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IMPLEMENTATION OF A TRIAL OF ALCOHOL IGNITION INTERLOCKS IN QUEENSLAND

Final Report

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*The Centre for Accident Research & Road Safety - Queensland
is a joint venture initiative of the Motor Accident Insurance Commission
and Queensland University of Technology*



Abstract

This study reports a trial of an extension of the “Under the Limit” Drink Driving Rehabilitation program (UTL) to include ignition interlocks which commenced in February 2001. The task of implementation has been extremely complex and required policy advice and decision support from senior staff on issues such as administrative requirements associated with licensing and offence data, policing, implications for the offender's vehicle insurance, civil liberties and equity issues, and advice on sentencing options and offender supervision. It is considered both impractical and unacceptable for offenders in each court to be randomly allocated to the trial and the solution was to randomly allocate courts to the intervention or control groups, rather than offenders. The current trial aimed to establish if it is possible to achieve reduced recidivism, including post interlock reductions, by using associated systematic rehabilitation and probation with the use of the interlocks. This model builds on latest international research findings and the work on barriers to the use of interlocks identified in other states in Australia. The importance of trying to implement the interlock in such a way that a sustained reduction in recidivism can be achieved has been a major focus of the project. The model that was accepted for the Queensland trial has an initial period of full licence disqualification during which time the UTL rehabilitation program is completed, followed by interlock installation with no additional restrictions. Currently, 29 participants have installed an interlock and 147 offenders have participated in the research project and formed part of a comparison group. A preliminary evaluation of the trial indicates that interlocks have the potential to reduce re-offence rates as well as produce a positive impact on other key program outcomes i.e., reduce drinking levels. However, there are a number of issues that need to be addressed if interlocks were to be implemented beyond the trial and to move beyond the current limited take up rates.

Keywords

Drink driving, alcohol ignition interlocks, recidivism

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Acknowledgments

As will become clear to the reader this report covers the development and introduction of a difficult and complicated intervention trial. It required support, advice and direct action from people working in a wide variety of government and private organisations and agencies. The major participants are listed formally in Appendix 1, and we gratefully acknowledge their contribution. In particular, we are most indebted to Dr Diane Guthrie who brought exceptional organisational management skills to the coordination and quality control of the implementation.

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EXECUTIVE SUMMARY

- This study reports a trial of an extension of the “Under the Limit” Drink Driving Rehabilitation program (UTL) to include ignition interlocks which commenced in February 2001.
- The task of implementation is extremely complex and required policy advice and decision support from senior staff in Queensland Police, Queensland Transport, Queensland Health, Community Corrections, Queensland University of Technology (CARRS-Q researchers), the Motor Accident Insurance Commission (MAIC), Dräger Australia, and Queensland Stipendiary Magistrates.
- Complex issues identified in the earlier feasibility study (Sheehan, Schonfeld, Watson, King, & Siskind, 2001) included:
 - *procedures in terms of detection;*
 - *implications for the offender's vehicle insurance;*
 - *civil liberties and equity issues;*
 - *Crown Law advice on breach/re-sentencing;*
 - *administrative requirements associated with Queensland Transport's licensing and offence database; and*
 - *policing.*
- The trial aimed to establish if it is possible to achieve reduced recidivism, including post interlock reductions, by using associated systematic rehabilitation and probation with the use of the interlocks. This model builds on latest international research findings and the work on barriers to the use of interlocks identified in other states in Australia.
- This Queensland trial used the judicial model and offenders were assigned to an interlock trial directly through the courts by Magistrates as part of their sentence. This assignment was done through the Penalties and Sentences Act (1992). Offenders were placed on a probation order, and compliance with the trial became part of the conditions of probation. These conditions were then monitored by a Community Corrections Officer who could provide ongoing supervision and support.
- The importance of trying to implement the interlock in such a way that a sustained reduction in recidivism can be achieved has been a major focus of the project. The trial is based on a rehabilitation model to allow for the continuity of sentencing, rehabilitation program participation and controlled interlock driving.
- The model that was accepted for the current trial had an initial period of full licence disqualification during which time the UTL rehabilitation program was completed, followed by interlock installation with no additional restrictions.
- At the time the project was proposed by CARRS-Q, the Dräger interlock was the only device meeting the Australian Standard (AS 3547). The company participated with the Queensland Motor Accident Insurance Commission (MAIC) in the successful research grant proposal funded through the ARC SPIRT program. Dräger agreed to supply the devices free of charge for use in the trial as an in-kind contribution to the research program.

- The costs of installation, data down-loads and calibrations are borne by the offender and were estimated at \$470. The cost of completing the UTL program (prior to having the interlock installed) is currently \$500 which is usually paid in lieu of a fine.
- It should be noted that as for all other trials the high proportion of drink driving offenders who are already unlicensed at the time of their drink driving offence were excluded from participation because of legislative limitations. In the current trial the interlock was available to all other drink driving offenders, regardless of level of offence, and the trial committee recognises that the most likely groups to elect to participate in the program would be offenders who:
 - *are employed (and thus have the financial resources to pay for both the UTLI and interlock options);*
 - *have sole use of a vehicle; and*
 - *have at least one previous drink driving offence and therefore likely to receive a large fine and long disqualification period.*
- As part of the trial, offenders were interviewed at a number of stages during the time while they were on the program, to examine:
 - *their experience using the interlock;*
 - *processes of change ,if any, that occur;*
 - *the attitudinal and behavioural changes resulting from the interventions;*
 - *mediating factors which affect successful outcomes; and*
 - *the impact the interlocks have on the lifestyle of participants (and possibly family).*
- A preliminary evaluation of the Queensland interlock trial indicated that the device has the potential to not only reduce recidivism rates but also produce other complementary benefits for users. Despite the current low participation level (29), in regards to recidivism rates, 14.3% of interlock participants and 22.5% of the comparison group have recorded a further drink driving conviction after being re-licensed for approximately two years. Examination of the self-reported and downloaded interlock data revealed a number of key findings such as: (i) initial operational difficulties diminished with time, (ii) some participants were unwilling to acknowledge/recognise that interlock breath violations resulted from drinking and (iii) an overall decline in the frequency of interlock breath violations over the interlock installation period.
- A number of issues were raised during the development and implementation of the trial which need to be addressed in any future proposals for the introduction of alcohol ignition interlock trials as a mandatory sentencing option. These include:
 - *changes in the legislation to accommodate the use of interlocks;*
 - *shorter mandatory periods of licence disqualification if interlocks are used;*
 - *the mandatory use of interlocks as part of the “restricted licence” option for drink driving offenders;*
 - *transferability between states of the interlock conditions on a licence; and*
 - *insurance issues for both the supplier of the device and the user.*

1 INTRODUCTION

1.1 Background

Funding was received from ATSB in 1999 to undertake a feasibility study on the use of Alcohol Ignition Interlocks in Queensland. The model proposed and subsequently funded by the Australian Research Council, Dräger and the Queensland Motor Accidents Insurance Commission (MAIC) was to trial the use of interlocks as an adjunct to the "Under the Limit" rehabilitation program. The background research and the deliberations of the research committee which oversaw the development of the model for implementation of the trial are described in a report (Sheehan, Schonfeld, Watson, King, & Siskind, 2001) which appears on the ATSB website (http://www.atsb.gov.au/publications/2002/pdf/alc_inter_tri.pdf)

1.1.1 Alcohol Ignition Interlocks

These devices (Breath Alcohol Ignition Interlock Devices) are fitted to a vehicle and will not allow the engine to be started until a breath test has been passed. There is a great deal of flexibility built into these devices, including the ability to set the BAC level at whatever level is suited to a particular driver. For example, someone who holds an open licence and uses the device could have the level set at the legal limit (Australia) of 0.05 gms/100ml, while an offender who is on a provisional licence would have the device set at zero BAC. Drivers must blow into the device to test their BAC and the vehicle will start only if their BAC is below the set limit.

1.1.2 Alcohol Ignition Interlocks and drink drivers

Since the late 1980's, a number of jurisdictions in the USA and Canada have implemented programs using Alcohol Ignition Interlocks for drink driving offenders. For a summary of the legislation in these countries refer to Appendix 2 in the earlier report on the feasibility of the trial (Sheehan, Schonfeld, Watson, King, & Siskind, 2001).

Interlock programs have been proposed and supported as an adjunct method for controlling recidivism in Australia for an equally long period of time but were not systematically implemented until Victoria passed legislation in early 2002, followed by NSW in September 2002.

Early evaluations in the USA suggested that interlocks could reduce recidivism over and above more traditional approaches, but the effect seemed to be restricted to the period while the interlock was fitted to an offender's vehicle (Beck, Rauch & Baker, 1997; Bjerre, 2002; Frank et al., 2002; Morse & Elliott, 1992; Jones 1992, cited in Frank, 1997; Rauch et al., 2002). In Ohio, Morse & Elliott (1992) found that the use of interlocks was associated with a 65% reduction in the likelihood of drink driving reoffence over a 30 month period, compared to licence disqualification. It was also associated with a 91% decrease in the rate of "driving while suspended" offences. Popkin, Stewart, Beckmeyer & Martell (1993) found that the use of interlocks was effective in reducing recidivism among second-time offenders in North Carolina. However, the recidivism rate of this group and in other studies has returned to higher levels once the interlock was removed. Because of the nature of the device and offender sampling there have been ongoing problems implementing robust evaluation methodologies (Watson, 1998; Austroads, 1998).

1.1.3 The Australian context

In Australia, alcohol ignition interlocks were initially viewed with considerable enthusiasm by the relevant experts (Sheehan 1994) and national standards were established for both the device and the model for implementation (Christie, Carseldine and Brown, 1995). The Australian standard was revised in 1993 and at the commencement of this feasibility study only the device manufactured by Dräger, which was designed and made in Australia, had been tested and found to meet the standard. For a variety of reasons the standards have not simplified or facilitated the development of research into interlock programs in an Australian legal setting so that it wasn't until 2001 that the first of the court-based implementations was introduced. There were a number of reasons that appear to have contributed to the delay in implementing research into interlocks in the Australian justice system, and these are outlined in the 2001 report (Sheehan, Schonfeld, Watson, King, & Siskind, 2001). Victoria and NSW both now have established programs, but as yet have released no data on the outcomes of their programs.

1.2 Focus of this report.

This report presents the results of the trial of Alcohol Ignition Interlocks in Queensland, and describes the practical issues involved in implementing such a program. Development of the model used involved building on the work already carried out in other states in Australia, and taking into consideration the legal, financial and administrative barriers that have plagued other attempts to trial the interlock. It notes and where possible responds to the issues raised by Job in defining a model "interlock trial" in the 1998 Austroads report (Austroads, 1998).

2 METHODOLOGY

The feasibility study began with the extension of the role of the Research Committee for the “Under the Limit” Drink Driving Rehabilitation Project to include examination of the feasibility of introducing associated ignition interlocks. The committee included representatives from Queensland Police, Queensland Transport, Queensland Health, Community Corrections, and Queensland University of Technology (CARRS-Q researchers). The proposal to implement a trial of alcohol ignition interlocks was discussed and a decision made that there was a need to include other organizations and agencies. This led to the addition of the Motor Accident Insurance Commission (MAIC), Dräger and a representative of Queensland Stipendiary Magistrates. Appendix 1 contains a list of all persons involved in the study.

In May 1999 an application by the QUT research team to the Australian Research Council SPIRT grant scheme for funding to support a trial of the effectiveness of the addition of interlocks to a rehabilitation program in reducing subsequent recidivism was successful, and funds to support implementation were received in February 2000. Dräger agreed to provide the interlocks for the trial as part of the program.

