/or to achieve specific deterrence, which targets those who have already experienced detection, prosecution, and punishment (prevent re-offending). Different types of penalties are often combined to intensify the deterrent effect and achieve the best safety outcomes. Regardless of the type of penalty, they must only be applied in accordance with legislated authority. Penalties have an important educative role in that they can signal the level of risk that is involved with various offences. For instance, it is important that riskier and more dangerous behaviours result in more severe penalties. In this way, the severity of the penalty is aligned to the level of danger imposed on the community by the person breaking the law.

# PURPOSE OF THIS GUIDE

This Guide provides information about different types of penalties that have been applied to traffic offences. Penalties for traffic offences are a critical component of behaviour change techniques that have been used extensively with the aim of encouraging road users to comply with traffic laws and to use the road system safely. Having evidence-based legislation in place is important, but alone, it will not sufficiently deter illegal behaviours. Compliance with traffic laws can be achieved from the combined effects of legislation, increased public awareness, enforcement, and penalties. This Guide focuses on the penalty component only.



# INTRODUCTION

Road users violate traffic laws for different reasons. Some people intentionally behave illegally. Other people might perform the same illegal behaviour unknowingly, while others may do so because of impaired judgement from alcohol and/or drugs. The threat of receiving penalties that are severe enough to deter offending may create intentions not to break the law, which in turn, can result in decreased offending.

The underlying principle guiding the use of penalties is that behaviours that result in negative consequences are less likely to recur. Deterrence principles suggest that people make behavioural choices based on their personal perceptions of the threat of associated penalties<sup>1</sup>. This threat is said to be determined by a combination of four things: the perceived threat of being caught for breaking the law (*perceived risk of apprehension*), and the perceived certainty, severity and swiftness of punishments when caught<sup>2</sup>. The overall effect of penalties is linked to each of these four aspects of deterrence theory. The research evidence relating to which aspects of deterrence are most influential is mixed<sup>3</sup>.

There are two additional deterrence-related concepts linked to enforcement of penalty regimes: *general* and *specific* deterrence. General deterrence refers to the impact of legislation and its enforcement on the whole population. The general deterrent effect relies on the general public having the perception that laws are enforced and that the risk of being caught and punished is high. Specific deterrence, by contrast, relates only to people who have already experienced detection, prosecution and punishment. The specific deterrent effect relies on offenders believing that their previous punishment experiences are sufficiently negative to deter reoffending. This inevitably has a varying degree of success in the offending population, ranging from reduced volume of offences and reduced seriousness of offences, to stopping offending altogether.

This Guide describes ways in which a robust penalty system may be implemented and draws on international evidence to inform recommendations. It is important to note that there is no pre-defined way to easily determine how severe a penalty should be to deter people from committing a traffic offence. Different penalties are likely to impact people in different ways. For example, a monetary fine might be meaningful and influential for someone with limited financial resources, yet may have no influence on the offending behaviour of someone who can easily afford to pay the monetary fine. Conversely, a person with greater financial means may be influenced more effectively by receiving a demerit point penalty than a monetary fine.



# TYPES OF PENALTY

Legal sanctions – also referred to as penalties – impose punishment on those who violate laws and regulations governing the safe use of the road system. In addition to punishment, the objectives of penalties may include restraining offenders from committing further offences, reforming offenders, and threatening would-be offenders from offending.

A variety of penalties can be applied to those who are caught breaking road traffic laws and regulations. Table 1 provides a list of penalties which may be applied to traffic offences. The type of penalty may be determined based on considerations of objectives, and the various advantages and disadvantages of each penalty type (Table 1), in addition to evidence (see Table 2)<sup>4</sup>. Penalties may also be combined to intensify their deterrent nature. For example, monetary fines and demerit points may be imposed for certain violations instead of just the fine or demerit point penalty alone.

There are two processes in which a penalty may be administered:

- **Judicial process:** Penalties are determined in court where the application of penalty and its severity are contingent upon conviction.
- **Administrative process:** Penalties are applied without the direct intervention of a court, through the processes associated with the issue of a penalty notice (although an accused offender may choose to challenge this in court).

Generally, the lack of court involvement in administrative processes allows the penalty to be applied with greater swiftness and certainty and less administrative costs than judicial processes that involve the court to determine the penalty and its severity<sup>5</sup>. However, the certainty of judicially-imposed penalties may be improved through the adoption of prescribed penalties for the offence such as mandatory minimum licence disqualification periods<sup>6</sup>.





**Table 1 - Different types of penalties<sup>7</sup>**

Penalty type	Description	Primary objective	Advantages	Disadvantages
<b>Fines</b> (a predetermined and graduated monetary penalty)	<p>A monetary sanction to be paid by the offender to a given department by a specified date.</p> <p>The amount of the fine should increase according to the severity of the offence (e.g. a graduated penalty means that higher amounts of speeding should attract larger monetary fines).</p> <p>The amount of the fine should be pre-determined, prescribed in a schedule, and publicised so that offenders know the amount, and so that police are unable to change the amount of the fine when interacting with offenders.</p>	<p>Punish offenders to deter future offending;</p> <p>Deter would-be offenders from offending</p>	<p>May provide revenue to directly support investment in road safety activities (e.g. enforcement).</p> <p>Predetermined (fixed) fine amounts reduce the potential for corruption when police interact with offenders, particularly if the fine payment is administered through a third-party government organisation (not police).</p>	<p>Fines issued at the police-offender interception point create opportunities for corruption if the fine amount is not pre-determined and publicised.</p> <p>Socio-economic status may determine how impactful this is for individuals. For example, a USD10 penalty in India for a low-income driver may be a significant penalty and likely to deter future offending. However, this same penalty for a high-income driver, or a driver in high-income country may not see this as a severe penalty and may therefore not be deterred by it. These equity issues may be addressed by setting fine amounts in proportion to income (e.g. Finland) or in consideration of weekly median wage in the country. However, they require excellent records of income for every citizen in the country, which is unlikely to be available in most LMICs.</p>
<b>Demerit points</b>	<p>Points accumulate from 0 to a higher number if a driver commits an offence and usually remain valid for a number of years. When the total number of demerit points reach a certain threshold within a defined period (e.g. 12 or more points within a 3 year period), another penalty is imposed – usually licence suspension or disqualification.</p>	<p>Deter offenders from committing further offences;</p> <p>Deter would-be offenders from offending.</p>	<p>The impact of points is likely to be more equitable across different income earners than a monetary fine<sup>8</sup>.</p> <p>Repeated offending attracts more points providing good specific effects<sup>9</sup>.</p> <p>May be perceived fairer penalty and receive good public support<sup>10</sup>.</p>	<p>Offenders may transfer the collected points to another individual (e.g. with no or few points)<sup>11</sup> if the driver at the time of offence was not identified (e.g. in automated enforcement – however, only where the camera does not include a photo of the driver) and the penalty notice was sent to the registered vehicle owner;</p> <p>Reliant on an effective licence system that can follow offender’s offence records and effectively apply suspension when threshold is reached.</p>

