



Preventing impaired driving: early identification and treatment of at-risk individuals in primary care environments



Final Report to the NRMA-ACT Trust June 2016

Dr Hollie Wilson
Dr Gavan Palk



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



Contents

List of tables	4
List of figures.....	5
Executive summary	6
Background	6
Method	6
Results	6
Conclusion.....	7
Acknowledgements.....	8
Abbreviations	9
Chapter 1: Literature review.....	10
Framing the issue: Alcohol and drug prevalence in Australia	10
Impaired driving: current issues and research	11
International research	11
Australian research	13
Countermeasures for impaired driving.....	18
Random Breath Testing (RBT)	18
Roadside Drug Testing	18
Effectiveness of RBT and RDTs.....	19
Legal sanctions.....	20
Screening and assessment tools for future impaired driving.....	20
Impaired driving behavioural intervention efficacy	21
Components of effective programs	21
Australian intervention programs by state.....	23
Impaired driving theories, models and therapeutic behaviour change methodologies.....	24
Health psychology models	24
Criminological theories	27
Criticisms of theories and models in the impaired driving context.....	28
Predictors of drink and drug driving	28
Preventing impaired driving before the first offence	34

Psychiatric disorders among repeat driving under the influence (DUI) offenders	36
Importance of integrated primary healthcare.....	37
Defining primary care	37
Collaborative treatment research	37
Alcohol and drug treatment centres: aims and parameters	39
Impaired driving assessment and treatment in AOD agencies	41
Potential barriers to assessment and treatment of impaired driving	42
Brief interventions for impaired driving behaviour in primary care	43
Research aim and questions	46
Structure of the report.....	46
Chapter 2: Methodology.....	47
Phase 1	47
Participants	47
Materials and Procedure	47
Data Analysis.....	47
Phase 2	48
Participants	48
Materials and procedure	48
Data Analysis.....	48
Chapter 3: Results	50
Phase 1	50
Overview	50
Summary of findings	57
Phase 2	60
Survey responses	60
Chapter 4: Discussion & Conclusions.....	76
Is impaired driving routinely and adequately assessed?	76
Are practitioners equipped to provide impaired driving interventions?	77
Translating research into practice: Developing content for a practitioner education package	78

References	82
Appendix 1: Semi-structured interview questions	93
Appendix 2: Questionnaire items	94
Appendix 3 - Summary of drink driving rehabilitation programs operating in Australia	98
Appendix 4: Preventing Impaired Driving: A toolkit for primary care practitioners screenshots	102

List of tables

Table 1. Motor vehicle traffic fatalities and accidents by BAC levels, in 2013 (per cent).	12
Table 2. Positive drug tests tested for test type and time, by the NRS during 2013-2014 (frequency).....	12
Table 3. Activities done in the past 12 months while under the influence of alcohol among recent drinkers ^a , aged 14 years or older in 2013 (per cent).....	14
Table 4. Activities done in the past 12 months while under the influence of illicit drugs among recent users ^a , aged 14 years or older, by sex, in 2013 (per cent).	15
Table 5. Drink driving and drug driving statistics by State and Territories in Australia.	16
Table 6. Biological predictors of drink driving.	29
Table 7. Psychological predictors of drink driving.	29
Table 8. Social/environmental predictors of drink driving.	31
Table 9. Psychological predictors of drug driving.	32
Table 10. Social/environmental predictors of drug driving.....	32

List of figures

Figure i. Harm reduction framework	39
Figure ii. Prevention types as applied to impaired driving.	40
Figure iii. AOD treatment episodes per 100,000 population in 2011.....	41
Figure iv. Requirements for increased confidence in addressing impaired driving among practitioners.....	73

Executive summary

Background

Impaired driving remains a top contributor to road fatalities in Australia. While numerous countermeasures have been implemented, it continues to result in significant trauma and as such, novel preventative strategies should be considered. Driving is the most prevalent risk behaviour that alcohol and other drug users engage in. The screening, assessment and treatment of impaired driving in primary care environments, even before a detection and involvement with the criminal justice system, is therefore a crucial consideration for prevention of such behaviour. However, to date it is unknown whether impaired driving is adequately or routinely screened, assessed, or treated in the context of primary care.

Method

Two studies were undertaken with primary care practitioners. The first involved in-depth qualitative telephone interviews with 10 primary care practitioners that were transcribed verbatim and analysed utilising thematic analysis methods. The findings also informed the items for the second study which utilised a larger online questionnaire. The questionnaire disseminated throughout primary care networks. The questionnaire items were both qualitative and quantitative and allowed for analysis of the two key research questions:

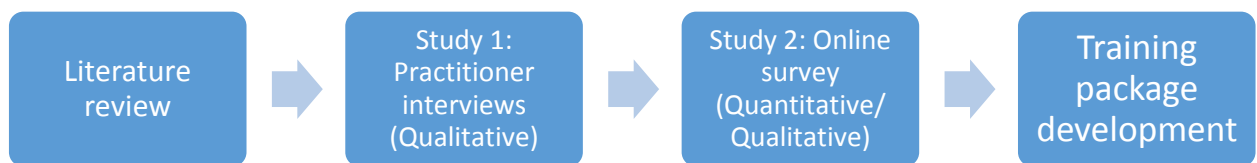
1. Where substance use intervention is core focus for an organisation, are drink and drug driving routinely and adequately assessed?
2. When drink driving is explored as an issue, are primary care workers adequately equipped to provide brief intervention to clients based on current, evidence based research?