Self-reported data was collected on all participants in the trial who had an interlock fitted to the vehicle (UTL2), and on the control group of offenders who complete the normal Under the Limit program (UTL1). This component of the research was carried out by a PhD scholar. He interviewed offenders at various stages of the process, to examine:

- the attitudinal and behavioural changes resulting from the interventions;
- the mediating factors which affect successful outcomes;
- the impact the interlocks have on the lifestyle of participants and their families; and
- overall perceptions of the interlock program in comparison to existing legal sanctions.

Some of these findings are presented in the following section. Finally, traffic and criminal histories for the 5 years prior to the index offence were provided through Queensland Transport and Community Corrections.

3 THE MODEL SELECTED FOR THE CURRENT TRIAL

The model being presented in this report was finalised for the commencement of the trial in February 2001.

3.1 Summary of the model

As a result of the process of discussion and policy formation the decision was made to adopt a model in Queensland which is essentially a judicial approach but also retains certain aspects of the administrative model. This decision was made to capitalise on the advantages that accrue through combining both models.

3.1.1 Judicial model

Under the judicial model in the Queensland trial, offenders were assigned to an interlock trial directly through the courts by Magistrates as part of their sentence. This assignment was done through the Penalties and Sentences Act (1992). Offenders were placed on a probation order, and compliance with the trial became part of the offender's conditions of probation. These conditions were then monitored by a Community Corrections Officer who could provide ongoing supervision and support.

3.1.2 Reasons for deciding on the judicial model

The judicial model offered a more established framework through which to implement the current interlock trial because it builds on the existing framework already developed to implement the "Under the Limit" program in Queensland.

The judicial model required less legislative change in the short term, since the conditions of the probation order already allowed for offenders to be placed on a program such as "Under the Limit". It was feasible and reasonable to consider the interlock period of sentencing as an integral component of a revised "Under the Limit 2" program.

Under the judicial model, the offenders had to meet the conditions of probation. If they did not meet those conditions, including the requirements for participation in the interlock trial, they were considered to be in breach of the order. At this point they had to appear before a magistrate to have this new charge heard and be re-sentenced.

3.1.3 Random allocation to the trial

There are difficulties in randomly allocating offenders to any trial, since in our experience a judicial model is subject to variation both across courts and magistrates. From the magistrates' point of view, it was considered both impractical and unacceptable for offenders in each court to be randomly allocated to the trial. The solution was to randomly allocate courts to the intervention or control groups, rather than offenders. In this way, offenders in an intervention court were offered the "Under the Limit 2" program. An offender who appeared in one of the randomly assigned intervention courts was assessed to determine suitability and willingness to participate in the interlock trial. If appropriate, the offender was placed on a probation order in line with the judicial model. The conditions specified on that order included the requirement that during the initial

period of full licence disqualification, the offender must complete the "Under the Limit" (UTL) program. Figure 1 gives the conditions of the probation order. Offenders in the control courts were offered only the "Under the Limit" program in the normal manner. There are methodological concerns related to all these models which have been outlined in Austroads (1998).

<p>Failure to comply with any of the requirements of this schedule will constitute a contravention of the Probation Order</p>	
<p>The Magistrate will advise you of the length of licence disqualification at sentencing.</p>	
<p>The requirements of this Probation Order are that you must:</p>	
<ul style="list-style-type: none"> i) satisfactorily participate in and complete the <i>Under the Limit 1</i> Program by the expiry of the disqualification period as directed by an authorised corrective services officer; ii) pay \$500 to the Registrar/Clerk of the Court at the Magistrates Court in such amounts so that \$250 is to be paid prior to commencing the <i>Under the Limit 1</i> Program and \$250 to be paid prior to the completion of the <i>Under the Limit 1</i> Program; iii) obtain a Probationary Licence and have an approved Alcohol Ignition Interlock Device fitted to a motor vehicle nominated by you within one month after the expiry date of the disqualification period; iv) drive only the nominated vehicle/s with an approved Alcohol Ignition Interlock Device fitted during the period up to and including/...../..... once a Probationary licence has been obtained and carry a copy of the Probation Order and Schedule with you at all times when driving; v) use the approved Alcohol Ignition Interlock Device fitted to the nominated vehicle/s in accordance with the manufacturer's instructions; vi) not interfere with the normal operation of the approved Alcohol Ignition Interlock Device or intentionally damage the approved Alcohol Ignition Interlock Device in any way; vii) not drive or attempt to drive a vehicle fitted with an approved Alcohol Ignition Interlock Device with a blood alcohol concentration exceeding 0.00%; viii) be responsible for all tests registered by the approved Alcohol Ignition Interlock Device data recorder and therefore make sure that not only you, but anyone else driving the vehicle is free from alcohol; ix) pay the associated fees for installation, maintenance, service and removal of the approved Alcohol Ignition Interlock Device as well as any costs associated with repair or callouts, other than those due to malfunction of the device, to the supplier of the device as directed by an authorised corrective services officer; x) seek approval from an authorised corrective services officer to have an approved Alcohol Ignition Interlock Device installed in a vehicle/s other than the vehicle nominated in accordance with iii) above; xi) report any malfunctions of the approved Alcohol Ignition Interlock Device to the supplier within 2 business days; xii) comply with the approved Alcohol Ignition Interlock Device's servicing schedule as directed by the court or an authorised corrective services officer; xiii) notify an authorised corrective services officer within 2 business days of any non-scheduled service requirement indicated by the approved Alcohol Ignition Interlock Device. 	<p>I have read and understood the requirements of the <i>Under the Limit 2</i> Program outlined in this schedule. I understand that, should I agree to the Magistrate making a Probation Order with the special requirement that I undertake and pay costs of the <i>Under the Limit 2 Program</i>, this schedule will be attached to and form part of the Probation Order with the addition of the date in requirement iv) which will be nominated by the magistrate at sentencing.</p>
<p>Name:.....</p>	<p>Witness:.....</p>
<p>Signed:.....</p>	<p>Signed:.....</p>
<p>Date:.....</p>	<p>Date:.....</p>

Figure 1: Schedule of conditions attached to the probation order

3.1.4 Definition of controls

Under the proposed model, the control group was made up of offenders who were sentenced to undertake UTL1 in the assigned control courts. In the early stages of the trial, the accrual rates of both intervention and control groups were far below expectations based on numbers of drink driving offenders appearing before the courts. As a possible solution to the low numbers of participants in the control group, it was decided that the design model should be revisited to include a second control group accrued from the intervention courts - those offenders who are offered UTL2 but who decided to undertake only UTL1. The data needed from the control group for evaluating the effectiveness of the interlocks was gathered for both of these groups of controls. This meant that drink driving re-offence rates were compared for the intervention group, the main control group (UTL from a control court) and the secondary control group (UTL from an intervention court).

3.1.5 Sentencing model

The model that was accepted for the trial is presented in Figure 2. The initial period of full licence disqualification was followed by interlock installation with no additional restrictions. It was proposed that the total sanction period be 1.5 times the normal disqualification period.

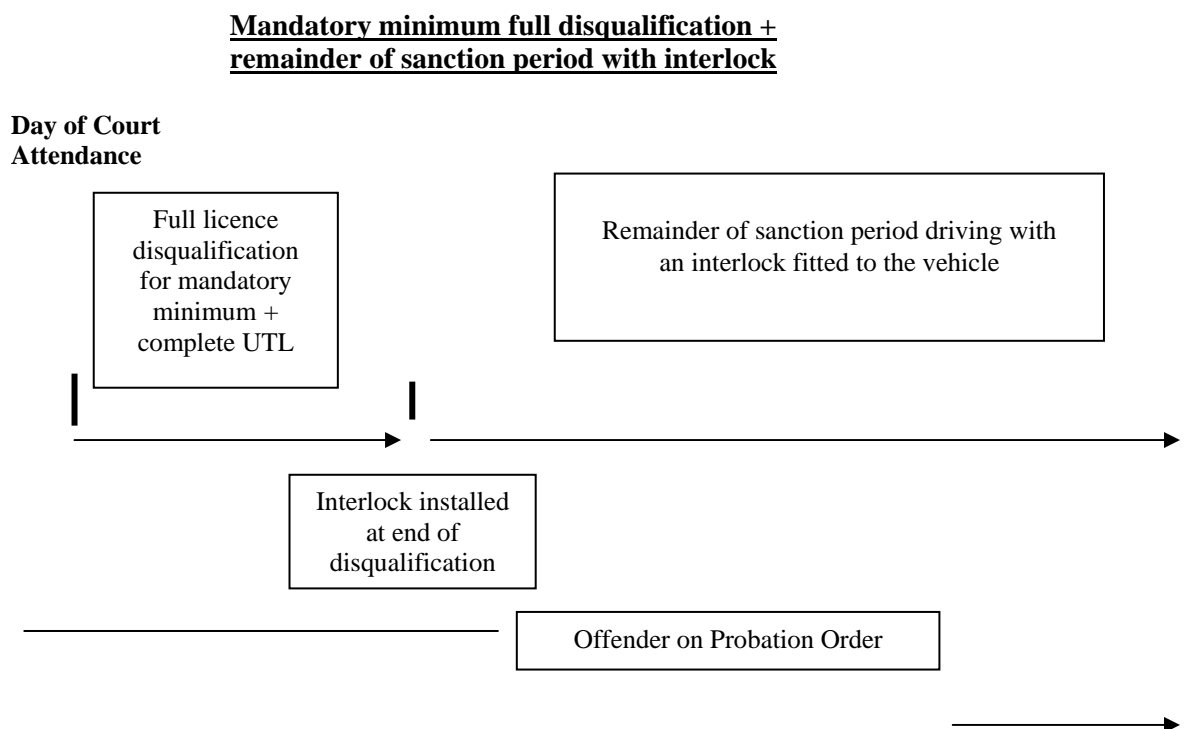


Figure 2: Final model proposed to and accepted by magistrates

3.1.6 The rehabilitative process

The proposed trial was based on a rehabilitation model to allow for the continuity of sentencing, rehabilitation program participation and controlled driving with an interlock. Consequently as part of the trial, offenders were interviewed at a number of stages during the time they were on the program, to examine whether processes of change occurred from commencing the “Under the Limit” drink driving rehabilitation program to completing the time driving with an interlock fitted to their vehicle. This part of the research was completed by the postgraduate scholar, and he also examined the attitudinal and behavioural changes resulting from the interventions, as well as highlighting mediating factors which affect successful outcomes. In addition the impact the interlocks have on the lifestyle of participants was monitored, including gathering information from participants as to their overall perceptions of the interlock program in comparison to existing standard legal sanctions.

3.1.7 Retribution effects of interlocks and other vehicle-based sanctions

In Australia, concerns have occasionally been raised about the inconvenience of alcohol ignition interlocks for offenders and their families (Watson, 1998). Anecdotal evidence (South, 1990; Staysafe, 1993) suggests that while many offenders may originally resent the imposition of the devices, they come to accept them. It remains to be examined whether they can perform an educational and motivational function. "It apparently provides that extra incentive needed to refrain from drinking" (South 1990, p.11). This is an area that was studied in the Queensland trial.

3.1.8 Referral processes - Community Corrections

The process of referral was quite complex, and is described in detail in the report on the feasibility study (Sheehan, Schonfeld, Watson, King & Siskind, 2001).

Offenders who opted to participate in the UTL2 program had to meet certain requirements and these were referred to as “gatekeeper questions”, and required offenders to indicate that they had: (i) use of a motor vehicle, (ii) ability to provide breath sample (i.e., lung capacity), (iii) ability to reach Dräger servicing centre, and (iv) ability to meet the costs of installation and servicing.

3.1.9 Administrative components of the model

Following the period of licence disqualification, during which time the offender was required to complete the UTL program, the offender was eligible to obtain a licence through Queensland Transport. An identifying code on the interlock user’s licence (an “I” code) flagged to police during roadside licence checks and random breath testing that there were special conditions attached to the licence which were recorded on the relevant Transport Registration And Integrated Licensing System (TRAILS) database in Queensland.