Penalty type	Description	Primary objective	Advantages	Disadvantages
<b>Merit points</b>	Points are lost from a set number (e.g. 100) until it reaches 0 if a driver commits an offence. The credit of points usually remains valid for a number of years. When the credit drops to 0, another penalty is imposed – usually licence suspension or disqualification.	Deter offenders from committing further offences;  Deter would-be offenders from offending.	The impact of points is likely to be more equitable across different income earners than a monetary fine <sup>12</sup> .	Offenders may engage in the fraudulent use of points belonging to others if the driver at the time of offence was not identified (e.g. in automated enforcement – however, only where the camera does not include a photo of the driver) and the penalty notice was sent to the registered vehicle owner;  Reliant on an effective licence system that can follow offender’s offence records and effectively apply suspension when threshold is reached.
<b>Licence suspension</b>	Suspended licence holder is banned from driving at all times during the period of suspension.  The licence is automatically reinstated after the suspension period.	Deter and prohibit offenders from committing further offences;  Deter would-be offenders from offending.	Limits opportunities for re-offending during the term of the sanction.	Suspended drivers may continue to drive even though not legally licensed <sup>13</sup> ;  Suspension may be perceived as unfair, especially in relation to its impact on an offender’s capacity to earn a living if that is linked to ability to drive (especially so for offenders residing in rural/remote locations without access to public transport)  Reliant on an effective licence system that keeps accurate records and communicates with the offender and enforcement agency.
<b>Immediate licence suspension/ Roadside licence suspension</b>	Licence is suspended and confiscated on the spot by police for a serious offence (e.g. high-level speeding, drink driving, driving offence causing death and serious injury) generally for a defined period (e.g. 28 days)	Deter and prohibit offenders from committing further serious offences;  Deter would-be offenders from committing serious offences.	In contrast to traditional suspension (above), the deterrent effect of immediate/roadside suspension is swift – one of the critical elements of increasing deterrence.	Police officer can apply the immediate suspension which cannot be applied to camera-detected offences.  Requires a system where the immediate suspension of driving licence is recorded immediately so that authorities are aware of the suspension.
<b>Licence disqualification / revocation</b>	Disqualified/revoked licence holder is banned from driving at all times during the period of disqualification. The licence is reinstated only when the driver reapplies for the licence at the end of the disqualification period. However, a driver can never drive again when lifetime disqualification applies.	Deter and prohibit offenders from committing further offences;  Deter would-be offenders from offending.	Limits opportunities for re-offending during the term of the sanction.	Disqualified drivers may continue to drive <sup>14</sup> ;  Reliant on an effective licence system that keeps good records and communicates with the offender and enforcement officers.  Requires a system where court-imposed disqualifications are recorded in the licence system in a timely manner.

Penalty type	Description	Primary objective	Advantages	Disadvantages
<b>Licence restriction</b>	Licence holder is banned from driving during the period of restriction except for certain purposes (e.g. to drive to and from employment or medical treatment) that may be determined by court or other authority. Offenders are usually required to demonstrate that they would suffer unnecessarily from being prohibited from driving in order to be granted a restricted licence.	Deter and prohibit offenders from committing further offences;  Deter would-be offenders from offending.	Reduces opportunities for re-offending during the term of the sanction and may increase caution and vigilance when driving.  May create social acceptance of this type of penalty due to recognition of economic needs of offender.	Widespread use of restricted licences may undermine both specific and general deterrence because the offenders do not experience the full impact of punishment <sup>15</sup> ;  Court decisions on who is granted restricted versus full licence suspension may also create social inequity;  Reliant on an effective licence system that keeps good records and communicates with the offender and enforcement officers.  Licence restriction provisions must appear and be obvious on the driver licence. If not, police officers may miss seeing the restriction when intercepting the driver on subsequent occasions.
<b>Vehicle sanctions</b>	Vehicle is confiscated from the offender.  Impounded/forfeited vehicles may be returned after the sanction period with payment of a fee. Alternatively, the licence plate may be seized, a sticker attached to the licence plate to show anyone but the offender is permitted to drive the vehicle, vehicle registration withdrawn, or vehicle immobilised on the offender's property with a "boot" or "club" without the offender having to forfeit the vehicle for impoundment.  Usually applied to serious offences and/or repeat offenders for whom other penalties were unsuccessful in stopping re-offending.	Prohibit offenders from committing further offences;  Deter would-be offenders from offending.	Removes opportunities for re-offending during the term of the sanction;  Drivers may find it more difficult to continue driving without a vehicle than without a licence. Evidence suggests that vehicle impoundment increases licence suspension compliance <sup>16</sup> .	Not directly punitive for offender if s/he is not the owner of the vehicle;  If the impounded vehicle belongs to someone other than the offender, the vehicle may be returned under certain conditions;  Offender may have access to another vehicle to use.  Issues can arise when the value of the vehicle is less than the total cost of impoundment and the offender chooses not to collect their vehicle in lieu of fee payment. Additionally, vehicle sanctions may be perceived as unfair, especially for offenders living in rural/remote locations with little or no access to public transport.  Conversely, when the cost of the vehicle is high, offenders may flee the scene at speed, creating additional risks <sup>17</sup> .
<b>Alcohol interlock</b>	Technology fitted to vehicle so that it cannot be started until a pre-set breath test is passed. Primarily designed to modify the behaviour of drink driving offenders, especially high range BAC and/or repeat offenders, rather than to perform a general deterrent function.	Prohibit offenders from committing further alcohol-related offences.	Removes opportunities for alcohol-related re-offending during the term of the sanction in the vehicle that has the interlock fitted	Interlock can only be applied to offenders who own a vehicle.  Access to interlock equipment and maintenance may be limited in rural locations.  Recording the Interlock Condition on the driver licence must be obvious otherwise it may be overlooked by intercepting police. In addition, the Interlock Condition should transfer between jurisdictions so that offender cannot obtain a non-interlock licence in another jurisdiction during the term of the penalty.

Penalty type	Description	Primary objective	Advantages	Disadvantages
<b>Remedial programs</b> (treatment/ rehabilitation)	Primarily designed to modify the behaviour of offenders, especially drink driving offenders, rather than to perform a general deterrent function. The programs may be educational focused on knowledge and/or psychological focused on behavioural change and run over weeks.	Reform offenders	Remedial programs may more effectively address the factors contributing to alcohol- and drug-specific offences.	Good assessment procedures are required to match offenders to the most appropriate interventions <sup>18</sup> ;  Cost-effectiveness of different approaches are unclear.  Access in rural and remote settings may be limited.
<b>Imprisonment</b>	Offenders are imprisoned for some (serious) traffic offences such as drink-driving, disqualified driving, or dangerous driving causing death.	Prohibit offenders from committing further offences.  Deter would-be offenders from offending.	Highlights to the community the seriousness of the offence.  Removes opportunities for re-offending during the term of the sanction.	More costly to implement than other penalties.
<b>Warning letters</b> (Not recommended as a regular form of penalty to deter offending)	Letters sent to offenders providing them with information regarding their offence and the penalties they face in the event of continued offending.  Different jurisdictions use warning letters for different purposes. For example, a letter may warn offender that: <ul style="list-style-type: none"> <li>• they have accrued a level of demerit points where they are now approaching the threshold for licence suspension and one more offence will result in loss of license;</li> <li>• their next offence will result in a gaol term or a higher fine than the last offence;</li> <li>• new penalties apply for the offence and that after a time-limited period (e.g. the time between any new law being passed and its full implementation) or upon subsequent offending in the time period, the new full penalty will be applied.</li> </ul>	Deter offenders by informing them of the penalties they face for continued offending.  Can be used to educate that a new law is soon to be enforced and that all subsequent offending will result in receipt of a penalty instead of a warning letter.	Inform offenders of additional penalties they face, of which they may have been unaware, aiming to increase specific deterrence.  Warning letters can be automatically generated and implementation costs kept low.  Increase procedural fairness by providing information.	Small cost to the offender (i.e. limited or no deterrence effect).  To enable subsequent offenders to be identified and receive the full penalty, accurate records of who received a warning need to be maintained. Otherwise, the system will be unable to determine who has already received a warning letter – this will severely reduce any future deterrent effect.

\*In some jurisdictions, novice and probationary drivers have a reduced number of points to obtain before further sanctions are imposed. For example, the general population may have 12 demerit points allocated within a 3 year period, but a novice driver has only a total of 4 points to accumulate before licence suspension occurs<sup>19</sup>.

# NON-LEGAL CONSEQUENCES OF LEGAL PENALTIES

Penalties can also create non-legal consequences which may also act as a deterrence. For example:

- licence suspension can lead to the person's inability to participate in work, especially if driving is required to perform work tasks or travel to and from the workplace.
- an offender may experience social disapproval from peers and family members, especially in a society where behaviours such as drink driving, speeding, and drug driving are seen as socially unacceptable.
- in some jurisdictions, higher insurance premium rates may apply after traffic offences are recorded on a licence<sup>20</sup>. In fact, insurance savings may act as an incentive for compliance to the speed limit in some countries (e.g. Denmark, Sweden, and Netherlands)<sup>21</sup>.