Results

Of the 10 practitioners interviewed in Study 1 who regularly undertake substance use assessments with clients/patients, 6 reported assessing impaired driving routinely. Of the 46 practitioners taking part in the online survey in Study 2, 60% screened for substance use and impaired driving, and 30% screened for substance use only. Practitioner willingness, likelihood and confidence was higher in substance use assessment than impaired driving assessment, and practitioners felt more skilled and confident in addressing other substance use risk behaviours (binge drinking, dependency) and other risk factors (risky sexual

behaviour, suicidality) than impaired driving. Impaired driving was unlikely to be a standard part of the practitioner assessment tool, and this is an area that could be improved by inclusion of impaired driving as a potential risk behaviour. This was also a key barrier to impaired driving assessment, suggesting that inclusion of this item would encourage practitioners to screen more effectively for the behaviour.

Non-AOD practitioners are particularly important to target for training. They assessed their skill, knowledge and confidence lower than AOD practitioners in assessing and treating impaired driving. They also were more likely to report barriers to addressing the behaviour. Despite this, willingness to assess for impaired driving in practice was very high in both groups, suggesting that practitioners could improve their confidence and likelihood of addressing the behaviour if they were appropriately trained in how to do so. The final output of this study was the development of a brief online training package that has now been completed and is available at www.impaireddriving.com.au.



Conclusion

Primary care practitioners, with exposure to clients who use substances, could provide impaired driving screening, assessment, and treatment, and should be adequately equipped to do so in practice. Training practitioners to integrate impaired driving into their existing risk screening and interventions could be an important measure to add to the suite of countermeasures to prevent impaired driving.

Acknowledgements

This research project was funded by the NRMA-ACT Trust. The project was led by Dr Hollie Wilson with Dr Gavan Palk as co-investigator. The module developed as a result of this study was built on the CARRS-Q Education and Intervention Platform (content management system). We are extremely grateful for the in-kind assistance provided by Professor Paul Makeham (QUT Creative Industries) in the interview video recording and editing which was provided by Wayne Taylor. We appreciate the time of the 5 experts interviewed for the training package, Emeritus Prof Mary Sheehan, Prof Jeremy Davey, Dr Kerry Armstrong, Dr Tanya Smyth, and Dr Gavan Palk. We kindly thank the two other contributors to this project and report, Ms Hanna Watling and Ms Kim Vuong.

Abbreviations

GP	General practitioner
AOD	Alcohol and other drugs
CBT	Cognitive behavioural therapy
MI	Motivational interviewing
BAC	Blood alcohol concentration
RBT	Random breath testing
RDT	Roadside drug testing
BI	Brief interventions
NDSHS	National Drug Strategy Household Survey

Chapter 1: Literature review

Driving is the most common risky behaviour reported by risky drug and alcohol users (AIHW, 2011). Correct assessment and treatment of impaired driving may lead to less offending by at-risk individuals and thus lower rates of detection and involvement in the criminal justice system. This project explores the current methods of assessment and treatment of impaired driving in primary care, by engaging practitioners to determine how impaired driving could be adequately and routinely addressed for individuals who have been identified as risky substance users. The following literature review describes the issues relating to impaired driving assessment and treatment in primary care, with a summary of the surrounding issues and leading to the study research questions.

Framing the issue: Alcohol and drug prevalence in Australia

Recent research suggests that over 40% of Australians report smoking daily, drinking alcohol in a way that put them at risk or harm, or using an illicit drug in the previous 12 months. Of the 40%, 3.1% reported engaging in all three of these behaviours (AIHW, 2013). Additionally, 6.5% of Australians reported drinking on a daily basis, and individuals who live in remote and very remote areas are twice as likely as individuals who lived major cities, to engage in those three behaviours (AIHW, 2013).

From 2010 to 2013 in Australia, there was a decline in the use of ecstasy (3.0% to 2.5%), and heroin and gamma-hydroxybutyric acid (GHB) (0.2% to 0.1%). However there was an increase in the misuse of pharmaceuticals between 2010 (4.2%) to 2013 (4.7%). Specific groups who showed an increase in the misuse of pharmaceuticals were individuals in major cities, higher Socio-economic statuses (SES), and the employed. Individuals who were using the powder form of methamphetamine fell from 51% to 29%. This had been replaced with the form of crystal methamphetamine (ice), which increased to more than double the percentage used in 2013 (from 22% to 50%) (AIHW, 2013). Statistics show a disproportionate use of methamphetamine among remote and very remote individuals, where they were twice as likely to have tried these drugs as non-remote individuals. Further, individuals who identified as being homosexual or bisexual reported using illicit drugs in the previous 12 months more commonly than individuals who did not identify with being homosexual or bisexual.