The conditions of the “I” licence included that the offender could only drive a vehicle with an interlock installed and that the offender must also carry documentation of the conditions of the licence.

3.1.10 The most appropriate interlock device

From a legal perspective it would seem to be acceptable to use any interlock system which met the Australian Standard. At the time the project was proposed, the Dräger interlock was determined to be the only device meeting the Australian Standard (AS 3547-1993) and this company was approached to seek their participation in the trial. As part of a grant proposal funded through the

ARC SPIRT program, Dräger agreed to supply the devices free of charge for use in the trial as an in-kind contribution to the research program.

3.1.11 How does the interlock device work?

These devices (Breath Alcohol Ignition Interlock Devices) are fitted to a vehicle and will not allow the engine to be started until a breath test has been passed. There is a great deal of flexibility built into these devices, including the ability to set the BAC level at whatever level is suited to a particular driver. For example, someone who holds an open licence and uses the device could have the level set at the legal limit (Australia) of 0.05 gms/100ml, while an offender who is on a provisional licence would have the device set at zero BAC.

Drivers must blow into the device to test their BAC and the vehicle will start only if their BAC is below the set limit. If the test is failed (BAC greater than the prescribed limit, which for this trial was zero), the ignition will not work and the vehicle cannot be started. If the driver registers a zero BAC reading, then the vehicle could be started and the journey commenced. At random intervals during the journey, the device signals the driver (a beeping sound) that a further test is required (a rolling re-test). The driver must blow into the device again, and if the test is passed (zero BAC) then the journey is continued. If the driver fails a rolling re-test, or fails to give the required breath sample, this is considered to be a violation, and there is a range of consequences that can be programmed into the device after such a violation. For example, the hazard lights can be set to start flashing or the horn can be set to start operating. For reasons of personal security, the vehicle was not disabled.

All attempts to start the vehicle are recorded by the device, as are the results of rolling re-tests. The data recorded by the device includes the time of each test and each request for a test, and the BAC reading for each test. Any attempt to tamper with the device (including disconnecting the device) is also recorded. A special “suck-blow” method has been developed so that only those people who have been trained to use the device can present a correct breath sample, and this also guards against circumvention.

3.1.12 Definition of fails

If an offender attempted to start the vehicle while having a BAC above the prescribed limit (zero for this trial) then the vehicle would not start. This was classified as a minor fail. It was recorded by the device but no further action results from a minor fail. While driving, if an offender failed/refused to blow into the device when requested for a rolling re-test, this was not counted as an immediate fail. The device was set so that the offender would be requested a second time to do that test, within the next 5 minutes. If the offender then did not blow into the device on this second request, this would be deemed as a major fail. If the offender did blow into the device and was over the prescribed limit, this was also a major fail.

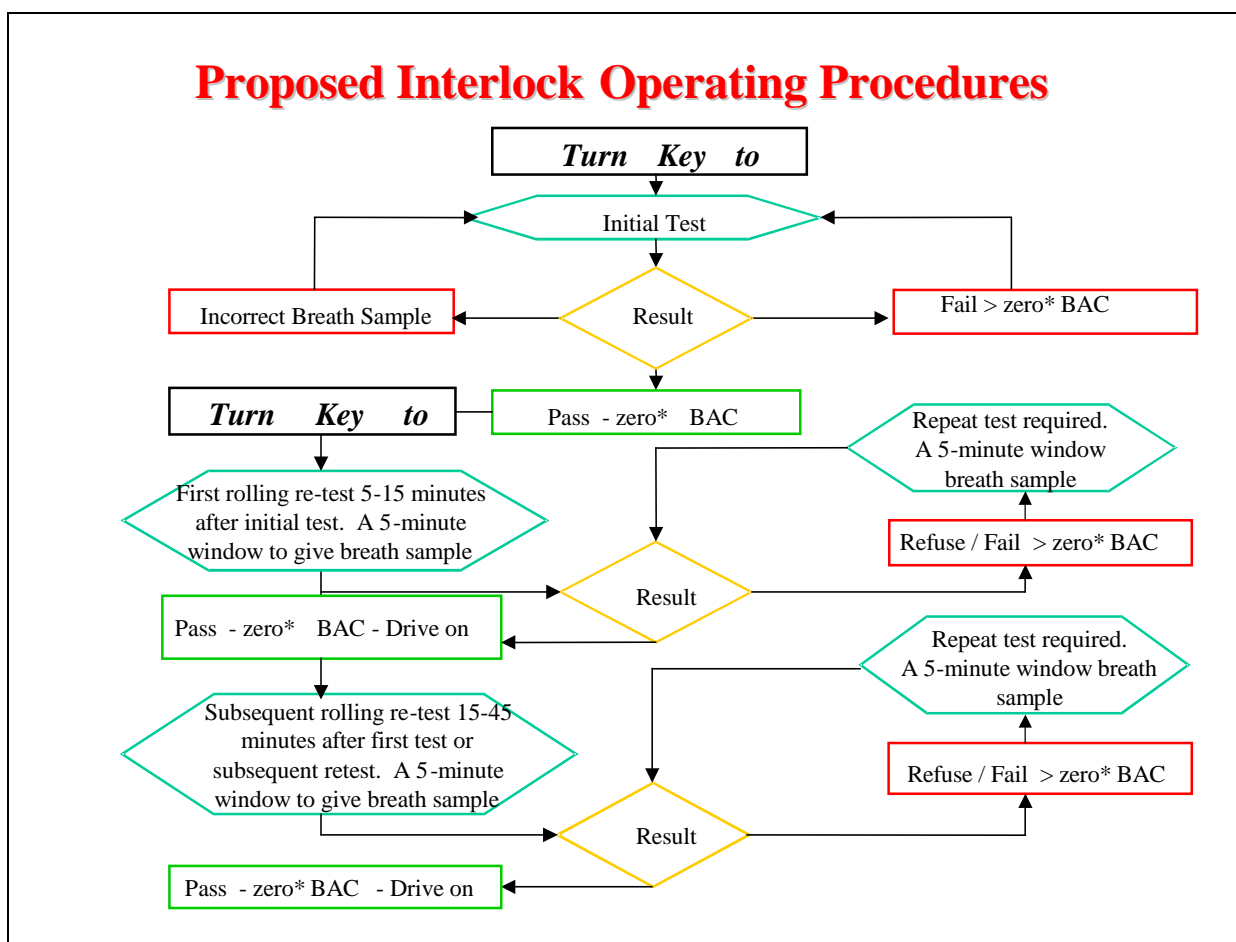
If an offender registered a failure, the device would give a message to indicate that reporting to the service agent was required within 5 days (forced service is activated). If the offender did not bring the car into the service agent for checking the data within the specified time, the offender would not be able to start the vehicle again (“locked out”).

3.1.13 Setting the parameters

There is a wide range of settings for the interlock devices. These include:

- The prescribed BAC level;
- The time delay after a failed attempt to start the vehicle before a second attempt can be made;
- How many failed attempts constitute a major fail;
- The timing of rolling retests;
- The time required after a failed rolling retest before a second attempt can be made;
- The outcome of a failed rolling retest; and
- The outcome of a major fail - time to report to service provider.

Figure 3 shows the sequence of procedures for an offender using the interlock.



* While the prescribed BAC level is nominally zero, the breath measuring device incorporates a tolerance such that the BAC level must be >0.015 for the device to register a fail.

Figure 3: Flowchart showing sequence of breath tests and outcomes

3.1.14 Monitoring offender performance

Data was down-loaded from the interlock devices at regular intervals. Records of any failures provided to the researchers through the data down-loaded from the device were reported to the Community Corrections Officer in charge of the offender, and were used for the purposes of

monitoring the conditions of the probation order. Following considerable discussion with Community Corrections staff, it was decided that the default regime for down-loads would be:

- at the end of each of the first 3 months
- then at the end of each subsequent 3 month period

Overseas experience with interlock programs indicates that offenders take 1-2 months (B.Voas and P.Marques, personal communication, January 2001) to learn that a) the device does stop them from starting the vehicle when they blow over the prescribed limit b) they will have a BAC greater than zero even when they've had only a few drinks c) the device does record all their attempts to start the vehicle and their BAC reading at each of those attempts and d) they shouldn't let their friends "have a go" because the fails show up as part of their own record. If an offender is making a genuine effort to not drink and drive, this will be evidenced by a sharp decrease in the number of failed attempts to start the vehicle, particularly in the second month of operation when they will have come to terms with a) to d) above. If the offender's performance at the end of 3 months satisfied the supervising Community Corrections Officer that a genuine effort was being made to try not to drive after drinking, then the down-load times would be increased to 3 monthly intervals as per the default regime. If however the offender was still registering a number of failed attempts to start, the supervising Community Corrections Officer could have extended the monthly down-loads beyond the first three months. Table 1 gives the interlock parameters and associated actions that were set for the current trial.

Table 1: Interlock Parameters and Actions

Initial test	Engine starts	Temporary lockout (1)	Temporary Lockout (2)	Forced service activated
Start up violation circumvent/ Tamper ¹⁾	No			In 5 days
First failure ²⁾	No	5 mins		
Second consecutive failure	No		20 mins	
Subsequent consecutive failures	No		20 mins	Only after 60 lockouts
First pass	Yes			
ROLLING RETESTS (Driver has 5 minutes to supply breath test after device requests)				
Re-test not presented ³⁾				In 5 days
Fail		When engine next turned off, 5 mins		In 5 days
Fail second and subsequent re-tests			When engine next turned off, 20 mins	In 5 days
Pass	Continue			

If the driver attempted to disconnect the device, the attempt to tamper was recorded and the vehicle would not start. Under some circumstances (if the driver is an auto-electrician), it was possible to disconnect and re-wire without disabling the vehicle. However, it was anticipated that the driver's actions would be obvious at the first service and thus be reported to Community Corrections to be dealt with accordingly.

Giving a correct breath sample (requiring the driver to use the correct suck-blow technique), particularly in the early stages of having the device fitted, requires practice, and the device registered each attempt. These incorrect breath samples were not registered as "fails". However if there were 15 such attempts then a temporary lockout was activated and a "minor fail" is recorded. When the device signalled that the driver should give a breath sample for a rolling re-test, it allowed up to 5 minutes for the driver to comply (allowing time to pull off the road in a safe place). If the driver failed to provide the breath sample in that time, it was registered as "re-test not presented", which was considered to be equivalent to a failed (> zero) test, and the hazard lights were activated, and the forced service activated.

3.1.15 Definition of a breach of the probation order

The conditions of the Probation Order were considered to have been breached on the basis of, among other things, having "failed" a rolling retest while driving the vehicle. Evidence of tampering with the device was also considered a breach of the conditions.

3.1.16 Procedures that followed a breach of a probation order

Community Corrections Officers have a statutory obligation to consider appropriate action when they become aware of an offender being in contravention of a probation order. Returning an offender to court on a contravention of the order is not the only option available to an officer. Other avenues to manage the non-compliance may be considered in the light of the offender's overall performance while subject to the order.

In some circumstances, the officer may consider that a written censure from the area manager would be an appropriate recommendation to make as a consequence of a contravention of an order. If the matter was considered to be more serious, it could have been recommended that the offender be returned to court for a censure or fine from the magistrate. The magistrate may decide that it is appropriate to amend the order in some way. In cases where the contravention is considered to be too serious for these courses of action, the officer should recommend that the offender be returned to court and that the court be encouraged to revoke the probation order and re-sentence the offender for the original offence. In all circumstances except where the order is revoked, the offender would be allowed to continue to undertake the program.