# EFFECTIVENESS OF PENALTIES

It is difficult to isolate the effects of individual sanctions because in practice, a whole series of factors occur together to influence driver compliance and levels of offending. Evaluations of the effectiveness of penalties are relatively limited, making it difficult to recommend specific penalties for specific offences with any great certainty. Evaluation studies also tend to examine the effects of a package of sanctions rather than an individual sanction effect<sup>22</sup>.

The effectiveness of sanctions can also differ between the general driving population and traffic offenders, as well as between first time offenders and repeat offenders. Penalties are intended to modify behaviour of individual road users but they are not tailored to an individual's circumstances. Rather, legal penalties are tools to modify behaviour at the population level (i.e., same penalty across the whole population of

offenders). This means that legal penalties are a broad tool for shaping individual behaviour.

The behavioural effects of a penalty may also vary from country to country because of a wide range of factors including: differences in the philosophy of crime and justice, perceived fairness of legislative processes, prevailing social norms and cultural beliefs, penalty administration processes (i.e. administrative versus judicial processes), coherence of licensing and registration systems, level and type of police enforcement, and the level at which a behaviour is considered illegal (e.g. speed limits, blood alcohol concentration [BAC] limit). Nevertheless, the effectiveness of various sanctions has been reported in evaluation studies. Table 2 provides a summary of the evidence to date.

**Table 2 - Summary of evidence**

Penalty type	Overall evidence
<p><b>FINES</b></p>	<p>Individual studies suggest higher fines are associated with lower violations, assuming no change in enforcement levels: speeding (1% fine increase)<sup>23</sup>, red light running (fine increases by over USD150 in different jurisdictions)<sup>24</sup>, and seat belt use (fine increase by USD15)<sup>25</sup>. These effects may also depend on the method of enforcement – for example, (though clear direct evidence is not available) it has been hypothesized that reduced offending from fine increases may be more likely when enforced by camera than by police because police adapt to stricter penalties by reducing enforcement or by adopting larger tolerance margins for violations<sup>26</sup>.</p> <p>A 2016 meta-analysis<sup>27</sup> indicated that effects of monetary fine increases are varied:</p> <ul style="list-style-type: none"> <li>■ 15% decrease in violations with 50-100% fine increases;</li> <li>■ No influence on violations with up to 50% fine increases;</li> <li>■ 4% increase in violations with over 100% fine increases;</li> <li>■ Recidivism effects are mixed but the effect of a fine increase may be weaker on more severe and frequent offenders;</li> <li>■ 5-10% reduction in all crashes with fine increases (increase undefined);</li> <li>■ 1-12% reduction in fatal crashes with fine increases (increase undefined).</li> </ul> <p>The same study cautions the causal relationship because most included studies had insufficiently controlled for confounding factors.</p> <p>Positive effects are more likely when enforcement levels are sufficiently high and sustained. Perceived fairness may also influence the effects<sup>28</sup>.</p>
<p><b>DEMERIT POINT SYSTEMS (DPS)</b></p>	<p>Individual studies report different impacts from positive<sup>29</sup> to no significant impact<sup>30</sup>.</p> <p>A 2012 meta-analysis<sup>31</sup> showed DPS result in reductions in crashes, fatalities and injuries but this effect may wear off in less than 18 months unless sufficiently high levels of enforcement are sustained.</p> <p>DPS may be more effective when: offenders are approaching the limit that triggers licence suspension<sup>32</sup>; offenders are more reliant on their car<sup>33</sup>;</p> <p>the system includes a broad scope of major dangerous traffic violations (speed, alcohol, red light, use of seat belts/helmet/child restraints, dangerous overtaking, priority rules, headway distance); intermediate measures (such as warning letters and rehabilitative measures) are targeted at specific groups of offenders; and the point system, including its communication and administration, is simple, transparent and fair<sup>34</sup>.</p>

Penalty type	Overall evidence
<b>LICENCE SANCTIONS</b>	<p>A 2004 meta-analysis<sup>35</sup> estimated licence sanction measures reduce crashes by 17% and violations by 21% of suspended offenders.</p> <p>Positive effects are more likely when:<sup>36</sup> the perceived probability of detection of unlicensed driving is high; licence sanction is combined with other measures such as rehabilitation programs or vehicle impoundment<sup>37</sup>; certainty &amp; swiftness of licence sanction are increased via administrative/immediate licence suspension where the licence is automatically suspended when certain conditions are fulfilled (e.g. 4% reduction in fatal crashes<sup>38</sup>; 5% reduction in alcohol-related fatal crash involvement<sup>39</sup> - particularly effective for high risk behaviours such as drink-driving<sup>40</sup>); severity is increased (e.g. longer suspension period). The effects may be limited due to certain social and economic conditions (e.g. drivers may ignore licence suspension if driving is necessary for employment) and may not outlast the period of suspension itself<sup>41</sup>.</p>
<b>VEHICLE SANCTIONS</b>	<p>Vehicle impoundment can reduce recidivism while the vehicle is in custody and to a lesser extent after the vehicle has been released. Individual studies report reduced recidivism and show they are particularly effective for serious offenders e.g. drink-driving re-offending<sup>42</sup>; high-range speeding re-offending<sup>43</sup>; repeat offenders - especially those who already have their licence suspended<sup>44</sup>.</p> <p>Evidence for special license plates and vehicle forfeiture is scarce<sup>45</sup>. License plate impoundment administered by the arresting officer can occur quickly and reduce both recidivism and driving with a suspended license, especially among the youngest offenders<sup>46</sup>. Immobilisation of vehicles can be less costly than impoundment or forfeiture which require storage fees<sup>47</sup> and has been found to reduce recidivism<sup>48</sup>.</p>
<b>ALCOHOL INTERLOCK</b>	<p>Alcohol interlock sanctions have been reported to reduce reoffending amongst users to a larger extent than licence suspension<sup>49</sup>. Interlocks seem most effective in reducing recidivism while they are fitted to the vehicle but appear to produce only limited post-treatment behaviour change<sup>50</sup>.</p>
<b>REHABILITATION PROGRAMMES</b>	<p>Programme contents, formats and delivery tend to vary greatly, making evaluations of effectiveness often challenging<sup>51</sup>. Evidence suggests properly performed rehabilitation courses for drink-drivers can reduce the likelihood of recidivism<sup>52</sup>. The positive effect may be exaggerated because the comparison group usually has, a-priori, a higher risk of recidivism, although evaluation studies have controlled for factors such as age, gender, and prior convictions. Positive effects are more likely when the rehabilitation course focuses on behavioural change (i.e. concrete plan of what to do when a relapse is imminent) rather than simply providing information, and is spread over at least several weeks<sup>53</sup>.</p>
<b>IMPRISONMENT</b>	<p>Imprisonment is usually combined with other penalties such as fines, thus making evaluations of the effects of imprisonment alone difficult. Overall research evidence on its effectiveness is equivocal<sup>54</sup>. While the threat of imprisonment may motivate offenders to participate in treatment programs and to comply with interlock and other sanction requirements<sup>55</sup>, mandatory jail sentence policies tend to be ineffective<sup>56</sup>.</p> <p>The lack of a general deterrence effect may be explained by the fact that the probability of apprehension is more salient than the severity of the sanction<sup>57</sup>. Imprisonment of drink-driving offenders temporarily keeps them from driving and may provide a temporary specific deterrence effect, however, once they are released, the effects may not last unless it is combined with a strong treatment program<sup>58</sup>.</p>
<b>WARNING LETTERS NOT RECOMMENDED</b>	<p>A meta-analysis including mostly older studies (1970s &amp; 80s) suggests warning letters are associated with reductions in crashes<sup>59</sup>. Though precise evidence is unavailable it is often recommended as best practice for first time offenders and for those approaching the penalty point threshold<sup>60</sup>. Warning letters may be effective because of the threat of a tougher penalty such as licence suspension for the subsequent offence<sup>61</sup>.</p> <p>However, the deterrent effect of a warning letter relies on an accurate and robust system that records who has already received a warning. Repeated delivery of warning letters to an offender is not recommended because no deterrent effect will be created. The deterrent effect will only be present when there is an actual risk that the next offence will trigger a penalty, rather than another warning.</p>

# HOW TO INCREASE THE EFFECTS OF PENALTIES

Experience and evidence suggest that there are multiple ways to increase the impact of penalties to bring about desired behaviour change. The ways in which penalty effectiveness can be maximised are considered from different perspectives below.