Specific state and territory comparisons for alcohol and drug use showed a decrease of use in 3-4 jurisdictions. In New South Wales (NSW) and Queensland (QLD), there was a decline in the proportion of individuals who exceeded the lifetime risk and single occasion risk guidelines for alcohol consumption, while there was a slight increase in the use of illicit drugs. Victoria had the lowest proportion across all jurisdictions of alcohol consumers who exceeded the lifetime risk guidelines. In Western Australia (WA) alcohol consumption remained relatively stable, while the use of illicit drugs slightly reduced. However, methamphetamine use was higher in WA than in any other jurisdiction. Across South Australia (SA), Tasmania, the Australian Capital Territory (ACT) and the Northern Territory (NT), there were no significant differences in illicit and licit drug use. Individuals in the ACT were more likely to consume alcohol which exceeded the lifetime risk and single occasion risk guidelines compared to the national average.

Impaired driving: current issues and research

International research

Drink driving is a significant transport safety problem around the world, with the World Health Organisation listing road injury as the 8th leading cause of death worldwide (World Bank, 2014). The National Highway Traffic Safety Administration (NHTSA) in the United States of America (USA) published a report estimating driving under the influence in different states across America (NHTSA, 2013). The legal blood alcohol concentration (BAC) in America is .08 grams per decilitre (g/dL) or higher. Persons with a BAC of .08 grams or higher are considered to be alcohol impaired and as in other international areas are required to show cause to be charged with a DUI offence. Data collected in 2013 reported a total of 32,719 motor-vehicle fatalities. Of these, 31% involved an alcohol-impaired driver. The three highest States of alcohol-impaired-related fatalities were Texas (13%), followed by California (9%), and then Florida (7%). In relation to fatal crashes in America, there were a total of 44,574 incidents. Of these incidents, 21% involved an alcohol-impaired driver (See Table 1 for specific BAC limits of fatalities and crashes). The same three states of Texas, California and Florida had the highest alcohol-impaired-related fatal crashes (14%, 8%, and 7%, respectively).

Table 1. Motor vehicle traffic fatalities and accidents by BAC levels, in 2013 (per cent) ¹.

Type of Accident	No. of alcohol-related	BAC = .01-.07	BAC = .08+
Fatalities²	11,896	15.3	84.7
Fatal crashes³	11,307	16.3	83.7

¹ NHTSA (2013). State alcohol-impaired driving estimates

² Number of people killed in a motor vehicle

³ Number of drivers involved in a crash (includes drivers who survived the crash)

A recent National Roadside Survey (NRS) from 48 states in America collected drug use of drivers during 2013-2014 (NHTSA, 2015). A total of 11,100 drivers participated providing a mixture of oral fluid and blood tests. Some drivers provided samples for both tests. A total of 972 oral fluid tests came back positive for any illegal drug; and 560 positive blood tests for any illegal drug. Weekend positive night-time tests were more prevalent than weekday daytime tests (see Table 2).

Table 2. Positive drug tests tested for test type and time, by the NRS during 2013-2014 (frequency).

Time of test	Oral fluid test	Blood test	Oral fluid and/or blood test
Weekday daytime illegal drug	189	137	221
Weekend night-time illegal drug	783	423	852
Total	972	560	1073
Weekday daytime	197	128	234
Weekend night-time	317	216	391
Total	514	344	625

In 2009, the National Centre for Statistics and Analysis (NCSA) published a statistical fact sheet on drug involvement of fatally injured drivers (NCSA, 2010). There were a total of 21,798 fatally injured drivers, where 63% (13,801) of drivers were tested for the presence of drugs (drugs include illegal and legal drugs). Of the 63% tested, nearly a third tested positive for the presence of drugs. While these tests included both illegal and legal drugs, based on the statistics for the type of drug tested (illegal or legal) in Table 2, it suggests that driving under the influence of illegal drugs is more prevalent than legal drugs (prescription and over-the-counter). It should be noted that drug driving in America can be quite difficult to enforce and prosecute, as the law enforcement officer must observe and identify the driver's impairment. The officer must then obtain evidence of the presence of drugs (i.e., blood test) to link that drug to the impairment (Governors Highway Safety Association, 2015).

Australian research

The issue of driving under the influence of alcohol and drugs are not dissimilar in Australia. In Australia where there is a distinct drinking culture, the problem of drink driving represents a substantial public health problem. Drink and drug driving and related incidents in the community are a major problem resulting in numerous fatalities, injuries and property damage. Alcohol, for example, contributes in some way to around 30% of driver and rider fatalities, and around 9% of injuries (Australian Transport Council [ATC], 2011). Around 1 in 5 drivers and riders killed on Australian roads have a BAC over the legal limit for their licence level (ATC, 2011). Though reductions in fatalities have occurred, impaired driving crashes remain a large burden to the economy and to the population, so it is imperative that further reductions are sought.