Community Corrections notified CARRS-Q of the result of any court hearing. Notification of the court hearing was forwarded to Queensland Transport in the usual manner and the offender's record in the licensing database was amended. Depending on the outcome of the court hearing, it was possible that the offender be taken off the trial and disqualified from driving, in which case the offender's licence would be suspended, and the "I" condition deleted. The magistrate had the power to decide whether the offender should continue on the trial, as well as be given further penalties such as another fine and/or an increased length of time with the interlock.

3.1.17 Data management/confidentiality

Confidentiality of data is a major issue for a research trial both in terms of ethical requirements and possible "conflict of interest". It was proposed that to ensure that the data was protected, technicians would down-load the data and forward it immediately to CARRS-Q, bypassing any direct contact with the supply management. CARRS-Q staff also performed random audits of the down-load procedure to ensure that the correct procedures were being followed. CARRS-Q then supplied summaries of the data to Community Corrections for the purposes of offender monitoring, and to the supplier for their own use, as they required feedback on the operation of the devices.

3.2 Costs

The cost of completing the UTL program was \$500 which is usually paid in lieu of a fine. It must be paid before completion of the program. During the trial, the offender needed to have completed payment for the UTL prior to the interlock being fitted. Payments for installation and servicing costs for the interlock device were made directly to Dräger by the offender.

3.2.1 Procedures which incurred costs

The cost of Interlocks for the trial did not include the cost of supplying the device as this was supplied free of charge by Dräger. Table 2 gives a breakdown of the procedures that were involved in installation and servicing of the devices.

Table 2: Schedule of fees [2002]

SERVICE TYPE	FEE DUE*
INSTALLATION Installation / Calibration/ Set-up/ Operational Training / Administration	\$121.00
BOND ON REMOVAL	\$ 55.00
DATA DOWNLOAD Monthly for first 3 months / Performance Check 3 x \$36.30	\$ 108.90
DATA DOWNLOAD Three monthly Down-load of Data / Performance Check 3 x \$36.30	\$ 108.90
CALIBRATION and DATA DOWNLOAD (at 6 months and 12 months) 2 x \$36.30	\$ 72.60
TOTAL ESTIMATED COST	\$466.40
Call-outs as a result of non-compliance / ignoring service dates attracted additional costs.	

*All fees quoted inclusive of GST

There were also the standard costs of obtaining a licence through Queensland Transport.

3.3 Offender group(s) targeted

In determining which group of offenders would be targeted for the trial, a number of issues were considered. These included research, financial, social, political and legal implications. It was decided that the interlock would be made available to all drink driving offenders, regardless of level of offence. It should be noted though, that the research committee recognised that the most likely group to elect to use an interlock would be offenders who were employed (and thus have the financial resources to pay for both the UTL1 and interlock options), offenders who had sole use of a vehicle, and offenders who had at least one previous drink driving offence and were therefore facing a heavy fine and lengthy disqualification period.

It should be noted however that one of the serious shortcomings of this trial and all such trials internationally is the failure to deal with the high proportion of offenders who are already unlicensed at the time of their drink driving offence, and who therefore are usually excluded from participation in alcohol ignition interlock programs.

3.4 Raising awareness of alcohol ignition interlocks

Implementation of the trial required the research team to promote an awareness in relevant groups associated with the justice system and in the general community, of alcohol ignition interlocks as a strategy to avoid drink driving. Groups such as Legal Aid and private solicitors, court staff, Community Corrections staff, Police prosecutors, volunteer court support workers, and facilitators who teach the “Under the Limit” rehabilitation program have all been given information kits and/or brochures, and many attended presentations about the trial and the use of alcohol ignition interlocks.

Drink driving offenders were targeted through the “Under the Limit” rehabilitation program, by having a new segment about alcohol ignition interlocks included in the final lesson. This incorporated a new video¹ that was produced by CARRS-Q to describe in simple terms, what an alcohol ignition interlock is and how it works. Detailed information about interlocks had also been added to the facilitator’s notes so that they were well equipped to answer most questions that offenders might ask during the lesson.

¹ The video, called “Alcohol Ignition Interlocks: Driving sober” was filmed by the Educational Television Unit at QUT in March 2001, and runs for 6.36 minutes. It was produced in cooperation with the Queensland Police Service.

4 PRELIMINARY EVALUATION OF THE INTERLOCK TRIAL

4.1 Study Overview

The following section reports on an ongoing evaluation of the Queensland alcohol ignition interlock trial. This evaluation consists of two components which are: (i) a formative evaluation focusing on the self-reported impact of interlock usage on participants' drinking and drink driving behaviours as well as (ii) a summative evaluation that examined re-offence rates approximately 2 yrs after participants were re-licensed. The formative evaluation formed part of a PhD study that aimed to examine the impact of three drink driving countermeasures on a group of recidivist drink drivers, while the summative evaluation was conducted after the majority of the participants were re-licensed.

4.2 Study One: The Impact of Interlocks on Key Program Outcomes

A longitudinal case-study design that utilised both quantitative and qualitative data was implemented to examine the impact of alcohol ignition interlocks on key program outcomes for 12 recidivist drink drivers from a users' perspective². The study incorporated a multi-method design utilising both downloaded and self-reported data. Firstly, the examination of downloaded interlock recordings provides an opportunity to investigate driving patterns such as the frequency of usage (time and trips), BAC readings, and circumvention attempts. Secondly, the collection and analysis of self-reported data, facilitates the investigation of the effect of interlocks on participants' drinking as well as general driving behaviours.

4.2.1 Method

Participants

The sample of 12 male recidivist drink drivers were placed on an interlock probation order (UTL2), which involved completing the UTL program during the licence disqualification period (5-18 months range) and then installing an interlock once eligible for licence reinstatement. Eligibility to be included in this study was dependent upon both completing the UTL program and installing an interlock within the 24 month data collection period.

Of the 12 participants who installed an interlock, 9 operated the interlock for the four-month data collection period, 2 participants had the device removed after one month (one for driving unlicensed during the disqualification period and another for operational difficulties), and another participant had the device removed after 3 months due to the expiration of his probation order.

Materials

Participants completed a range of questionnaires aimed to examine both attitudes and behaviours including: (a) alcohol consumption levels ([AUDIT]: Saunders et al., 1993), (b) Readiness to Change Drinking ([SCD]: Heather & Rollnick, 1993), (c) Readiness to Change Drink Driving ([DRDV]: Wells-Parker et al., 1998), and (d) Self-efficacy levels to Control Drinking and Drink

² Only 12 of the 28 interlock participants completed (i) a licence disqualification period, (ii) the UTL program and (iii) installed an interlock during the initial 24 month data collection period.

Driving ([DDE/3]: Wells-Parker et al., 1997). An interlock questionnaire was also developed that incorporated both quantitative and qualitative elements to assess participants' expectations of interlock usage prior to installation as well as experiences of interlock usage. In addition, interlock data loggers were also utilised in the current study, providing an additional perspective of driving patterns as well as assisting in the identification of possible drinking times and high-risk drink driving periods e.g., failed start-up attempts.

Procedure

Data were collected through structured interviews which were performed at participants' local Community Corrections Regional Centre both before and after completing the UTL program, upon interlock installation, then one month and three months after interlock installation³. Two participants were not able to be interviewed before commencing the UTL program as they started the program before the researcher could schedule an interview with them. Interviews conducted both pre and post UTL, and before interlock installation and after three months were conducted at participants' local Community Corrections regional centre after they had met with their probation officer. Only the researcher and the participant were present during the interview. Interviews conducted one month after interlock installation were conducted either at Community Corrections regional centres (n = 9) or via the phone (n = 3). Phone interviews were employed only when it was not possible to conduct face-to-face interviews due to scheduling difficulties.

4.2.2 Results

The Effects of Legal Sanctions and the UTL Program Prior to Interlock Installation

Participants completed a licence disqualification period and the UTL program before installing an interlock. As highlighted above, 10 of the 12 participants who installed an interlock were interviewed before commencing the UTL program and all 12 were interviewed upon program completion. Table 3 depicts participants' alcohol consumption levels, readiness to change drinking and drink driving, and self-efficacy levels both before and after completing the UTL program. Given the small sample size, participants are numbered in the following review to identify individual scores and facilitate a closer examination of the impact of the combined interventions in proceeding sections.

In regards to the UTL program, the majority of participants were in the action stage for drink driving both before and after completing the UTL program, and reported higher self-efficacy levels to control drinking and drink driving at both assessment intervals. Furthermore, participants were unsure about the effectiveness of the program but 10 of the 12 reported a positive appraisal upon program completion, as the sample believed the program provided them with new skills and strategies to avoid drink driving. However, it is noted that two participants did not report the program to be effective (participant 3 & 4).

By program completion, 8 of the 12 participants reported being motivated to change their drinking behaviours, resulting in assignment to the action stage. However, completion of the UTL program did not produce a considerable effect on those consuming harmful levels, as seven participants were drinking heavily before UTL commencement and six were still drinking heavily upon completion (e.g., AUDIT score ≥ 8). Finally, one participant reported that they would most likely drink and drive again after completing the program (participant 3) and another participant was unsure (participant 4). Overall, the results suggest that the majority of the sample believe they benefited from completing the UTL program prior to installing an interlock as they reported increasing their knowledge and skills to avoid further offences, as well as increasing motivations to change harmful

³ Participants were interviewed after one month to explore initial experiences and reactions to interlocks before making comparisons at the third month when the sample had become accustomed to using the device.

drinking behaviours and avoid drink driving. Nevertheless, half the sample continued to consume harmful levels of alcohol.

Table 3: The Impact of the UTL Program

Scales	Time 1		Time 2	
SCD				
Action	40%	(n = 4)	33.3%	(n = 4)
Contemplation	10%	(n = 1)	0.0%	(n = 0)
Precontemplation	50%	(n = 5)	66.7%	(n = 8)
DRDV				
Action	90%	(n = 9)	91.7%	(n = 11)
Contemplation	10%	(n = 1)	8.3%	(n = 1)
Precontemplation	0%	(n = 0)	0.0%	(n = 0)
AUDIT	M = 10.93		M = 9.27	
DDE/3	M = 37.50		M = 38.92	

Downloaded Interlock Data

The interlock data logger measured the frequency and duration of participants’ driving behaviours. Similar to previous research (Marques et al., 1999; Voas, Marques et al., 2000) the data were aggregated at the individual level to examine the relationship between participants’ characteristics and key factors such as driving behaviours, frequency of “start-up” failures and drinking behaviours.

Table 4 depicts the frequency of vehicle usage, the number of engine starts and re-tests, the total number of “start-up” and “rolling-re-test” failures over the first four months. The downloaded interlock data indicates that the vehicles were used over 80% of the days, with 4.85 trips (e.g., engine starts) each day, 2.93 rolling re-tests each day, and 1.49 re-tests per trip. Participants drove their vehicles on average three times more often during the week than on weekends (e.g., total driving time in hrs) and twelve times more often during the day than at night. There are a number of possible explanations for these findings. Firstly, it is possible that participants drove a non-interlock fitted vehicle during “peak” drink driving periods such as on weekends. Secondly, the need to drive at night or on weekends may be considerably reduced, as participants are possibly passengers in other vehicles during these times or participants do not need to travel. Thirdly, heavy alcohol consumption during these periods may have resulted in natural reductions in driving behaviours (Marques et al., 2002). These possibilities will be explored further through the self-reported data in a following section.