## DETERRENCE THEORY

“ Penalties and the ways they are applied through traffic law enforcement regimes to improve road safety are based on deterrence theory principles. This theory proposes that individuals are deterred from offending if they perceive that there is a high risk of being caught if they break the law and that they also fear the perceived consequences of the offence - the level of fear is said to be influenced by the individual’s perceptions about the certainty, severity and swiftness of punishment<sup>62</sup>. Each of these factors can be manipulated to increase deterrence and are described below.

### 1 Certainty of punishment

Perceptions about the certainty of punishment relate to how sure a person is that they will be penalised for committing an offence if caught. When offenders are caught breaking the road rules, they must consistently bear the legal consequences – that is, for a penalty to be an effective deterrent, it must not be avoidable<sup>63</sup>. Our personal (direct) experiences, as well as knowledge about other people’s experiences (also known as indirect or vicarious experiences) of receiving punishment and avoiding punishment can have an influence on learning and offending, because they can alter our perceptions about whether we will receive a penalty if we are caught breaking the law<sup>64</sup>. Some individuals may not be deterred by the threat of legal sanctions when they successfully experience avoiding punishment (known as direct/personal punishment avoidance) or when they see other people achieve similar outcomes (known as indirect/vicarious punishment avoidance)<sup>65</sup>. Actions of enforcement agencies might contribute to shaping our perceptions - the application of government sanctioned ‘discretionary power’ by law enforcement agents can negatively impact the certainty of punishment because penalties may not be consistently applied to offending.

An effective monetary (fine) penalty payment system, where unpaid fines are followed up until the fine is paid, ensures certainty of penalty. The certainty of penalties can also be ensured through effective liability, licensing and registration systems. For example, if the traffic offender is not the owner of the vehicle in which the offence was committed, the law can put the onus on the vehicle owner to report the offender who was driving the vehicle at the time the offence was committed. This way, the system can impose the penalty on the actual offender. Alternatively, the law could make the vehicle owner liable, even if the owner was not the offender, as well as if the owner fails to nominate who was actually in control of the vehicle at the time of the offence.

### Increase the certainty of penalties

When offenders are caught breaking the road rules, the penalty must not be avoidable.

Some individuals may not be deterred by the threat of penalties when they successfully avoid punishment and/or observe others achieve similar outcomes.

#### Example strategies to increase certainty of penalty:

- Develop a robust fine payment system where unpaid fines are followed up until they are paid.
- Define the liability for the penalty when the offender is not the owner of the vehicle in which the offence was committed
- Adopt prescribed minimum penalties for the offence (e.g. mandatory licence disqualification periods) to ensure the certainty of judicially-imposed penalties.
- Establish an independent traffic court dedicated to managing traffic offences only. This can help to avoid the situation where more serious, non-traffic offences (e.g. murder, rape) may influence judges’ discretionary decision-making on whether or not to apply a penalty.





## 2 Severity of punishment

Perceptions about the severity of a penalty also have an impact on the extent to which individuals are deterred from breaking the law. In principle, perceptions about the overall costs of offending must outweigh the benefits of offending for someone to be deterred from breaking the law<sup>66</sup>. Theoretically, more severe penalties are linked to reduced levels of offending. In addition, it is important that the size of a penalty reflects the riskiness or seriousness of the offence<sup>67</sup>. For example, higher fines and more severe sanctions are recommended for higher levels of alcohol impairment and for higher speeds to send the message to the community that riskier behaviours are more dangerous and will, therefore, attract more severe punishment. Some jurisdictions may have only one level of penalty for an offence type (e.g. a single monetary amount of fine for all levels of speeding). This is not recommended. Rather, it is recommended to apply the severity principle of deterrence theory, which means that there will be increased levels of penalty for increased seriousness of an offence (e.g. higher fines for 15km/h over the speed limit than up to 10km/h over the speed limit, and for 20km/h over the speed limit than 15km/h, and so on). This kind of graduated penalty regime can help inform the community about the increased risk of more serious offences. For instance, a single fine level of \$200 applied to all types of speeding offences is not recommended because it could encourage higher levels of speeding because the incentive to keep the level of speeding to a minimum is lost. A relevant example comes from Russia where speeding overall increased, and speeding by over 20 km/h did not decrease when an increase in

monetary fines for speeding over 20 km/h above the speed limit was combined with an elimination of fines for speeding less than 20 km/h above the speed limit<sup>68</sup>. An elimination of fine for speeding less than 20 km/h implies the lack of seriousness of lower-level speeding and would encourage all speeding up to 20km/h above the posted speed limit.

Research reveals that road traffic fatality rates are lower in countries with more severe penal systems<sup>69</sup>. For example, in jurisdictions with relatively good road safety performance (e.g. Netherlands<sup>70</sup>, Singapore<sup>71</sup>, Switzerland<sup>72</sup>), penalties are more severe (e.g. higher fines and/or higher demerit point penalties) for more serious offences, such as higher levels of BAC detected for drink-driving and higher levels of speeding, as well as for repeat offenders. The introduction of tougher penalties has been found to be effective in reducing offending, crashes, deaths and injuries<sup>73</sup> and higher fines may result in lower levels of offending, especially shortly after the introduction of the fine increase, at places with frequent traffic surveillance, and when combined with other penalties (e.g. demerit points)<sup>74</sup>. However, research also suggests that the relationship between severity of penalty, especially in the form of monetary fines, and behaviour change is not linear<sup>75</sup>.

A meta-analysis showed that while fine increases of between 50% and 100% have been associated with a decrease in violations, fine increases of up to 50% have no influence on violations and fine increases of more than 100% have been associated with an increase in violations<sup>76</sup>. The relationship between fine increases

and reduced offending may not be linear because increasing fines can have unintended consequences such as:

- a reduced willingness to pay the fines<sup>77</sup>
- lowered perceived legitimacy of enforcement<sup>78</sup>
- fines being attacked as 'revenue raisers' rather than accepted as a means to improve road safety<sup>79</sup>, and
- negative impact on social equity where the amount of the fine that is consequential for a low-income earner may be affordable (and therefore not a strong deterrent) for a high-income earner<sup>80</sup>.

Tougher penalties may not necessarily add to the deterrent effects in certain circumstances. For example, research has also found that while increases in penalties (fines, penalty points and licence sanctions combined) have led to reductions in the proportion of recidivists and overall frequency of re-offending, they do not necessarily reduce the length of time to re-offence or the number of re-offences amongst recidivists<sup>81</sup>. Expert criminologists suggest that a more severe penalty (e.g. the death penalty) is no more effective than a less severe long-term prison sentence in deterring homicide<sup>82</sup>. This kind of extreme offence comparison may not necessarily act as an appropriate analogy for driving offences. However, as mentioned earlier, it is important to have penalties for traffic offences that reflect the seriousness and risk of offending. Research has found that a 34% reduction in speed-related fatalities involving provisional drivers (i.e., not yet fully licensed) was observed following the introduction of a more severe penalty for speeding (immediate loss of licence for 3 months for any level of speeding)<sup>83</sup>. These mixed research findings highlight that changing road user behaviours is not as simple as increasing fines or other penalties because behaviour change is a complex process and is influenced by many factors.

The effectiveness of more severe penalties in reducing offending may be reduced when certain factors are at play: low perceived risk of apprehension<sup>84</sup>; police adapting to the introduction of tougher penalties by reducing their enforcement levels and not issuing as many offences/penalties; police adopting larger enforcement tolerances<sup>85</sup> and police using discretionary powers to waive or reduce the penalty amount. Research has found that judges' or jurors' decisions to convict may be influenced by the level of evidence and seriousness of the offence<sup>86</sup>, as well as the level of penalties that defendants may pay when convicted, with higher penalties leading to lower probabilities of conviction<sup>87</sup>. If increasing penalties leads to decreases in convictions, then higher penalties may potentially encourage offending, rather than deter it.