In Australia in 2006, it was estimated that the cost of each fatal crash was \$2.6 million, with human losses calculated at \$2.4 million, and the cost of each hospitalisation crash was \$266,000, with \$214,000 of this amount being in human losses. Thus, of the 1,193 fatalities recorded in 2013, and adjusting for inflation (making the total fatal crash cost closer to 3.1 million in 2013), assuming that 1 in 5 fatalities were drink drivers (239) the estimated cost to Australian society would be around \$740.9 million in 2013 for fatalities alone (Bureau of Infrastructure, Transport and Regional Economics, 2000; 2009).

Research demonstrates that a considerable proportion of the population drink and drive and avoid detection (Watson & Freeman, 2007). A recent online survey asked 3,181 Australians with a current or suspended driver's licence, who drink or use other illicit drugs (69% metropolitan, 31% regional/rural) 'have you ever driven when you believe you may have been over the legal alcohol limit?' The survey found that 58% of the respondents reported drinking and driving at some time, with 71% of those reporting that they had driven when they may have been over the legal alcohol limit at least twice in the past 12 months (Owens & Boorman, 2011).

In offender populations, around 80% of detected first time drink driving offenders report drink driving in the 6 month period prior to conviction, with self-reports ranging from 1-130 times within that period (Wilson, Sheehan, & Palk, 2010). In the US, estimates of the number of DUI incidents that occur prior to an arrest have ranged from one arrest in 50–200 trips (Beitel, Sharp, & Glauz, 2000) to one arrest in 300–1000 trips (Voas & Lacey, 1990). Thus, many drink drivers are never apprehended or have a long history of drink driving before detection for an offence. Thus, opportunities for early interventions should be explored.

Of the major problems and risks associated with alcohol use, driving is one of the most prevalent. The most recent National Drug Strategy Household Survey (NDSHS) conducted by the AIHW (2013) surveyed 23,855 community members using a paper based survey that was delivered to households. The survey asked respondents: 'In the last 12 months, did you undertake the following activities while under the influence of or affected by alcohol?' One of the activities listed was drive a motor vehicle. Interestingly, drink driving was more prevalent in the survey than going to work or going swimming while under the influence or affected by alcohol (among other behaviours, see Table 3 for other behaviours). Drug driving was even more pronounced, with 30.4% of recent drug users reporting driving under the influence of drugs (AIHW, 2013). Based on data from the NDSHS (AIHW, 2013), the activity most commonly engaged in while under the influence of alcohol and illicit drugs, was driving a vehicle (see Table 3 and Table 4, respectively).

Table 3. Activities done in the past 12 months while under the influence of alcohol among recent drinkers^a, aged 14 years or older in 2013 (per cent).

Activity	Lifetime risk ^b		Single occasion risk ^c	
	Low risk ^d	Risky ^e	Low risk ^f	Risky ^g
Going to work	2.0	11.7	1.2	10.1
Swimming	4.0	19.1	2.3	17.7
Operating a boat or hazardous machine	0.5	4.7	0.4	3.7
Driving a vehicle	8.1	26.0	6.9	22.7
Create a disturbance, damage or stealing goods	1.6	7.9	0.6	7.8
Verbally abuse someone	1.6	11.7	0.9	9.9
Physically abuse someone	0.3	1.9	0.2	1.6

Note. ^a Consumed a full serving of alcohol in the previous 12 months.

^b More than 2 standard drinks per day.

^c More than 4 standard drinks in any single occasion .

^d On average had no more than 2 standard drinks per day.

^e On average had more than 2 standard drinks per day.

^f On average had no more than 4 standard drinks per day.

^g On average had more than 4 standard drinks per day.

Table 4. Activities done in the past 12 months while under the influence of illicit drugs among recent users^a, aged 14 years or older, by sex, in 2013 (per cent).

Activity	Males	Females
	2013	2013
Going to work	11.5	8.6
Swimming	15.2	9.0
Operating a boat or hazardous machine	5.3	1.2
Driving a vehicle	18.4	12.0
Create a disturbance, damage or stealing goods	4.4	2.8
Verbally abuse someone	4.8	3.6
Physically abuse someone	1.8	1.4

Note. ^a Used at least 1 of 17 drugs in the previous 12 months in 2013.

While this research provides insight into the prevalence of alcohol and drug use reported by individuals completing the NDSHS it should be noted that the survey asked the perceived influence of substances. It is therefore likely to be a substantial underestimate of the true prevalence as it asks the person to assess their own impairment status. This wording results in a different manner of response, as it relates to the level of perceived impairment and it may be that this is self-reported with higher drug and alcohol consumption than prescribed driving limits, due to tolerance effects or low perceived risk in general. It is therefore thought that the data as reported by Owens and Boorman (2011) provides a clearer estimate of the prevalence of the drink driving problem in Australian society.