Participants recorded a higher level of incorrect breath samples during the first month, and while there are no comparison studies, it appears that the sample experienced initial difficulties with the “suck-blow” anti-circumvention technique of the interlock. These operational difficulties appeared to diminish over the four-month period. However, one participant who recorded 360 incorrect breath samples in the first month heavily skewed the results and was omitted from the mean analysis (participant 3). There were 53 “start-up” breath test failures over the four-month installation period (total cumulative usage by participants = 41 months), and 11 re-test failures. All 12 participants recorded a “start-up” failure at some time during the four-month period, which signifies an attempt to drive after drinking. The average BAC reading for breath-test failures was 0.022%, ranging from 0.016% to 0.166%, and the rolling re-test average was 0.020%, ranging from 0.016% to 0.026%. Five participants failed to provide a rolling re-test on 10 occasions in the first month, 2 participants 12 times in the second month and 2 participants on 2 occasions in the third month. Failure to provide a rolling-re-test resulted in the device needing to be recalibrated within

five days at a cost of \$71.50 paid by the participant, which most likely facilitated the reduction in the frequency of failures over the four-month period. A closer examination between length of interlock usage and number and type of failures is provided in a following section. The interlock usage of participants in the current study is comparable to larger interlock trials. For example, Marques et al. (1999) examined the driving behaviours of 1309 drink driving offenders in the Alberta interlock study and reported participants used the device 80% of the days, with 6.5 engine starts and one rolling-retest per day, and approximately 12 hours of driving time per week.

Table 4: Downloaded Interlock Recordings

Downloaded recordings	Month 1 (n = 12)	Month 2 (n = 11)	Month 3 (n = 10)	Month 4 (n = 8)
Vehicle Usage:				
Usage per day	80%	84%	83%	85%
Total Tests (per day)	7.64	7.50	7.70	7.90
Trips (per day)	4.77	4.53	4.72	5.10
Re-tests (per day)	2.88	2.97	2.98	2.88
Re-tests (per trip)	.65	.40	2.5	2.42
Time (hrs per week)	10.69		13.14	13.53
Time (day time per week)	8.73	10.62	11.43	11.88
Time (night time per week)	1.96	8.90	1.71	1.64
Time (week-day per week)	8.19	1.72	8.84	10.23
Time (week-end per week)	2.50	7.99	4.30	3.30
		2.63		
Incorrect Samples:				
Trips	1.62		.10	.07
Total Tests	94.09	.32	25.10	19.50
		44.10		
Failures:				
Start-up Failures (total)	17		12	5
Start-up (BAC)	.033		.036	.051
Re-test Failures	6	19	1	0
Re-test (BAC)	.021	.031	.016	0.00
Re-tests not provided	10	4	2	0.00
		.026		
		12		

Frequency of Failures Over the Four Month Period

Examination of the frequency of breath test failures over the four-month period revealed a considerable reduction from the first to the fourth month. The results support previous research that has demonstrated a general decline in breath violations (Marques et al., 1999). There were 17 “start-up” breath test failures over the first month provided by 8 participants, 19 by 6 participants in the second month, 12 by 5 in the third month, and 5 by 2 participants in the fourth month. However, examination of breath test failures at the individual level revealed that a smaller group of heavy drinkers emerged, as 3 participants accounted for 36 “start-up” failures and 8 “rolling re-test” failures over a cumulative period of 8 months (participant 3, 6, & 8). Individual interlock usage and driving behaviours will be explored in a following section.

Frequency of Failures: Day vs Night

As highlighted previously, the frequency and time of interlock usage was much greater during the day than at night. This driving pattern was also reflected in the frequency of “start-up” failures by time of day. Daytime was defined as between 5am and 7pm, and night as 7:01pm to 4:59am. There were 42 “start-up” failures during the day and 12 at night, 10 re-test failures during the day and 1 at night, and 18 re-test breath samples not provided during the day and 6 at night. These findings are in contrast to Marques et al. (1999) who reported failures were highest late on Saturday and Sunday nights and early in the mornings, which actually represented 65% of tests taken.

A more refined examination of the frequency of breath test failures by the hour of the day is depicted in Figure 4. Analysis revealed that the highest failure times were around lunchtime (e.g., 13:00), and during the mid-to-late afternoon (14:00 to 17:00). In contrast to previous research (Marques et al., 1999), the highest breath violations were not in the early mornings when vehicles were being first started (e.g., 7 a.m. and 8 a.m.), but rather in the middle of the day. These results indicate that participants consumed alcohol during the day and possibly during or at the completion of work.

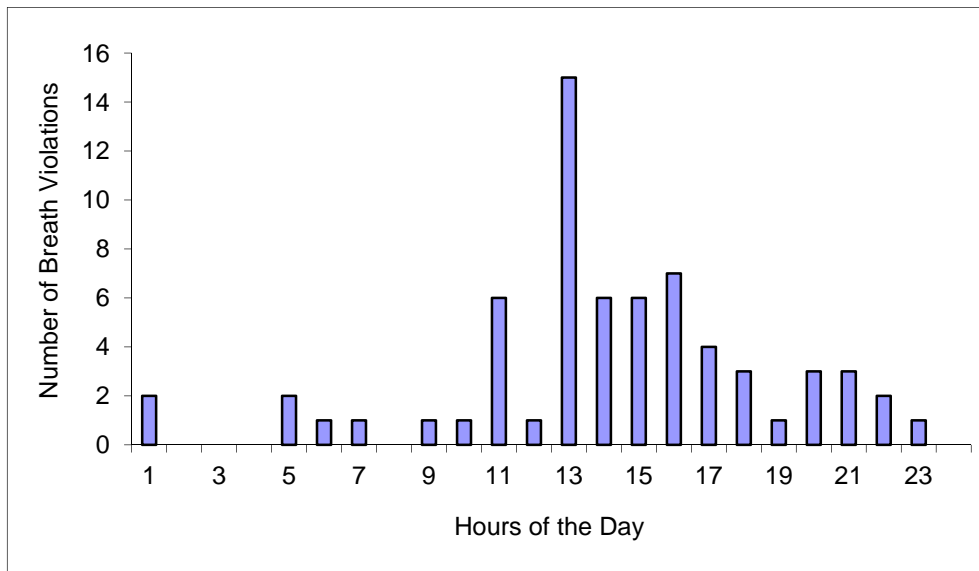


Figure 4: Breath-test Violations by Hour of Day

Frequency of Failures: Week vs Weekend

In addition to the examination of breath-test failures by time of day, an investigation was undertaken into the frequency of failures by week vs weekend. The analysis revealed that 2.5 times as many failures were recorded during the week than on weekends. These results are once again in contrast to the findings of Marques et al. (1999) who reported the highest incidence of failures on Saturdays and Sundays. Taken together, the findings of the above section indicate that participants used the interlock-fitted vehicle mostly during weekdays, which contributed to the highest frequency of violations during this time period.

Self-reported Perceptions of Interlocks

Participants were interviewed both before and after interlock installation to investigate perceptions regarding the need, benefits and effectiveness of the device compared to traditional legal sanctions. Participants responded to structured Likert-scaled questions before answering open-ended

questions. The responses to the open-ended questions complemented the quantitative responses, which remain the focus of the following section.

Firstly, the majority of the sample recognised the value of interlocks as a sentencing option. 10 of the 12 participants believed there was a need for interlocks: “It’s definitely a good idea, there are a lot of drink drivers out there” (participant 4: third interview), and “Oh yeah, I think they need them, I don’t think what is currently happening is working” (participant 2: third interview). However, one participant did not believe there was a need: “they are pointless, a waste of time” (participant 3), and one participant was unsure (participant 6). These beliefs did not change during interlock usage, and not surprisingly, positive appraisals were associated with successful interlock usage, which will also be explored further in the case study approach.

In regards to comparisons to traditional legal sanctions, 11 of the 12 participants believed interlocks to be more effective and beneficial, both before interlock installation and while using the device. Two major themes emerged from the qualitative data regarding the benefits of interlocks, which are depicted in Table 5. The first theme to emerge was that participants believed they were able to avoid a larger punishment, which was considered extremely desirable as well as more effective. Accepting the interlock option usually resulted in a reduction in participants’ licence disqualification periods (although marginal), which was considered favourable compared to traditional sentencing options. This theme was termed “Punishment Minimisation” and was reported to have both personal and practical results. Firstly, participants expressed pleasure at avoiding a larger sanction “It’s good. I thought I was going to lose my licence forever and what good would that do?” (participant 5: third interview). The sample reported that continually incurring punishment was not an effective method of producing behavioural change (see the associated quote for this theme in Table 5). As a result, any reduction in the period of licence disqualification and monetary fine was perceived as desirable and beneficial.

Secondly, there appears to be practical advantages of reducing periods of licence loss as participants were provided with the opportunity to continue employment or search for employment: “I got my licence back earlier, which means I can now look for a job” (participant 7: third interview). There also appeared to be a beneficial effect on unlicensed driving as none of the 12 participants reported driving without a licence: “at least I won’t have to drive unlicensed” (participant 4: third interview). These findings provide an early indication that incentives to increase interlock participation rates may benefit from incorporating and highlighting the personal and practical advantages of installation.

The second theme to emerge after one and four months of interlock operation consisted of an educational context, as participants believed that interlocks provided the opportunity to learn how to avoid drink driving. For instance, “It’s been pretty good, I sort of now know when I can and can’t have a drink” (participant 4: fourth interview). In addition, 9 of the 12 interlock users reported becoming better at avoiding drink driving over the four month period, which was reported to be an advantage of interlock usage: “I’ve got smarter, I have a better idea of what to do” (participant 2: fourth interview). This assertion is reflected in the general reduction in the number of breath test failures recorded by interlocks, highlighted in Table 6. However, closer examination revealed considerable differences in participants’ drinking levels and driving behaviours, which will be explored further in a following section.

Table 5: Benefits of Interlock Usage

Theme	Example
Punishment Minimisation	“Yeah, I’m sick of being punished. It does little for you. It’s not like I suddenly woke up and changed because of it” (participant 4: third interview) “I’ve been able to keep my job. It’s better than just being slugged with a penalty” (participant 1: third interview).
Educational Aspect	“I’ve learnt a lot. It’s a good educational tool for conditioning you not to drive with alcohol in your system. It’s in the back of your mind” (participant 2: fourth interview). “I think the interlock has changed me in some ways. I’m better at knowing when to stop drinking” (participant 8: fourth interview).

Finally, in regards to general self-reported driving behaviours, the sample did not report driving a non-interlock fitted vehicle, which would have been deemed “unlicensed driving” in the current trial. This finding is in accordance with previous research that has demonstrated that circumvention attempts are relatively low (Baker, 1997, cited in TIRF, 2001; Morse & Elliot, 1990; Voas et al., 2000). However, as highlighted previously, a considerable reduction in vehicle usage and the number of breath-test violations was evident over the weekend, which raises the issue of participants using another vehicle at “peak” drink driving periods. Finally, a positive program outcome was that the sample did not report intending to drink and drive after the fourth month of interlock usage: “I won’t drink and drive again after going through what I have gone through, this is definitely changed me” (participant 6: fifth interview).

Individual Examination of Interlock Experiences

The small sample size in the current study facilitated the examination of participants downloaded and self-reported data at an individual level. The above collective review of the two data sets indicates emerging differences between participants on key program outcomes such as the frequency of breath violations. Table 6 depicts a time-ordered matrix of participants’ downloaded interlock recordings, highlighting the number of trips per day, hours of driving and the frequency of breath violations per month (“start-ups” and “rolling re-tests” combined), the average BAC reading, the number of re-tests not provided and the number of incorrect breath samples. In addition, Table 7 depicts a time-ordered matrix of participants’ self-reported experiences of interlock usage and highlights participants’ motivation and drinking levels before and after UTL completion, expectations and intentions at interlock installation, and then participants’ operational experiences and appraisals of interlocks.