However, experience suggests that these issues can be

managed through a range of mechanisms including:

- a reliable fine payment system where unpaid fines are effectively followed up until they are paid;
- revenue from traffic offences invested in road safety interventions; and
- use of income-based fines, where the size of the monetary penalty is determined based on the income of the offender<sup>88</sup>. Matching the size of the fine to the consumer price index or another suitable index may also prevent fines from appearing to be too low over time<sup>89</sup>.

A **penalty point system** (demerit or merit) may also be beneficial to achieve optimal severity. Penalty points do not differentially impact offenders according to income levels in the way that monetary fines do. Therefore, they may be viewed as more equitable than monetary fines. Penalty severity may be increased without increasing monetary fines by combining several penalties, such as demerit/merit points and immediate licence suspension. The number of points attributed to a particular offence can also be used to reflect the seriousness of an offence, and the severity of the penalty point system may be increased through:

- Higher points assigned to the offence;
- Lower threshold before another penalty is applied;
- Longer period of time after which points for an offence are cancelled;
- More severe penalty when a threshold of points is reached.



Higher numbers/rates of deaths and injuries may be experienced during special periods, often associated with holiday times (e.g. Easter, Ramadan, Lunar New Year). In order to manage the increased traffic and exposure to crashes, some jurisdictions have introduced **double demerit point** initiatives where the penalty points for an offence during the special period are twice the size of the penalty points normally associated with the same offence during a non-special period. Despite the popularity of this measure in some countries, evaluations are limited. In New South Wales, Australia, fatalities and serious injuries were compared with corresponding holiday and non-holiday periods prior to and after the introduction of double demerit points. Evaluation results found greater reductions in fatalities during holiday periods after the demerit point initiative was introduced, compared to the corresponding periods outside the holiday periods<sup>90</sup>. This evaluation method controlled for differences in traffic volume. The results suggest that the reductions can be attributed to the double demerit initiative. A study conducted in Western Australia using a similar evaluation method showed that there was an increase in fatal crashes over the study period during non-double demerit point periods. However, that increase was found to be smaller during the holiday period after the double demerit initiative<sup>91</sup>. Taken together, these evaluations indicate that there is value in considering a double demerit point initiative, but it is important to note that holiday periods may already attract more intensive enforcement and education efforts (which could lead to reduced crashes), making it difficult to determine the contributions of increasing the severity of demerit point penalties.

The severity of penalties applied to a licence, such as **suspension** and **disqualification**, may be increased through longer duration of the suspension or disqualification period. Typically, suspension and disqualification are imposed after one or more offences (i.e., for repeat offenders). However, **immediate licence suspension/disqualification** may be imposed after one serious offence, such as high-level BAC offences and high-level speeding offences. Immediate licence suspension/disqualification may also be imposed on repeat offenders, even if the offence usually incurs a lesser penalty for first time offenders.

## Optimise the severity of penalties

Penalties are more likely to reduce traffic offences when the overall costs of offending (i.e. penalty severity) outweigh the benefits of offending.

The level of severity may be manipulated by changing the size of a monetary fine amount, the number of points, and/or duration period of penalties including licence sanctions, vehicle impoundment, alcohol interlock use, or imprisonment.

However, more severe penalties may not necessarily reduce offending behaviours in certain circumstances, including:

- people perceive the probability of detection to be low (i.e. low perceived risk of apprehension)
- the police may adapt to the introduction of tougher penalties by reducing enforcement levels or adopting larger enforcement tolerances
- judges and jurors adapt to the introduction of tougher penalties by deciding not to convict the defendant
- a monetary fine that is consequential for a low-income earner may be affordable and therefore not strongly deterring for a high-income earner
- when penalties, such as fine payments, are avoidable when higher fines are perceived by the community as revenue raising, rather than for the benefit of road safety.

### Example strategies to optimise the severity of a penalty:

- Adopt prescribed minimum penalties for the offence (e.g. mandatory licence disqualification periods) to ensure the severity of the penalty could not be reduced under the influence of the police, judges or jurors.
- Establish an independent traffic court dedicated to managing traffic offences only. This can help to impose appropriately severe penalties for traffic offences without subjective comparisons of traffic offences against other offences such as murder and rape. Consideration could be given to naming this a 'Road Safety Court' rather than a 'Traffic Court' in order to reinforce the role that this institution has in promoting safer road use.
- Implement variable fines where fines are determined based on the income of the offender.
- Combine different types of penalties for certain offences (e.g. fine and demerit points for speeding offences; immediate licence suspension and fine for high-level speeding offences).
- Match the amount of the fine to an index such as consumer price index to ensure fines do not remain low over time.
- Impose immediate licence suspension/disqualification after one serious offence such as high-level BAC offences and high-level speeding offences and on repeat offenders, even if the offence usually incurs a lesser penalty for first time offenders.
- Apply double penalty points for certain periods where increases in the number of deaths and injuries are typically found (e.g. major holiday periods).

### 3 Swiftness of punishment

Perceptions of the swiftness of punishment relates to the issue of a penalty being applied soon after the offence is committed. While direct evidence for swiftness of penalties is scarce<sup>92</sup>, behavioural principles indicate that penalties applied close in time to when the illegal behaviour is performed are more likely to produce stronger learning of not repeating the behaviour<sup>93</sup>. A review of drink driving sanctions also suggests that swiftness and certainty were more relevant than severity with respect to drink-driving related penalties<sup>94</sup>.

The speed (swiftness) at which a penalty can be applied can vary. For instance, immediate licence suspension at the roadside when detected by police is a very swift punishment. In practice, it can be challenging to apply penalties swiftly in the criminal justice system, especially if the offence is contested or if there are long delays in processing offences. However, administrative processes, where penalties are applied at the time of being charged, without court involvement, allow the penalty to be applied with greater swiftness than judicial processes where the application of penalty is contingent upon conviction and determination in court<sup>95</sup>. Immediate/administrative licence suspension for high level drink-driving and speeding offences are used in countries with relatively good road safety performance (e.g. Netherlands<sup>96</sup>, Norway<sup>97</sup>, Australia<sup>98</sup>).

#### Swiftly apply penalties

Penalties applied close in time to when the illegal behaviour is performed are expected to be more likely to produce stronger learning of not repeating the behaviour.

While there are challenges to apply penalties swiftly in the criminal justice system, there are ways to increase swiftness of the delivery of penalties for traffic offences.

#### Example strategies to increase swiftness of penalty:

- For some offences (i.e., those that are less serious), legislating in a way that allows penalties to be imposed through administrative processes can improve the timeliness of a penalty. However, for more serious offences, requiring a court appearance may be more appropriate because it highlights the significance and serious of the offence.
- Implement immediate licence suspension for serious offences such as high-level speeding.
- Establish an independent traffic court dedicated to managing traffic offences only. This can avoid delays in the settlement of traffic offences in a normal court.
- Develop an efficient penalty processing system that accurately identifies the offender, and sends the violation notice to the offender in a timely manner.
- Follow up unpaid fines quickly so that full fine payment is completed in a timely manner.



# PROCEDURAL JUSTICE & PERCEIVED FAIRNESS

Procedural justice principles suggest that public compliance with the law is driven by people's beliefs in the legitimacy of legal authorities such as the police. Legitimacy is defined as:

**“ a property of an authority or institution that leads people to feel that that authority or institution is entitled to be deferred to and obeyed<sup>99</sup>.**

Research suggests that citizens' experiences of fair and respectful treatment from police enhances their identification with the social group the police represent, and in turn, motivates adherence to laws governing social behaviour<sup>100</sup>. This, in turn, elicits citizen cooperation and compliance with police instructions and acceptance of police decisions (e.g., fine or sentence)<sup>101</sup>. Research also suggests that people especially need procedural fairness when information about an authority's trustworthiness is lacking<sup>102</sup>.

Procedurally just police-citizen encounters are found to have four key ingredients:

1. conveying genuine and trustworthy motives to serve the best interests of the public;
2. treating people with dignity and respect regardless of social status and generally being courteous;
3. consistently applying the law, making unbiased decisions and being transparent as to how those decisions are made; and
4. giving the citizen a voice during the encounter and prior to police reaching a decision<sup>103</sup>.