Impaired driving by States and Territories

Table 5 below outlines available data on drink driving and drug driving, by different States and Territories in Australia (Davey, Armstrong & Martin, 2014; Department of Planning, Transport and Infrastructure, 2014; Inman, 2015; McKeown & Hippel, 2013; Northern Territory Government, 2014; NRMA-ACT Road Safety Trust, n.d.; Queensland Police, 2015; Road Safety Advisory Council, 2015; Road Safety Commission [RSC], 2013; Road Safety Victoria, 2013; RSC, 2013; Transport Accident Commission [TAC], 2012; Transport and Main Roads [TMR], 2009; Transport for NSW, 2015a; Transport for NSW, 2015b).

Table 5. Drink driving and drug driving statistics by State and Territories in Australia.

State	Fatalities or serious injuries by drink driving over BAC limit	RBT testing positive	Fatalities by alcohol and other drugs	RDT testing positive
QLD	21.1% of 331 fatalities (2009)	25,293 drink driving offenders in 2014	-	2,129 of 80,000 tested (2007-2012) methamphetamine was most commonly detected (40.8%) followed by cannabis (29.8%) and a combination

				of both (22.5%)
SA	22% of the 94 fatalities (2012) 17% of the 637 serious injuries (2012)	-	18% of 60 fatalities tested positive for drugs (2013)	-
TAS	-	3,504 of the 550,000 tested (2011-2012)	185 of the 433 fatalities attributable to drugs (2003-2013)	-
VIC	Nearly 1 in 4 killed per annum (2008-2012)	-	15% of fatalities in 2009 tested positive for illicit drugs	Since 2004, about 1 in 60 RDTs tested positive for illicit drugs
WA	Police attended 185 crashes of the 2,507 incidents (2013)	-	37 fatalities related to the use of illegal drugs in 2013	-
NSW	16% of 53 fatalities (2013)	-	174 fatalities detected illicit drugs in the system during 2010-2013	-
NT	50% of all road fatalities are alcohol-related. Up to 20% of serious injuries are alcohol-related	-	-	-
ACT	-	104 of the 9,800 tested (2013)	2 of 10 fatalities attributable to drugs (2014) 2 of 7 fatalities in 2014 involve drugs as a causal factor	116 of 2,429 tests (2013)

Countermeasures for impaired driving

Random Breath Testing (RBT)

In order to determine whether a driver is driving under the influence of alcohol/drugs, a number of screening and assessment tools exist. Random breath tests are used to determine the concentration of alcohol present in a driver. While fatalities on Australian roads attributable to alcohol still exist, many studies over the years have shown the effectiveness of RBTs in reducing traffic fatalities (Terer & Brown, 2014). Jiang, Livingston and Manton (2014), analysed the impact of RBT implantation on fatal traffic crashes in four Australian states (namely, WA, NSW, QLD and VIC). Due to the availability of such data, the remaining states and territories were not analysed. Since the introduction of the RBT in all four states, results support the effectiveness of the RBT in reducing traffic fatalities compared to the pre-introduction of RBT. The study reported the summarised net effects of RBT on traffic crashes between 1970 to 2010, and found that the percentage of traffic crash deaths reduced for NSW, VIC, QLD and WA with percentages of 26%, 20%, 13% and 13%, respectively. This was particularly prominent in the 17 to 30-year-old age group. Similarly, Ferris et al., (2013) explored RBT rates and alcohol-related traffic crash (ARTC) data over time. Based on their findings it was suggested that greater the number of RBTs conducted annually, the greater the reduction in ARTC.

Roadside Drug Testing

Roadside drug tests are used to detect a number of drugs present in the system. Mallick, Johnston, Goren & Kennedy (2007), published results for a survey of community attitudes, experience and understanding towards drugs and driving in Australia. One of the common reasons participants reported for not driving under the influence of drugs was due to the concern of being caught by police. These findings from community samples suggest the effectiveness of RDT in the general deterrence of individuals to drive under the influence of drugs. While both the RBT and RDT demonstrate their effectiveness in reducing impaired driving, RDT is currently costly to implement on a wide scale, and as a result has been used in a targeted approach, for example in Queensland this involves RDT taking place following a negative BAC result when impairment is still suspected by police (Davey,

Armstrong & O'Donnell, 2009). Thus, a more cost effective measure should be considered in addition to current preventative measures.

Effectiveness of RBT and RDTs

While the deterrence effect of the RBT and RDT's have demonstrated its effectiveness in previous studies, challenges exist with using these screening techniques which will be discussed. A method of detecting driving under the influence of drugs is a Drug Evaluation Classification Program (DEC) developed by the Los Angeles Police Department in the late 1970s (The International Drug Evaluation & Classification Program, 2015). The DEC is currently being utilised worldwide in the United States, Australia, Canada and Europe (Owusu-Bempah, 2014). The DEC program involves drug recognition experts (DRE) who are police officers, specially trained to recognise drug impairment in drivers. DRE's are trained in using socio-behavioural cues, biological and vital signs and direct questioning of the driver. If a driver is suspected of a drug impairment based on these observations, then they will be given a drug test. In a recent systematic review of the reliability and accuracy of DRE in detecting drug use in drivers, it was concluded that officers were often highly accurate in the detection of drug impairment. Despite the accuracy of detection in the studies reviewed, it should be noted that the numbers of false negatives were undetermined. False negatives were cases where officers did not suspect the driver of being under the influence of drugs, and thus, not subjected to the DEC program.