Table 6: Time-ordered Individual Downloaded Interlock Recordings

ID #	MONTH ONE						MONTH TWO						MONTH THREE						MONTH FOUR					
	Trips per day	Breath Failures	Average BAC	In-correct Samples	Time (hrs)	Breath Test Not Given	Trips per day	Breath Failures	Average BAC	In-correct Samples	Time (hrs)	Breath Test Not Given	Trips per day	Breath Failures	Average BAC	In-correct Samples	Time (hrs)	Breath Test Not Given	Trips per day	Breath Failures	Average BAC	In-correct Samples	Time (hrs)	Breath Test Not Given
1	6.33	1	.021	117	49.43	2	3.8	2	.042	9	44.63	0	5.43	1	.041	1	60.33	1	5.20	0	.000	1	69.66	0
2	2.33	1	.025	9	5.25	0	1.30	0	.000	6	5.31	0	2.86	0	.00	7	12.45	0	2.46	0	.000	7	12.40	0
3	2.50	6	.061	360	9.40	3	1	0	.000	45	1.42	11	-	-	-	-	-	-	-	-	-	-	-	-
4	3.86	1	.018	38	37.65	3	3.50	0	.000	6	33.92	1	1.40	0	.000	26	16.98	0	3.16	0	.000	17	24.16	0
5	2.90	2	.078	74	18.25	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
6	5.40	9	.026	193	48.70	0	6.86	11	.024	52	60.36	0	5.00	6	.025	39	52.16	0	-	-	-	-	-	-
7	6.83	1	.020	73	64.98	0	5.56	1	.036	51	68.66	0	6.20	0	.000	40	58.26	0	6.53	0	.000	25	59.93	0
8	6.23	0	.000	142	55.30	0	7.00	3	.022	180	60.20	0	6.06	5	.031	67	63.53	1	6.60	4	.053	27	59.80	0
9	6.26	1	.022	39	84.48	1	4.63	1	.015	22	46.66	0	4.00	0	.000	4	106.86	0	5.00	0	.000	10	80.33	0
10	3.33	0	.000	120	29.33	0	3.4	0	.000	56	21.33	0	3.36	1	.034	17	39	0	3.93	0	.000	14	36.83	0
11	7.56	1	.015	109	48.50	1	8.66	0	.000	54	73.46	0	8.20	0	.000	40	60.98	0	8.53	0	.000	35	60.85	0
12	6.26	0	.000	121	61.82	0	5.06	3	.074	5	48.33	0	5.66	0	.000	10	55.06	0	6.00	1	.050	9	55.23	0

Table 7: Time-ordered Individual Self-reported Interlock Experiences

ID #	TIME ONE			TIME TWO			TIME THREE: INSTALLATION		TIME FOUR: ONE MONTH		TIME FIVE: FOUR MONTHS	
	Audit	SCD	DRDV	Audit	SCD	DRDV	Alcohol Consumption	Interlock Operation	Alcohol Consumption	Interlock Operation	Alcohol Consumption	Interlock Operation
1	1	Act.	Act.	7	Act.	Act.	* AUDIT = 9 * Plans to reduce alcohol	* Positive Expectations * Confident to operate * Unsure if drive less	* AUDIT = 9 * Reduction in alcohol * “false positives” * “I’m not drinking and driving”	* Mixed Appraisal * Unsure of Confidence * Hassle to operate * Drive less	* AUDIT = 12 * Reduction in alcohol * “false positives” * “registers when I haven’t been drinking”	* Mixed Appraisal * Confident to operate * Hassle to operate * Does not drive less
2	16	Con.	Act.	14	Act.	Act.	* AUDIT = 7 * Plans to reduce alcohol	* Positive Expectations * Confident to operate * Expect to drive less	* AUDIT = 11 * No reduction in alcohol * no “false positives”	* Positive Appraisal * Confident to operate * Not a hassle to operate * Drive less	* AUDIT = 10 * Reduction in alcohol * No “false positives” * ‘It’s helped me drink less”	* Positive Appraisal * Confident to operate * Not a hassle to operate * Drive less
3	28	Pre.	Act.	15	Pre.	Con.	* AUDIT = 20 * No reduction in alcohol	* Negative Expectation * Not confident to use * Expect to drive less	* AUDIT = 15 * No reduction in alcohol * “False positives”	* Negative Appraisal * Not confident to operate/Hassle * Drive less * “ I hardly drive it”	-	-
4	8	Pre.	Act.	14	Pre.	Act.	*AUDIT = 9 *Plans to reduce alcohol	* Positive Expectations * Confident to operate * Will not drive less	* AUDIT= 5 * Reduction in alcohol * “false positives”	* Positive Appraisal * Confident to operate * Does not drive less * Not a hassle * “I still drive the same amount”	* AUDIT = 8 * No reduction in alcohol consumption * “false positives”	* Positive Appraisal * Confident to operate * Not a hassle to operate * “in all it’s been a good experience”

ID #	TIME ONE			TIME TWO			TIME THREE: INSTALLATION		TIME FOUR: ONE MONTH		TIME FIVE: FOUR MONTHS	
	Audit	SCD	DRDV	Audit	SCD	DRDV	Alcohol Consumption	Interlock Operation	Alcohol Consumption	Interlock Operation	Alcohol Consumption	Interlock Operation
5	14	Pre.	Act.	9	Pre.	Act.	* AUDIT = 9 * Unsure whether will drink less	* Positive expectations * Confident to operate * Will not drive less	* AUDIT = 12 * Reduction in alcohol * no "false positives"	* Positive Appraisal * Confident to operate * Hassle to operate * Drive less * "it's tough to use"	-	-
6	16	Pre.	Act.	7	Act.	Act.	* AUDIT = 9 * No reduction in alcohol	* Positive expectations * Confident to operate * Will not drive less	* AUDIT = 10 * No reduction in alcohol * "false positives"	* Negative Appraisal * Confident to operate * Hassle to operate * Drive less * "I'm too stressed to drive my car"	* AUDIT = 13 * Reduction in alcohol * "false positives"	* Negative appraisal * Not confident to operation/Hassle * "It's been like a nightmare, the hassle of it all"
7	1	Pre.	Act.	1	Act.	Act.	* AUDIT = 2 * No reduction in alcohol	* Positive expectations * Confident to operate * Will not drive less	* AUDIT = 3 * No reduction in alcohol * "false positive"	* Positive Appraisal * Confident to use * Not a hassle * Does not drive less * "it's generally been a positive experience"	* AUDIT = 2 * No reduction in alcohol * "false positives"	* Positive appraisal * Confident to operate * Not a hassle * Does not drive less

	TIME ONE			TIME TWO			TIME THREE: INSTALLATION		TIME FOUR: ONE MONTH		TIME FIVE: FOUR MONTHS	
ID #	Audit	SCD	DRDV	Audit	SCD	DRDV	Alcohol Consumption	Interlock Operation	Alcohol Consumption	Interlock Operation	Alcohol Consumption	Interlock Operation
8	10	Act.	Act.	5	Act.	Act.	* AUDIT = 8 * No reduction in alcohol	* Positive expectations * Confident to operate * Will not drive less	* AUDIT = 6 * Reduction in alcohol * No "false positives" * "you can't have a couple in the pub anymore"	* Mixed Appraisal * Confident to operate * Unsure of hassle to operate * Drive less	* AUDIT = 8 * Reduction in alcohol * No "false positives" * "I've tried to drink less, it's not easy."	* Positive appraisal * Confident to operate * A hassle to operate * Drive less * "I can handle it but it's tough to use"
9	9	Pre.	Act.	10	Pre.	Act.	* AUDIT = 9 * No reduction in alcohol	* Positive expectations * Confident to operate * Will not drive less	* AUDIT = 10 * No reduction in alcohol * "false positives"	* Mixed Appraisal * Not confident to operate/ Hassle * Does not drive less * "it's a pain, not even my father can use it"	* AUDIT = 9 * No reduction in alcohol * No "false positives" * "my drinking remains the same"	* Mixed appraisal * Not confident to operate/ Hassle * Drives less * "I only drive when I have to"
10	11	Act.	Act.	15	Act.	Act.	* AUDIT = 15 * no reduction in alcohol * "I don't think I will need to change"	* Positive expectations * Confident to operate * Will drive less	* AUDIT = 12 * No reduction in alcohol * No "false positives" * I haven't needed to drink less"	* Positive Appraisal * Confident to operate * Not a hassle * Does not drive less * "it's been fairly good, all in all"	* AUDIT = 4 * Reduction in alcohol * No "false positives" * "I've started to cut back on my drinking"	* Positive appraisal * Confident to operate * Hassle to operate * Drives less * "driving is now just functional"

ID #	TIME ONE			TIME TWO			TIME THREE: INSTALLATION		TIME FOUR: ONE MONTH		TIME FIVE: FOUR MONTHS	
	Audit	SCD	DRDV	Audit	SCD	DRDV	Alcohol Consumption	Interlock Operation	Alcohol Consumption	Interlock Operation	Alcohol Consumption	Interlock Operation
11				3	Act.	Act.	* AUDIT = 2 * no reduction in alcohol * "I don't drink much, so it shouldn't matter"	* Positive expectations * Confident to operate * Will not drive less	* AUDIT = 5 * Reduction in alcohol * No "false positives" * "it's been fairly good"	* Positive Appraisal * Confident to operate * Not a hassle * Does not drive less	* AUDIT = 6 * Reduction in alcohol * No "false positives"	* Positive appraisal * Confident to operate * Does not drive less * "I can't complain, its been pretty good"
12				5	Act.	Act.	* AUDIT = 5 * No reduction in alcohol	* Positive expectations * Confident to operate * Will not drive less	* AUDIT = 5 * No reduction in alcohol * No "false positives"	* Positive Appraisal * Confident to operate * Not a hassle * Does not drive less	* AUDIT = 9 * Reduction in alcohol * No "false positives" * "I drink less now during the week."	* Positive appraisal * Confident t operate * Not a hassle * Does not drive less

Note. AUDIT = Alcohol Use Disorders Identification Test; SCD = Readiness to Change Drinking Questionnaire; DRDV = Readiness to Change Drink Driving Questionnaire.

Positive Interlock Experiences and Successful Outcomes

Taken together, there was considerable variability in participants' experiences of operating the interlock, and the impact the device had on both drinking levels and driving behaviours. In summary, 8 of the 12 participants reported positive interlock experiences, characterized by frequent interlock usage (participants 2, 4, 5, 7, 8, 10, 11, 12), although there were substantial differences in the level of incorrect breath samples provided, as well as the quantity of alcohol consumed and willingness to reduce drinking behaviours over the four month period. In contrast, two participants reported extremely negative appraisals of interlocks (participant 3 & 6), were not willing to reduce very heavy alcohol consumption levels, and recorded the highest number of breath violations. A further two participants reported mixed experiences as they were confident to use the interlock but were not willing to reduce heavy alcohol consumption levels and indicated that the device was a "hassle" to operate (participants 1 & 9).

Examination of the downloaded interlock recordings with participants' self-reported experiences facilitated the emergence of a number of themes associated with positive interlock experiences and attaining successful outcomes, such as avoiding starting one's vehicle after consuming alcohol. Table 8 outlines four major themes related to positive interlock experiences and successful interlock outcomes. Each theme is expanded and discussed in the following section.