Examples of procedurally unjust practice include varying the penalties based on who the offender is – that is, based on factors such as gender, race, and/or social connections<sup>104</sup>. These examples of a lack of uniformity in enforcement of the laws and regulations undermine the effectiveness of penalties.

The perceived fairness of licence sanctions can relate to their impact on an individual's capacity to earn a living. This capacity to earn a living varies between individuals and countries and it may only be a small minority that experience employment or income losses as a result of licence suspension/disqualification. In fact, research suggests that while there was no pronounced impact on the jobs or incomes of offenders, a substantial effect was experienced by the seriously injured victims, justifying the fairness of administrative licence loss<sup>105</sup>.

## Increase procedural fairness

Legal authorities such as the police must be perceived as legitimate for people to believe that the authority has a right to dictate behaviour.

Procedurally unjust practices include police varying the size or type of penalty based on who the offender is – that is, based on factors such as gender, race, and/or social connections.

Strategies to maximise uniformity in enforcement of the laws and regulations are critical to increase community perceptions of procedural fairness.

### Example strategies to increase procedural fairness:

- Develop an audit system, especially of fine payments, to ensure bribery, corruption and favouritism are avoided.
- Educate and train police officers on how to ensure procedurally just police-citizen encounters:
  1. convey genuine and trustworthy motives to serve the best interests of the public;
  2. treat people with dignity and respect, regardless of social status, and generally being courteous;
  3. consistently apply the law without bias and with transparency as to how police decisions are made;
  4. give the citizen a voice during the encounter and prior to police reaching a decision.

# SOCIAL NORMS

Social norms in a country or community can play a role in influencing the relationship between penalty and the level of compliant behaviour. Social norms refer to implicit rules or standards inferred by individuals from the behaviour they observe or expectations they assume in their social milieu and that guide their own behaviour<sup>106</sup>.

Public perceptions about an individual citizen's duties and responsibilities in society and the extent to which they are willing to give up certain elements of personal freedom to protect society can influence how the society responds to road safety laws<sup>107</sup>. For example, research suggests that when the levels of compliance with the law are compared between different countries, the differences seem to be more attributable to the differences in levels of social willingness to comply with the law than to the differences in traffic rules (e.g. how they are described, strictness)<sup>108</sup>. Research also reveals that road fatality rates (which are related to illegal traffic behaviours such as speeding and drink-driving) are higher in countries where crimes such as drug trafficking, motor vehicle thefts, homicides and robberies are more frequent<sup>109</sup>.

However, laws and regulations can also change the social norms on roads by defining what is acceptable (safe) and what is not (unsafe), and what the legal consequences are for unsafe behaviours<sup>110</sup>. Penalties can be a communication tool, influencing community perceptions about the social unacceptability of unlawful behaviours. When penalties are severe, they can have an impact on the cultural climate in which that behaviour occurs.

One challenge related to this issue is that in many cases, traffic law violations are relatively common and relatively socially acceptable, especially when compared to other crimes such as murder and rape. A relatively common offence, such as speeding, may not be viewed as serious enough for the penalty to be perceived by the community as fair. This perception might be held by the offender, the police, judges and/or the wider community. For example, a police officer may decide to reduce the penalty if they perceive it to be excessive for the traffic offence<sup>111</sup>.

## Strengthen social unacceptability of unlawful behaviours on roads

The nature and severity of penalties for road traffic offences can play a role in changing social norms about road use. They can also help to define what is acceptable (safe) and what is not (unsafe).

### Example strategies to change social norms:

- Enhance understanding among the general public and law enforcement officers (e.g. police and judges) about the importance of penalties for unsafe road use being severe enough to deter offending. In addition, sufficiently severe penalties can also represent a societal view that there are serious consequences associated with seriously and fatally injuring people in road traffic crashes which may be caused by relatively common traffic offences, such as speeding.
- Establish an independent traffic court dedicated to managing traffic offences only. This can create a norm relating to the seriousness of road traffic offences, independent of a norm relating to other crimes.



# COHERENT PENALTY ADMINISTRATION SYSTEM

The integrity of penalty administration systems is critical to ensure the principles of deterrence, procedural justice and perceived fairness are met, thereby supporting the effective application of penalties.

Licence sanctions, in particular, require a reliable driver licensing database that maintains accurate records of all individual licence holders including name, gender, date of birth, current postal and residential address, and licence status (active, suspended, disqualified, restricted, or expired). This licence status information also needs to be readily available to enforcement officers so they are able to detect unlicensed driving and apply penalties for unlicensed driving offences.

Similarly, the effective administration of vehicle sanctions and camera-detected offences depends upon a reliable vehicle registration database that maintains accurate records of all individuals owning a motorised vehicle. Necessary details include: name, gender, date of birth, current postal and residential address, and vehicle registration status (active, impounded, or expired). The vehicle registration database must be linked to the licensing database. In addition, they must both be linked to a reliable traffic offence database that maintains accurate records of all individuals who are caught offending. A properly linked database ensures penalties are imposed with certainty, swiftness, accuracy, and efficiency.

Similarly, to ensure that offences are recorded for the correct person and penalties are consistently applied to all offenders, accurate and reliable verification systems are needed between databases, police and courts. A reliable postal system or other means of delivering a traffic offence notice is also required. It is important to ensure that licence holders and vehicle owners are legally required to maintain the accuracy and currency of their address and that this is linked to the licence and registration system so that claims of lost mail are not admissible defences to avoid penalties<sup>112</sup>.

Having coherent systems for managing traffic offences are also critical for:

- establishing reliable and efficient processing of fines
- tracking and collecting unpaid fines
- tracking the status of demerit/merit points.

An audit system covering the entire administration process is also useful to ensure that bribery and corruption are avoided, and that a legitimate penalty regime is implemented.

## Run a coherent penalty administration system

A coherent penalty administration system is needed to support the effective application of penalties.

### Example strategies to run a coherent system:

- Reliable driver licensing database that maintains accurate records of all individuals holding licences including licence status – active, suspended, disqualified, restricted, or expired.
- Reliable vehicle registration database that maintains accurate records of all individuals owning a motorised vehicle including registration status – active, impounded, or expired.
- Reliable traffic offence database that maintains accurate records of all individuals who are caught offending including offence and penalty history.
- A well linked, independently administered, and integrated system containing licensing, vehicle registration, traffic offence data that is readily available to the police and court for verification and appropriate penalty application.
- Make licence holders and vehicle owners legally responsible for maintaining the accuracy and currency of their residential address linked to the licence and registration.
- Reliable and efficient processing system that processes fines and tracks and collects unpaid fines, as well as processes and tracks the status of demerit/merit points.
- An audit system to ensure bribery and corruption are avoided.

# APPENDIX

Penalty type	Description	Primary objective	Advantages	Disadvantages	Overall evidence
<b>Fines</b> (a predetermined and graduated monetary penalty)	<p>A monetary sanction to be paid by the offender to a given department by a specified date.</p> <p>The amount of the fine should increase according to the severity of the offence (e.g. a graduated penalty means that higher amounts of speeding should attract larger monetary fines).</p> <p>The amount of the fine should be pre-determined, prescribed in a schedule, and publicised so that offenders know the amount, and so that police are unable to change the amount of the fine when interacting with offenders.</p>	<p>Punish offenders to deter future offending;</p> <p>Deter would-be offenders from offending</p>	<p>May provide revenue to directly support investment in road safety activities (e.g. enforcement).</p> <p>Predetermined (fixed) fine amounts reduce the potential for corruption when police interact with offenders, particularly if the fine payment is administered through a third-party government organisation (not police).</p>	<p>Fines issued at the police-offender interception point create opportunities for corruption if the fine amount is not pre-determined and publicised.</p> <p>Socio-economic status may determine how impactful this is for individuals. For example, a USD10 penalty in India for a low-income driver may be a significant penalty and likely to deter future offending. However, this same penalty for a high-income driver, or a driver in high-income country may not see this as a severe penalty and may therefore not be deterred by it. These equity issues may be addressed by setting fine amounts in proportion to income (e.g. Finland) or in consideration of weekly median wage in the country. However, they require excellent records of income for every citizen in the country, which is unlikely to be available in most LMICs.</p>	<p>Individual studies suggest higher fines are associated with lower violations, assuming no change in enforcement levels: speeding (1% fine increase)<sup>113</sup>, red light running (fine increases by over USD150 in different jurisdictions)<sup>114</sup>, and seat belt use (fine increase by USD15)<sup>115</sup>. These effects may also depend on the method of enforcement – for example, (though clear direct evidence is not available) it has been hypothesized that reduced offending from fine increases may be more likely when enforced by camera than by police because police adapt to stricter penalties by reducing enforcement or by adopting larger tolerance margins for violations<sup>116</sup>.</p> <p>A 2016 meta-analysis<sup>117</sup> indicated that effects of monetary fine increases are varied:</p> <ul style="list-style-type: none"> <li>• 15% decrease in violations with 50-100% fine increases;</li> <li>• No influence on violations with up to 50% fine increases;</li> <li>• 4% increase in violations with over 100% fine increases;</li> <li>• Recidivism effects are mixed but the effect of a fine increase may be weaker on more severe and frequent offenders;</li> <li>• 5-10% reduction in all crashes with fine increases (increase undefined);</li> <li>• 1-12% reduction in fatal crashes with fine increases (increase undefined).</li> </ul> <p>The same study cautions the causal relationship because most included studies had insufficiently controlled for confounding factors.</p> <p>Positive effects are more likely when enforcement levels are sufficiently high and sustained. Perceived fairness may also influence the effects<sup>118</sup>.</p>