In relation to random drug tests such as onsite oral fluid tests, it was concluded that there are a lack of studies, which examine the usefulness of such tests (Owusu-Bempah, 2014). Although the effectiveness of such tests cannot be denied, due to the high detection rates of drivers driving under the influence of drugs, the reliability of these tests have been questioned in previous studies (Walsh, Flegel, Crouch, Cangianelli, & Baudys, 2003). Walsh and colleagues (2003) evaluated a number of devices were examined for its ability to accurately detect the present of drugs in the system. It was concluded that no device consistently outperformed another, and that most devices were generally able to detect amphetamine, methamphetamine, and opiates rather accurately. The same devices were not as efficient in detecting cannabis and cocaine.

It is evident from previous research that screening and assessment tools have strengths and limitations. While it is clear that such devices and strategies have resulted in a certain level of success in deterring individuals from further offending, it is evident that driving under the influence still remains a problem worldwide (World Bank, 2014). As such, other methods to prevent impaired driving have been established such as interventions for offenders.

Legal sanctions

In addition to utilising RBT's and RDTs to reduce driving under the influence, there are numerous legal sanctions for impaired driving detections, ranging from nominal fines to incarceration. Several studies have shown that legal sanctions alone do not effectively reduce re-offending rates. For instance, Weatherburn and Moffatt (2011) found no significant deterrent effect of re-offending from receiving higher fines. In another study by Wagenaar and colleagues (2007), they examined the effects of DUI fine and jail penalties on first time offenders in 32 states in America. Results suggest a possible effect of fine policies on a reduction in drink driving in some states, while minimal effects of jail policies were found in reducing drink driving rates.

Greater support has been found for the efficacy of license disqualifications in reducing DUI offences (Alcohol and Public Policy Group, 2010; Department of Transport and Main Roads, 2010). However, DeYoung (2013) suggests that an upwards of 75% of drink drivers still continue to drive without a licence. Furthermore, a number of studies have suggested that legal sanctions alone cannot effectively reduce drink driving (Freeman, Liossis, Schonfeld, Sheehan, Siskind & Watson, 2006; Nochajski & Stasiewicz, 2006; Yu, 2000), but rather legal sanctions should be used in combination with interventions and alcohol treatment programs for better results.

Screening and assessment tools for future impaired driving

A number of screening and assessment tools exist to evaluate substance abuse problems in DUI offenders in order to determine whether that individual needs further assessment and/or treatment (Chang, Lapham & Wanberg, 2001). Screening individuals can involve three methods; (1) testing, which refers to self-report assessment instruments (i.e., questionnaires) to evaluate drug and alcohol use; (2) interviewing, refers to trained

personnel who meet and talk to the offender to assess whether further treatment services is needed (i.e., interventions); and (3) monitoring, which involves tracking the offender's progress in court-mandated treatment services.

Impaired driving behavioural intervention efficacy

Components of effective programs

Rehabilitation programs for DUI offenders became increasingly common in the 1960s, with a vast array of literature studying the effectiveness of such programs on reducing the rates of DUI in offenders (Wells-Parker, Bangert-Drowns, McMillen & Williams, 1995). One of the first studies to evaluate DUI programs in a meta-analysis was conducted by Wells-Parker et al., (1995) whom demonstrated an 8-9% reduction in drink driving.

A recent systematic review of the peer-reviewed scientific literature was undertaken on the effectiveness of the current interventions offered for first-time and repeat DUI offenders (Miller, Curtis, Sonderlund, Day & Droste, 2014). Miller and colleagues (2014) concluded that a meta-analysis was not feasible for 33 of the 42 identified studies, due to insufficient data reported and the utilisation of non-experimental evaluations, a common issue in impaired driving treatment research. Thus, the effect sizes of 33 identified studies in the review could not be calculated. The types of interventions identified in the systematic review included: (1) ignition interlock, education, victim impact panels, intensive supervision programs (ISP), DUI courts, and other interventions such as electronic monitoring, fines and mandatory licence, and brief motivational interviewing. While a meta-analysis was not feasible based on the available data, it was concluded that evidence from the current literature suggests the effectiveness of multi-component programs. Support was found for the effectiveness of the ISP, which utilised a multi-component program consisting of DUI education, substance use treatment and electronic monitoring. Results from these studies found significantly lower DUI reoffending rates (Lapham, Kapitula, Baca & McMillan, 2006; Warchol, 2000; Wiliszowski, Fell, McKnight, Tippetts & Ciccel, 2010).