Table 8: Themes Associated with Interlock Operation and Successful Outcomes

Themes	Examples
Incorrect Breath Samples	<p>“I couldn’t get the thing to work. I’d suck then blow, suck then blow and I couldn’t get it to work. It’s been terrible. As a result I had heaps of violations” (participant 3: fifth interview).</p> <p>“It took me awhile to get used to it, it was frustrating, you know....I had some problems but I’m OK now. I got used to it” (participant 11: fifth interview).</p>
Unwillingness to Reduce Alcohol Levels	<p>“I don’t drink less, why should I? It’s not my drinking that is the problem. That’s fine” (participant 3: fourth interview).</p> <p>“I don’t care, my drinking is fine. It’s the interlock that is the problem” (participant 6: third interview).</p>
False Positives	<p>“Yes, I’ve had some breaches when I wasn’t drinking. Not immediately before anyway. The night before.... but not before I got in the car” (participant 6: fifth interview).</p> <p>“It’s locked me out when I wasn’t drinking. Perhaps my cigarette set it off....but I wasn’t drinking before I got in my car” (participant 4: fourth interview).</p>
Reduction in BAC Failures	<p>“Despite the difficulties using the darn thing, I got better at avoiding drinking before I drive...I guess I had to, what’s the alternative?” (participant 7: fifth interview).</p> <p>“I just realised that I can’t drink much during the week....when I need to drive. I’ve cut back and it seems to be working. I know when I can and can’t have a beer” (participant 1: fifth interview).</p>

Operating the Interlock: Adequate Breath Samples

Similar to previous research (Morse & Elliott, 1990), participants varied considerably in their ability to provide adequate breath samples when operating the interlock. Specifically, the anti-circumvention “suck-blow” technique designed to reduce the possibility of other “non-impaired” drivers starting the vehicle for an intoxicated participant, proved difficult for 6 of the 12 participants in the first month. Not surprisingly, participants who reported interlock usage to be a “hassle” were more likely to record higher levels of incorrect breath samples. For example, participant six who recorded 193 incorrect breath samples in the first month reported: “It’s been trouble, a real hassle, I’ve had trouble getting it to work”. In addition, participants who experienced operational difficulties were more likely to report only using the interlock when they needed to drive: “I just go to and from work, I don’t drive unless it is unavoidable” (participant 1: interview three). A number of important findings are related to this theme. Firstly, despite the self-reported difficulties experienced by half the sample to provide adequate breath specimens in the first month, this did not result in fewer trips or driving hours compared to those reporting few operational difficulties (43 vs 41 hrs, respectively). The result indicates that participants’ need to drive continued to outweigh negative experiences associated with operating the device. Secondly, a considerable reduction is evident in the number of incorrect breath samples provided over the four-month

data collection period, indicating participants became more proficient with interlock usage through experience. However, it is noted that the two participants who recorded the highest number of incorrect samples had the interlock removed from their vehicles before the fourth month. In summary, the results signify that some participants may experience preliminary difficulties operating the device, which may affect initial appraisals of the device, but not necessarily the frequency of operation.

Operating the Interlock: Unwillingness to Reduce Alcohol Levels

A second factor that emerged regarding successful interlock operation - specifically being locked out of one's vehicle after providing breath violations - was being willing to reduce alcohol consumption levels. Although participants completed a drink driving rehabilitation program that promotes controlled drinking, three quarters (8) of the sample were not planning to reduce their alcohol consumption levels upon interlock installation: "I don't think I need to drink less, I'll be able to operate the interlock without too many problems" (participant 6: third interview). Furthermore, 8 of the 12 participants were consuming harmful levels of alcohol upon interlock installation (e.g., AUDIT score of ≥ 8). After one month of interlock operation only five participants reported attempting to drink less, with three of these five participants not drinking heavily. Importantly, the majority of heavy alcohol users did not reduce their alcohol consumption levels after the first month, and together recorded the highest frequency of breath violations.

The results suggest that heavy alcohol consumption levels combined with an unwillingness to change drinking behaviours increase the likelihood of breath test violations. Closer examination of the pattern of violations indicated that those who registered the highest number of breath test failures also reported the highest alcohol consumption levels (participants: 1, 3, 6). For example, participant one (who reported attempting to reduce his alcohol consumption levels) was still drinking quite heavily after four months of interlock usage (e.g., AUDIT = 12). Participant three reported an extremely negative experience of interlocks, had the device removed after one month, and recorded alcohol levels in excess of markers that indicate alcohol dependence (AUDIT = 15). Participant six also reported an extremely negative interlock experience, did not report drinking less, and by the fourth month recorded alcohol consumption levels equivalent to dependence (AUDIT = 13).

These results are similar to previous research and indicate heavy alcohol consumption levels are associated with a higher frequency of breath-test failures (Marques et al., 1999; Marques, Tippetts et al., 2000; Marques, Voas et al., 2000). While it is not surprising that participants who consumed the most alcohol also recorded the highest frequency of breath test failures, it is notable that this group's extremely negative experiences of interlock operation did not facilitate the reduction of alcohol consumption. Rather, participants reported driving less or had the interlock removed prematurely (participant 3 & 6).

Successful Interlock Outcomes: False Positives

A third theme to emerge, that relates to attaining successful interlock outcomes such as avoiding drink driving, was the discrepancy between the downloaded interlock recordings and self-reported data regarding the cause of breath test violations. Counter to expectations, the triangulation of downloaded interlock and self-reported data (e.g., quantitative and qualitative) did not support similar outcomes, as participants attributed a number of breath test violations to "false positives". For example, all 12 participants registered a breath test violation during their interlock usage, and half the sample (6) attributed violations to "reading errors" with the device. Reasons for such errors included: "smoking set it off" (participant 5: fourth interview), "I brushed my teeth in the morning and I couldn't start it" (participant 1: fourth interview) and "I had KFC and it locked me out" (participant 6: fourth interview). Of

note was the strength of participants' denial of drinking before attempting to drive, and their general resistance to engage in discussions regarding the possibility of making judgement errors.

While it is acknowledged that many products contain alcohol in small dosages (e.g., mouth wash, certain foods), it is unlikely that such substances would exceed the 0.015% BAC breath violation limit that accommodates for such minor dosages. In addition, the interlocks were serviced, checked and recalibrated every month, resulting in a reduction in the possibility of machine error. An alternative hypothesis is that participants were attempting to start their vehicle with "un-metabolised" alcohol in their bodies (Marques et al., 1999; TIRF, 2001). It was proposed that the UTL program (which incorporates a lesson on interlock usage) would provide participants with adequate knowledge regarding appropriate drinking behaviours during the interlock trial. But rather, the high alcohol consumption levels of some participants suggest that residual levels of alcohol were present during attempts to start vehicles. This finding was also evident in the Alberta interlock trial, as the highest rate of failed start-up attempts were on Saturday and Sunday mornings (Marques et al., 1999).

The results indicate that some participants: (a) are not aware of safe drinking levels before using a vehicle, and/or (b) are not willing to recognise when they have consumed an inappropriate level of alcohol and have made an error in judgement. Firstly, the possibility remains that some participants do not have appropriate knowledge regarding safe drinking levels, or are not willing or able to implement safe drinking practices. Despite the high self-efficacy scores reported during the UTL program, the elevated alcohol consumption levels of some participants suggest alcohol dependency. Secondly, an unwillingness to recognise and acknowledge attempts to drink and drive remains a concern, as it is hoped that interlocks provide users with immediate feedback regarding their intoxication levels, which serves to help participants make better decisions regarding when they should not attempt to drive (Popkin et al., 1992). Despite the negative finding, it is noted that the effectiveness of interlocks in stopping drink driving while the device is installed is clearly evident, with every registered breath-test failure signifying an event where an offender was not able to drive on a public road after they had been drinking: "at least it stops you drink driving, that's one positive" (participant 2: fifth interview).

Successful Outcomes: Reduction in BAC Failures

The fourth theme to emerge from the downloaded and self-report data is the general reduction in the frequency of breath-test violations over the four month period, as seven of the nine participants who used an interlock for four months demonstrated a reduction in the number of breath test violations. This theme also emerged as a primary advantage of interlock usage compared to traditional sanctions. From a behavioural change perspective, the results are promising as these early findings suggest that participants became more successful at avoiding drink driving over time, without having to actually drive less. The results also support recent research that has also demonstrated a general reduction in the number of breath violations over the course of the interlock study (Marques et al., 1999; Marques, Tippetts et al., 2000). The reduction in breath violations appears to be associated with a general decline in alcohol consumption levels during "peak" driving periods "I don't really drink that much during the week now, well at least when I have to drive" (participant 9: fifth interview), and "Now I only really get on the booze on the weekend, when I know I don't need to drive the car, or if a mate can pick me up" (participant 2: fifth interview). These results begin to clarify the discrepancy between week vs weekend driving highlighted above, as participants choose not to drive during these periods. By the fourth month, seven of the ten participants reported drinking less, and only two of the nine participants using interlocks in the fourth month recorded a breath test violation.

Despite this positive reduction in breath violations, it is acknowledged that such changes were small. Six participants only recorded one violation during the first month, and the two

participants with the highest number of violations (3 & 6) were excluded from the analysis as they did not have an interlock installed in the fourth month. Furthermore, it is noted that six participants were still consuming harmful levels of alcohol after the fourth month. Taken together, positive outcomes were associated with reductions in difficulties operating the interlock and registered breath violations, but concerns remain regarding willingness to reduce alcohol consumption and recognition of inappropriate drinking behaviours.

4.3 Part two: Impact of Interlocks on Reoffence Rates

The second part of the study focused on determining whether interlocks in combination with a drink driving rehabilitation program was more effective than the rehabilitation program alone in reducing drink driving recidivism. More specifically, an experimental design was utilised to investigate whether individuals who completed both the UTL program and installed an interlock recorded lower levels of recidivism compared to a group of participants who only completed the UTL program whilst disqualified from driving.

4.3.1 Method

Participants

The sample for the current study consisted of 147 participants in the comparison group (UTL1) and 29 interlock users (UTL2). There were 153 males and 22 females in the study. The average age of the participants was 37, with a range from 20 to 67. In summary, the majority of participants were male Caucasians who were mostly employed (66.3%), on a full-time basis in blue-collar occupations, earning approximately \$12,000 - \$35,000. There was considerable variation in the level of participants' education and more than half the sample reported currently being in a relationship. The socio-demographic characteristics of the sample are comparable to recent studies that have focused on drink driving repeat offenders apprehended in Queensland (Buchanan, 1995; Ferguson et al., 2000). A series of between group analyses revealed no significant differences were evident between the UTL1 and UTL2 groups on socio-demographic characteristics, number of previous drink driving convictions, BAC readings or the amount of fine incurred during the sentencing process. However as shown in Table 9, UTL1 participants received longer periods of licence disqualification (16 vs 11 months) while UTL2 participants were generally placed on longer probation orders (15 vs 24 months).

Table 9: Official Offending History

Official offending record	UTL1		UTL2	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Number of drink driving offences				
Period of licence disqualification	2.84	1.10	3.00	.81
Amount of fine				
Period of probation	16.08	7.83	10.73	5.50
Mean BAC (g/100ml)	577.42	234.11	503.63	15.82
	15.73	5.90	23.98	6.32
	.149	.05	.165	.06

Materials and Procedure

The Queensland Police Service provided de-identified offence histories of participants in the study approximately 35 months after their drink driving conviction which resulted in UT1 or UTL2 program participation. Closer examination revealed that at the time of data analysis, UTL1 participants had been re-licensed for significantly longer periods of time than UTL2 participants (28.2 vs 18.4 months).

4.3.2 Results

Overall, 37 UTL1 participants (22.5%) recorded a further drink driving offence once re-licensed while 4 (14.3%) UTL2 participants were convicted of a further drink driving offence. The frequency of drink driving offences and the corresponding BAC levels for both the UTL1 and UTL2 group are depicted in Table 10. Despite the substantial difference between the groups in regards to re-offence rates, chi-square analysis, which accounts for proportionally differences in the sample size between the groups, revealed this difference to be non-significant. A closer examination of the data highlighted that for the UTL1 group, 26 individuals recorded only one further drink driving offence, 7 recorded 2, 2 recorded 3 and 1 individual recorded 4 further offences. In contrast, 3 individuals in the UTL2 group recorded 1 offence, with 1 participant recording 2 further drink driving convictions. There was no significant difference between the two groups on the recorded BAC reading for the most recent offence, with both groups recording on average three times the legal limit (BAC .150 vs .153). There were also no significant group differences on the amount of time between being re-licensed and convicted of another drink driving offence.