Penalty type	Description	Primary objective	Advantages	Disadvantages	Overall evidence
<b>Demerit points</b>	Points accumulate from 0 to a higher number if a driver commits an offence and usually remain valid for a number of years. When the total number of demerit points reach a certain threshold within a defined period (e.g. 12 or more points within a 3 year period), another penalty is imposed – usually licence suspension or disqualification.	Deter offenders from committing further offences;  Deter would-be offenders from offending.	The impact of points is likely to be more equitable across different income earners than a monetary fine <sup>119</sup> .  Repeated offending attracts more points providing good specific effects <sup>120</sup> .  May be perceived fairer penalty and receive good public support <sup>121</sup> .	Offenders may transfer the collected points to another individual (e.g. with no or few points) <sup>122</sup> if the driver at the time of offence was not identified (e.g. in automated enforcement – however, only where the camera does not include a photo of the driver) and the penalty notice was sent to the registered vehicle owner;  Reliant on an effective licence system that can follow offender's offence records and effectively apply suspension when threshold is reached.	Individual studies report different impacts from positive <sup>123</sup> to no significant impact <sup>124</sup> .  A 2012 meta-analysis <sup>125</sup> showed DPS result in reductions in crashes, fatalities and injuries but this effect may wear off in less than 18 months unless sufficiently high levels of enforcement are sustained.  DPS may be more effective when: offenders are approaching the limit that triggers licence suspension <sup>126</sup> ; offenders are more reliant on their car <sup>127</sup> ; the system includes a broad scope of major dangerous traffic violations (speed, alcohol, red light, use of seat belts/helmet/child restraints, dangerous overtaking, priority rules, headway distance); intermediate measures (such as warning letters and rehabilitative measures) are targeted at specific groups of offenders; and the point system, including its communication and administration, is simple, transparent and fair <sup>128</sup> .
<b>Merit points</b>	Points are lost from a set number (e.g. 100) until it reaches 0 if a driver commits an offence. The credit of points usually remains valid for a number of years. When the credit drops to 0, another penalty is imposed – usually licence suspension or disqualification.	Deter offenders from committing further offences;  Deter would-be offenders from offending.	The impact of points is likely to be more equitable across different income earners than a monetary fine <sup>129</sup> .	Offenders may engage in the fraudulent use of points belonging to others if the driver at the time of offence was not identified (e.g. in automated enforcement – however, only where the camera does not include a photo of the driver) and the penalty notice was sent to the registered vehicle owner;  Reliant on an effective licence system that can follow offender's offence records and effectively apply suspension when threshold is reached.	

Penalty type	Description	Primary objective	Advantages	Disadvantages	Overall evidence
<b>Licence suspension</b>	<p>Suspended licence holder is banned from driving at all times during the period of suspension.</p> <p>The licence is automatically reinstated after the suspension period.</p>	<p>Deter and prohibit offenders from committing further offences;</p> <p>Deter would-be offenders from offending.</p>	Limits opportunities for re-offending during the term of the sanction.	<p>Suspended drivers may continue to drive even though not legally licensed<sup>130</sup>;</p> <p>Suspension may be perceived as unfair, especially in relation to its impact on an offender's capacity to earn a living if that is linked to ability to drive (especially so for offenders residing in rural/remote locations without access to public transport)</p> <p>Reliant on an effective licence system that keeps accurate records and communicates with the offender and enforcement agency.</p>	<p>A 2004 meta-analysis<sup>131</sup> estimated licence sanction measures reduce crashes by 17% and violations by 21% of suspended offenders.</p> <p>Positive effects are more likely when:<sup>132</sup> the perceived probability of detection of unlicensed driving is high; licence sanction is combined with other measures such as rehabilitation programs or vehicle impoundment<sup>133</sup>; certainty &amp; swiftness of licence sanction are increased via administrative/immediate licence suspension where the licence is automatically suspended when certain conditions are fulfilled (e.g. 4% reduction in fatal crashes<sup>134</sup>; 5% reduction in alcohol-related fatal crash involvement<sup>135</sup> - particularly effective for high risk behaviours such as drink-driving<sup>136</sup>); severity is increased (e.g. longer suspension period). The effects may be limited due to certain social and economic conditions (e.g. drivers may ignore licence suspension if driving is necessary for employment) and may not outlast the period of suspension itself<sup>137</sup>.</p>
<b>Immediate licence suspension/ Roadside licence suspension</b>	Licence is suspended and confiscated on the spot by police for a serious offence (e.g. high-level speeding, drink driving, driving offence causing death and serious injury) generally for a defined period (e.g. 28 days)	<p>Deter and prohibit offenders from committing further serious offences;</p> <p>Deter would-be offenders from committing serious offences.</p>	In contrast to traditional suspension (above), the deterrent effect of immediate/roadside suspension is swift – one of the critical elements of increasing deterrence.	<p>Police officer can apply the immediate suspension which cannot be applied to camera-detected offences.</p> <p>Requires a system where the immediate suspension of driving licence is recorded immediately so that authorities are aware of the suspension.</p>	

Penalty type	Description	Primary objective	Advantages	Disadvantages	Overall evidence
<b>Licence disqualification/revocation</b>	<p>Disqualified/revoked licence holder is banned from driving at all times during the period of disqualification. The licence is reinstated only when the driver reappplies for the licence at the end of the disqualification period. However, a driver can never drive again when lifetime disqualification applies.</p>	<p>Deter and prohibit offenders from committing further offences;</p> <p>Deter would-be offenders from offending.</p>	<p>Limits opportunities for re-offending during the term of the sanction.</p>	<p>Disqualified drivers may continue to drive<sup>138</sup>;</p> <p>Reliant on an effective licence system that keeps good records and communicates with the offender and enforcement officers.</p> <p>Requires a system where court-imposed disqualifications are recorded in the licence system in a timely manner.</p>	
<b>Licence restriction</b>	<p>Licence holder is banned from driving during the period of restriction except for certain purposes (e.g. to drive to and from employment or medical treatment) that may be determined by court or other authority.</p> <p>Offenders are usually required to demonstrate that they would suffer unnecessarily from being prohibited from driving in order to be granted a restricted licence.</p>	<p>Deter and prohibit offenders from committing further offences;</p> <p>Deter would-be offenders from offending.</p>	<p>Reduces opportunities for re-offending during the term of the sanction and may increase caution and vigilance when driving.</p>	<p>Widespread use of restricted licences may undermine both specific and general deterrence because the offenders do not experience the full impact of punishment<sup>139</sup>;</p> <p>Court decisions on who is granted restricted versus full licence suspension may also create social inequity;</p> <p>Reliant on an effective licence system that keeps good records and communicates with the offender and enforcement officers.</p> <p>Licence restriction provisions must appear and be obvious on the driver licence. If not, police officers may miss seeing the restriction when intercepting the driver on subsequent occasions.</p>	