Additionally, education programs consisting of multiple components found lower recidivism rates (Miller, Curtis, Sonderlund, Day & Droste, 2014). For instance, Robertson, Gardner, Xu & Costello (2009) found participants who completed the educational intervention (Mississippi Alcohol Safety Education Program [MASEP]) along with Motivational

Enhancement Therapy (MET), for first-time offenders, had significantly lower reoffending rates in the 3-year follow-up, than participants who did not complete the program, as well as participants who had never started the program. The MASEP consists of four weekly face-to-face sessions that run for a total of 12 hours. The MET consists of five basic principles, the facilitator should (1) express empathy (supporting the client as they are while also encouraging change in their behaviour); (2) developing discrepancy (raise the persons awareness of the adverse personal consequences of their behaviour); (3) avoiding arguments (assist the persons awareness to see the consequences of their behaviour without resulting in confrontation); (4) rolling with resistance (encourage new ways for the person to think about problems); and (5) supporting self-efficacy (help the person to see that change is possible). A study by Dill & Wells-Parker (2006) also supports the effectiveness of using educational interventions along with the MET to reduce recidivism rates.

Other examples of the effectiveness of educational programs with multiple components were found in a study by Rider et al., (2006). This program mainly focused on a planning and action approach where an effort was made to control the drivers driving, rather than control their drinking. This includes teaching participants to strategize and plan ahead where one might avoid driving to a venue where drinking may occur. This study measured the offender's motivation to change their behaviour of driving prior to completing the program, and after completing the program. Participants attended either the traditional education program which focus on the offender controlling their drinking, or the revised program which focus on the individual controlling their drinking also, but there was an additional component of controlling their and driving also. A total of 4,311 participants completed the traditional program (control drinking), and 5,671 completed the revised program (control drinking and driving). Results revealed significant differences between the traditional and revised program, such that the participants in the revised program had a significantly greater change of orientation toward the 'control driving' factor than participants who were in the traditional program which focus on the 'drinking factor'.

Separating an offenders drinking from driving is also a focus in a drink-driving program called Under the Limit (UTL). A more recent project conducted in Australia (Sheehan, Fitts, Wilson & Schramm, 2012), aimed to determine whether the UTL drink-driving program had any effects on offenders' alcohol consumption and lifestyle three months after completing the program. The program had recently been revised and updated which largely focus on

helping offenders devise a solution to avoid drink driving, similar to the previous study of Rider and colleagues (2006). There is also a focus on reducing consumption by placing it in the context of a number of issues (i.e., lifestyle problems, lack of exercise, stress, friendship and family). Participants reported an overall reduction in alcohol consumption, as well as reporting that the program, court appearance, and licence suspension had led to a major change in their drink driving behaviour. While this project presented positive results for the effectiveness of the UTL program, it should be noted that the number of participants was low, due to the difficulty of recruiting participants.

While many interventions exist, based on a previous systematic-review of current interventions in use, it is suggested that using multiple components in an intervention would work best in aiming to reduce drink driving. One such explanation to the effectiveness of using a multi-component approach in interventions has been given by Nochajski and Stasiewicz (2006). Their study found DUI offenders to be a heterogeneous group with different characteristics and motivations. Indeed, this presents an issue in impaired driving treatment programs relating to how to target the specific mechanisms of behaviour change, as different interventions work for different people, environments, and contexts. How behaviours are conceptualised (for example, the extent to which addictions are thought to be physiological versus psychological) may determine the key ingredients needed in a successful program. A multi-component intervention allows individuals who are unresponsive to a certain component of that program, to benefit from other components of the program.

Australian intervention programs by state

Currently in Australia, every State and Territory has programs available for drink driving offenders, except Western Australia and South Australia. Refer to Appendix 3 for a complete list of available programs of each location as well as costs, program length, delivery type, offender target group, evaluations of effectiveness of each program and also the methods of referral. There are currently no drug-driving specific therapeutic programs available, though Victoria offers drug-driving education (Health.Vic, 2015).

Impaired driving theories, models and therapeutic behaviour change methodologies

Health psychology models

Over time, a number of models have been developed to predict health behaviour. Two of the main models that have been utilised as a framework for drink driving interventions are the Transtheoretical Model (TTM) and the Theory of Planned Behaviour (TPB) (Wilson, 2015, p. 67). These two theories in addition to a few relevant others will be discussed in the following section.