Examination of participants' corresponding non-drink driving convictions revealed that for the UTL1 group, 29 (20%) individuals recorded only traffic convictions, 16 (11%) recorded both drink driving and criminal convictions, 7 (5%) recorded only criminal convictions, and 95 (64%) did not record any further offences. Criminal convictions ranged from theft, robbery, drug use and assaults. In contrast for the UTL2 group, 4 (14%) individuals recorded only traffic convictions, 3 (11%) recorded both drink driving and criminal convictions, 3 (11%) recorded only criminal convictions, and 18 (64%) did not record any further offences.

Table 10: Post Program Offending History

Official offending record	UTL1		UTL2	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Average number of drink driving offences	1.38	.72	1.25	.50
Mean BAC (g/100ml)	.150	.05	.153	.05
Average time to re-offend after re-licensed (months)	18.14	12.01	22.50	3.63

4.3.3 Discussion

The present study aimed to report on a preliminary investigation into the impact of alcohol ignition interlocks not only on post-program recidivism rates but also other key outcomes i.e., drinking. Exploration into the downloaded recordings revealed similarities with previous programs (Marques et al., 1999), as participants regularly drove their vehicle, although driving times were greatest during the day and during the week, rather than at night or on weekends. These findings reflect a tendency of participants to use their vehicle primarily for “functional” purposes such as to travel to and from work and to avoid driving during peak drinking times. Further research with larger populations that incorporate self-reported data is needed to determine the influences of vehicle usage, especially at “high-risk” drink driving times.

A closer examination of individual interlock performances revealed each participant had attempted to start their vehicle after consuming alcohol, and a smaller sample of three drivers were regularly attempting to start their vehicle after drinking. The combination and analysis of self-reported and downloaded interlock data revealed four main themes: (a) initial operational difficulties, (b) a general unwillingness to reduce alcohol consumption levels, (c)

an unwillingness to acknowledge/recognise that interlock breath violations resulted from drinking, and (d) an overall decline in the frequency of interlock breath violations over the interlock installation period.

The complementary summative study indicates that ignition interlocks have the potential to reduce drink driving recidivism. While the small sample size and relatively short follow up period precludes definitive conclusions, the preliminary results suggest interlocks may prove to be a viable sentencing alternative.

Taken together, it appears that interlocks both “incapacitate” drivers from offending, and at some level for some individuals, produce changes in drinking and driving behaviours. On the one hand interlocks were effective in stopping drink driving recidivism, specifically 53 times. Conversely, there were early indications that some participants changed drinking as well as driving behaviours, although concerns remain regarding the veracity of such self-reported claims. This latter finding is however, supported by the low current recidivism rates of those who have successfully completed the interlock trial compared to the comparison group. Finally, the results of the study highlight that repeat offenders’ entrenched behaviours, such as drinking and drink driving, are resistant to change and that multi-modal interventions are required if the drinking and driving sequence is to be broken for this population.

5 ISSUES TO BE CONSIDERED FOR THE INTRODUCTION OF ALCOHOL IGNITION INTERLOCKS IN QUEENSLAND

Participation rates

Research literature has indicated that participation rates are a major problem with interlocks. One of the major disincentives appears to be the cost. Data were collected in the earlier stages of the trial, giving the reasons why offenders did not take up the option of participating in the UTL2 program. Seventy percent of these offenders nominated cost as the reason for not participating, and although there is some debate about whether this might have been perceived as an acceptable way to avoid the program, it still must be recognised that it is a legitimate reason for not being able to go on the program. The next most common reason for not being able to participate was “not having use of motor vehicle” (18%), as offenders had to have either sole use of a motor vehicle, or share use with someone who was prepared to also use the interlock.

In terms of encouraging offenders to participate in interlock programs, a major incentive for having an interlock is the possibility of a reduced period of full licence disqualification. Under current legislation, the amount of reduction is limited by the mandatory minimum length of disqualification as it relates to the severity of the offence. See Table 11 for the legislative mandatory minimums. The need to have more flexibility in the length of licence disqualification has major implications for legislative change, and this constitutes a major issue that will need to be resolved in the long term.

A further issue associated with licence disqualification is the licence status of offenders at the time of the current offence. Legislators need to consider the implications for an offender already disqualified from driving at the time of apprehension and sentencing, and how this could affect eligibility to participate in an interlock program. If interlocks are to be considered as a sentencing option that provides offenders with the capability of continuing to drive while ensuring they cannot drink and drive, then the previously imposed period of licence disqualification might have to be translated into increased time imposed for driving with an interlock.

Table 11: Mandatory disqualification periods in Queensland

	First offence	Second offence* within 5 yrs	Third offence (plus)* within 5 yrs
<p>Lesser offence</p> <p>Any person with BAC 0.05-0.15</p> <p>BAC greater than zero up to 0.05 for:</p> <ul style="list-style-type: none"> • Person under 25 and unlicensed, or with a learner, probationary or provisional licence • Professional drivers eg truck, bus, taxi • Driver with a restricted licence 	<p>1-9 months Full/appropriate licence holders</p> <p>3-9 months If not licensed/wrong licence class for the vehicle, or holding a learner, probationary, provisional or restricted licence</p>	<p>3-18 months If prior offence was a lesser offence</p> <p>9 months or specific order for longer period If prior offence was a greater offence</p>	<p>6 months or order for longer period If prior offences were both lesser</p> <p>1 year or order for longer period If prior offences were a lesser and a greater offence</p> <p>9 months or order for longer period If prior offences were both greater offences</p>
<p>Greater offence</p> <p>Driving under the influence of alcohol</p> <p>BAC greater than 0.15 (by definition this is “driving under the influence”)</p>	<p>6 months or specific order for longer period</p>	<p>9 months or specific order for longer period If prior offence was a lesser offence</p> <p>1 year or specific order for longer period If prior offence was a greater offence</p>	<p>1 year or order for longer period If prior offences were both lesser</p> <p>1 year or order for longer period If prior offences were a lesser and a greater offence</p> <p>2 years or order for longer period If prior offences were both greater</p>

*Certain offences other than the drink driving offences listed are counted as prior offences when penalties for drink driving offences are set.

5.1 Legislative issues

The CARRS-Q trial of the ignition interlock sentencing option relied on two pieces of existing legislation, that is, the Transport Operations (Road Use Management) Act 1995 (Qld) (the TORUM Act) and the Penalties and Sentences Act 1992 (Qld). It has become apparent throughout the implementation of the trial that in the long term, it would be necessary to develop legislation specific to the use of alcohol ignition interlocks as a sentencing option. Major issues that would need to be accommodated are protection of the participant against being charged with being in charge of a vehicle while carrying out a breath test when attempting to start the vehicle, allowable BAC levels for a driver with a probationary licence who is over 25 years of age, and length of period for interlock driving.

There are also some aspects of legislation already in place that need to be considered for amendments to better accommodate the use of alcohol ignition interlocks. The first one of

these is the length of mandatory licence disqualification, which in its current format severely limits the earliest point in time following a conviction that a driver can be sentenced to drive with an interlock fitted to the vehicle. If interlock usage in the Queensland context results in significant decreases in recidivism such as occurred in overseas jurisdictions, the possibility of having drivers sentenced to drive with an interlock after only short periods of full disqualification needs to be considered. The second major consideration for amendment is in the area of restricted (“work”) licences. Under current legislation, these are available only for first time drink driving offenders with a BAC less than 0.15. Alcohol ignition interlocks could be a valuable tool to be incorporated into the use of restricted licences because the interlock a) can be programmed to allow the driver to use the vehicle only within restricted hours, and b) will not allow the driver to drive with a BAC greater than zero at any time. Interlocks could also provide a safe alternative for offenders with more serious drink driving offences, enabling them to continue to be employed.

Another important issue that needs to be considered is how to manage interlocks as a sentencing option for offenders who are unlicensed at the time of apprehension and sentencing.

5.2 Revocation of the interlock order

In overseas programs, revocation of an order can occur for a number of reasons. In the Queensland trial, offenders who were deemed to be in breach of their probation order were taken back to court, where the magistrate could decide to take them off the trial, or to continue them on the trial, possibly with an increase in the length of overall disqualification and/or time driving with an interlock. At any stage during the time on the probation order, if there was “a change in the material circumstances” of the offender (eg if the offender no longer has use of a vehicle), the order could be withdrawn and the offender re-sentenced.

5.3 Vehicle modification or vehicle accessory

Neither South Australia nor New South Wales considered the issue of whether the installation of an Interlock device in a vehicle equates to a vehicle modification. Queensland Transport has advised that it is not considered to be a vehicle modification (it is an accessory).

5.4 Safety hazard associated with a rolling test

It was recognised that there could be a safety hazard if a driver attempts to blow into the device while the car is in motion. The research committee subsequently prepared materials about the use of the interlock that could be given by Correctional Officers[or other supervisor] to offenders on the program, and this information included instruction that drivers should always pull over to the side of the road before giving the breath test. The time set in the device parameters to allow for this rolling breath test to be given was nominated at 5 minutes, so that the offender had ample time to find a safe place to stop the vehicle and give the breath test. Dräger also prepares information that all drivers receive as part of their training when the device is being installed in their vehicle, and for the Queensland trial, this information included specific instructions about pulling over and stopping the vehicle (but not turning off the engine) before blowing into the mouthpiece for the breath test.

5.5 Administrative framework

In any long term implementation of interlocks as a sentencing option, a number of administrative components have to be incorporated to account for the following:

- Special licence code
- Offender monitoring
- Data management
- Data requirements
- Enforcement
- “Exception” management

5.6 Validity of an interlock probation order across state boundaries

In the research trial, offenders were not able to move interstate while having an alcohol ignition interlock fitted to their vehicle, as there were no service facilities available to them outside the trial region. In the case of offenders wishing to move interstate, the probation order had to be revoked and the offender re-sentenced. Long term implementation of interlocks as a sentencing option would have to address this issue, and the outcome would depend on how many other states had interlocks available under similar circumstances. Similar problems arose for travelling interstate (or indeed outside the SE region of the state) during the trial, owing to the limited service availability in the event of a malfunction.

5.7 Vehicle Ignition Interlock devices approved for use in Queensland

Ignition Interlock devices acceptable for use in an offender probation order program in Queensland should be:

- Certified by the manufacturer as meeting the Australian Design Standard AS3547 – 1997;
- Devices for which the manufacturer meets product liability requirements as outlined below; and
- An approved device (Queensland Transport).

5.8 Insurance issues

There are a range of insurance issues that will need to be considered in any implementation of an interlock program. Issues that are of concern to the supplier of the devices include product liability and theft. Offender issues are concerned with insurance for their vehicles, and the problems associated with the need for offenders to disclose the DUI history and licence suspensions, as well as their participation in an interlock program. Some specific questions that need to be addressed include:

What is the driver's liability in the event of a claim that operation of the Interlock device contributed to causing an accident?

Are insurance premiums affected where the driver is identified as a convicted drink driver on an Interlock program?

It is unclear as to how insurance companies would perceive the effect of an interlock with respect to risk, and how they would react to the use of interlocks in terms of both premiums and claims.

6 CONCLUSION

We have learned in the development of this report that there are very good reasons for the belated introduction of alcohol ignition interlocks in Australia:

- The behaviour change being targeted is complex and strongly established;
- The legal and civil rights implications both for the user and other drivers need very careful examination and consideration;
- The technology and processes for monitoring use are detailed and complicated;
- Their use requires many management and control requirements that are embedded in established and accepted legislation and
- Finally, they are very costly in the context of the likely socio-economic characteristics of offender users.

Ignition interlocks are something of an early test case among the ITS technologies that will be increasingly available. The understanding and resolution of the personal, social and management issues that beset their introduction will be able to inform other models and technologies as they emerge.

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8 APPENDIX 1: LIST OF ALL PERSONS INVOLVED IN THE STUDY

Archibald, Janette	Rehabilitation Project Officer	Motor Accident Insurance Commission
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