Penalty type	Description	Primary objective	Advantages	Disadvantages	Overall evidence
<b>Vehicle sanctions</b>	<p>Vehicle is confiscated from the offender.</p> <p>Impounded/forfeited vehicles may be returned after the sanction period with payment of a fee. Alternatively, the licence plate may be seized, a sticker attached to the licence plate to show anyone but the offender is permitted to drive the vehicle, vehicle registration withdrawn, or vehicle immobilised on the offender's property with a "boot" or "club" without the offender having to forfeit the vehicle for impoundment.</p> <p>Usually applied to serious offences and/or repeat offenders for whom other penalties were unsuccessful in stopping re-offending.</p>	<p>Prohibit offenders from committing further offences;</p> <p>Deter would-be offenders from offending.</p>	<p>Removes opportunities for re-offending during the term of the sanction;</p> <p>Drivers may find it more difficult to continue driving without a vehicle than without a licence. Evidence suggests that vehicle impoundment increases licence suspension compliance<sup>140</sup>.</p>	<p>Not directly punitive for offender if s/ he is not the owner of the vehicle;</p> <p>If the impounded vehicle belongs to someone other than the offender, the vehicle may be returned under certain conditions;</p> <p>Offender may have access to another vehicle to use.</p> <p>Issues can arise when the value of the vehicle is less than the total cost of impoundment and the offender chooses not to collect their vehicle in lieu of fee payment. Additionally, vehicle sanctions may be perceived as unfair, especially for offenders living in rural/remote locations with little or no access to public transport.</p> <p>Conversely, when the cost of the vehicle is high, offenders may flee the scene at speed, creating additional risks<sup>17</sup>.</p>	<p>Vehicle impoundment can reduce recidivism while the vehicle is in custody and to a lesser extent after the vehicle has been released. Individual studies report reduced recidivism and show they are particularly effective for serious offenders e.g. drink-driving re-offending<sup>142</sup>; high-range speeding re-offending<sup>143</sup>; repeat offenders - especially those who already have their licence suspended<sup>144</sup>.</p> <p>Evidence for special license plates and vehicle forfeiture is scarce<sup>145</sup>. License plate impoundment administered by the arresting officer can occur quickly and reduce both recidivism and driving with a suspended license, especially among the youngest offenders<sup>146</sup>. Immobilisation of vehicles can be less costly than impoundment or forfeiture which require storage fees<sup>147</sup> and has been found to reduce recidivism<sup>148</sup>.</p>
<b>Alcohol interlock</b>	<p>Technology fitted to vehicle so that it cannot be started until a pre-set breath test is passed. Primarily designed to modify the behaviour of drink driving offenders, especially high range BAC and/or repeat offenders, rather than to perform a general deterrent function.</p>	<p>Prohibit offenders from committing further alcohol-related offences.</p>	<p>Removes opportunities for alcohol-related re-offending during the term of the sanction in the vehicle that has the interlock fitted</p>	<p>Interlock can only be applied to offenders who own a vehicle.</p> <p>Access to interlock equipment and maintenance may be limited in rural locations.</p> <p>Recording the Interlock Condition on the driver licence must be obvious otherwise it may be overlooked by intercepting police. In addition, the Interlock Condition should transfer between jurisdictions so that offender cannot obtain a non-interlock licence in another jurisdiction during the term of the penalty.</p>	<p>Alcohol-interlock measure has been reported to reduce reoffending amongst users to a larger extent than licence suspension<sup>149</sup>. Interlocks seem most effective in reducing recidivism while they are fitted to the vehicle but appear to produce only limited post-treatment behaviour change<sup>150</sup>.</p>

Penalty type	Description	Primary objective	Advantages	Disadvantages	Overall evidence
<b>Remedial programs (treatment/rehabilitation)</b>	Primarily designed to modify the behaviour of offenders, especially drink driving offenders, rather than to perform a general deterrent function. The programs may be educational focused on knowledge and/or psychological focused on behavioural change and run over weeks.	Reform offenders	Remedial programs may more effectively address the factors contributing to alcohol- and drug-specific offences.	Good assessment procedures are required to match offenders to the most appropriate interventions <sup>151</sup> ; Cost-effectiveness of different approaches are unclear. Access in rural and remote settings may be limited.	Programme contents, formats and delivery tend to vary greatly, making evaluations of effectiveness often challenging <sup>152</sup> . Evidence suggests properly performed rehabilitation courses for drink-drivers can reduce the likelihood of recidivism <sup>153</sup> . The positive effect may be exaggerated because the comparison group usually has, a-priori, a higher risk of recidivism, although evaluation studies have controlled for factors such as age, gender, and prior convictions. Positive effects are more likely when the rehabilitation course focuses on behavioural change (i.e. concrete plan of what to do when a relapse is imminent) rather than simply providing information, and is spread over at least several weeks <sup>154</sup> .
<b>Imprisonment</b>	Offenders are imprisoned for some (serious) traffic offences such as drink-driving, disqualified driving, or dangerous driving causing death.	Prohibit offenders from committing further offences. Deter would-be offenders from offending.	Highlights to the community the seriousness of the offence. Removes opportunities for re-offending during the term of the sanction.	More costly to implement than other penalties.	Imprisonment is usually combined with other penalties such as fines, thus making evaluations of the effects of imprisonment alone difficult. Overall research evidence on its effectiveness is equivocal <sup>155</sup> . While the threat of imprisonment may motivate offenders to participate in treatment programs and to comply with interlock and other sanction requirements <sup>156</sup> , mandatory jail sentence policies tend to be ineffective <sup>157</sup> .  The lack of a general deterrence effect may be explained by the fact that the probability of apprehension is more salient than the severity of the sanction <sup>158</sup> . Imprisonment of drink-driving offenders temporarily keeps them from driving and may provide a temporary specific deterrence effect, however, once they are released, the effects may not last unless it is combined with a strong treatment program <sup>159</sup> .

Penalty type	Description	Primary objective	Advantages	Disadvantages	Overall evidence
<b>Warning letters</b> (Not recommended as a regular form of penalty to deter offending)	<p>Letters sent to offenders providing them with information regarding their offence and the penalties they face in the event of continued offending.</p> <p>Different jurisdictions use warning letters for different purposes. For example, a letter may warn offender that:</p> <ul style="list-style-type: none"> <li>they have accrued a level of demerit points where they are now approaching the threshold for licence suspension and one more offence will result in loss of license;</li> <li>their next offence will result in a gaol term or a higher fine than the last offence;</li> <li>new penalties apply for the offence and that after a time-limited period (e.g. the time between any new law being passed and its full implementation) or upon subsequent offending in the time period, the new full penalty will be applied.</li> </ul>	<p>Deter offenders by informing them of the penalties they face for continued offending.</p> <p>Can be used to educate that a new law is soon to be enforced and that all subsequent offending will result in receipt of a penalty instead of a warning letter.</p>	<p>Inform offenders of additional penalties they face, of which they may have been unaware, aiming to increase specific deterrence.</p> <p>Warning letters can be automatically generated and implementation costs kept low.</p> <p>Increase procedural fairness by providing information.</p>	<p>Small cost to the offender (i.e. limited or no deterrence effect).</p> <p>To enable subsequent offenders to be identified and receive the full penalty, accurate records of who received a warning need to be maintained. Otherwise, the system will be unable to determine who has already received a warning letter – this will severely reduce any future deterrent effect.</p>	<p>A meta-analysis including mostly older studies (1970s &amp; 80s) suggests warning letters are associated with reductions in crashes<sup>160</sup>. Though precise evidence is unavailable it is often recommended as best practice for first time offenders and for those approaching the penalty point threshold<sup>161</sup>. Warning letters may be effective because of the threat of a tougher penalty such as licence suspension for the subsequent offence<sup>162</sup>.</p> <p>However, the deterrent effect of a warning letter relies on an accurate and robust system that records who has already received a warning. Repeated delivery of warning letters to an offender is not recommended because no deterrent effect will be created. The deterrent effect will only be present when there is an actual risk that the next offence will trigger a penalty, rather than another warning.</p>

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