The TTM model posits that the initiation of health behaviour goes through 'stages of change' in order to achieve behavioural goals (Prochaska & DiClemente, 1983). The five stages are: (1) precontemplation (the presence of a problem is not recognised by the individual); (2) contemplation (a problem has been recognised and the individual is thinking about making a change); (3) preparation (the decision to make a change has been decided, along with a plan to change, however it has not yet been put into effect); (4) action (the individual is currently in the process of modifying their behaviour); and (5) motivation (the person has already made the change of behaviour and is working to prevent relapse). While the TTM has shown its effectiveness as a model for health promotion and the development of interventions for the different 'stages of change' (Prochaska & Velicer, 1997), limitations of the model need to be acknowledged. This model has received criticism in regards to the stages being arbitrary and contrived (West, 2005), and there is too much focus on conscious decision making by the individual (West, 2006). While the 'stages' in the TTM may be useful for categorising individuals, it is suggested that intention to change behaviour may be more complex than the stages outlined above (Wilson, 2015). Recent research has suggested that perhaps the construct of self-efficacy may play an essential role in both the motivation and maintenance of health behaviours (Schwarzer, 1992). It should be noted that later versions of the TTM includes several other constructs in addition to the stages of change, with one of those constructs including self-efficacy. The other additional constructs are *decisional balance* (the person's weighing of pros and cons of changing); *self-efficacy* (confidence that the individual can refrain from relapsing); *temptation* (urges to engage in the behaviour in difficult social situations); and *process of change* (which includes several processes such as consciousness raising, dramatic relief, self-re-evaluation, environmental evaluation, self-liberation, helping relationships, counterconditioning, reinforcement management, stimulus

control, and social liberation. *Consciousness raising* involves the process of learning new information which could support the behaviour change. *Dramatic relief* involves the experience of negative emotions related to unhealthy behavioural risks. *Self re-evaluation* involves the individual realising that the behaviour change is an important part of their identity as a person. *Environmental re-evaluation* involves the person realising the negative impact of the unhealthy behaviour, or the positive impact that the healthy behaviour has on the person's proximal social and/or physical environment. *Self-liberation* involves the person making a firm commitment to change. *Helping relationships* involves the individual seeking and using the social support to help behaviour change. *Counterconditioning* involves the substitution of better alternative behaviours and cognitions for the unhealthy behaviour. *Reinforcement management* involves the increase in rewards for the healthy behaviour, and decreasing the rewards for unhealthy behaviours. *Stimulus control* involves the removal of reminders/cues towards the unhealthy behaviour, and adding reminders/cues for the healthy behaviour. *Social liberation* involves the realisation that social norms support the healthy behaviour.

The TPB is a decision-making model that consists of three constructs: (1) attitude (a favourable/unfavourable evaluation of the behaviour); (2) subjective norm (relates to the whether the individual believes other people approve/disapprove of the behaviour); and (3) perceived behavioural control (PBC) which consists of two components. PBC efficacy relates to how easy the individual believes it is to enact a given behaviour. PBC control relates to how much control they have over a certain behaviour, or whether there are any barriers which prevents them from enacting the behaviour (Ajzen, 1991). While the TPB has successfully been applied to the drink-driving context to predict a person's intention to drink drive, it has been criticised for its inability to explain sufficient variability in behaviour (Sniehotta, Pressau & Araújo-Soares, 2014; Wilson, 2015).

Earlier theories such as the TTM and TPB have also focused on the deliberative process of decision-making without recognising the less deliberative processes of decision-making. One such model that explores this aspect is the prototype willingness model. The prototype model assumes the involvement of two types of decision-making. The first is the reasoned path (similar to the TPB) involved in analytic reasoning; and the second, is the social reaction path (image-based/prototype) involved in heuristic processing (Gerrard, Gibbons, Houlihan, Stock & Pomery, 2008). The basic assumption of the prototype model is that adolescent risk

behaviour is usually volitional, but not planned or intentional. Much of the risk behaviours engaged in, is a reaction to the common risk-conducive situations.

Prototypes relate to the perception/image of a certain behaviour, and it has been suggested that when individuals are considering joining a particular group (or engaging in a risk behaviour), they will then compare themselves with the prototype that is associated with that group/behaviour. The more similar the match between the self (concept) and the prototype, the greater the interest in joining the group/enacting the behaviour (Gibbons and Gerrard, 1995). Prototypes can be either favourable or unfavourable (*favourability*), and can also *change* over time. For instance, a study by Gibbons, Gerrard, Lando and McGovern (1991) in Gibbons and Gerrard (1995) demonstrated among adults trying to quit smoking that prototypes of the smokers became less favourable, and less similar to the self (concept) as they moved towards trying to quit smoking. This “change” in prototypes was more pronounced in abstainers and those who relapsed. The authors suggested that the change in prototypes is an active effort of the individual to psychologically distance themselves from the prototype of that group/behaviour. This process of *distancing*, involves the social comparison that the individual makes of the prototype. For instance, *distancing* is said to occur when the individual searches for evidence of distinction between the self (concept) and the prototype to facilitate the process of distancing. On the contrary, *assimilation* is the process in which the individual makes a social comparison searching for evidence of similarity between the self (concept) and the prototype. These changes in the prototype perception is an indication of a basic change in attitude towards the behaviour. One of the earlier studies by Gibbons and Gerrard (1995) tested the prototype model with four risk behaviours, namely, smoking, drinking, reckless driving, and ineffective contraception on 679 college students. The authors tested perceptions of the prototype of each risk behaviour along with self-reports of those same risk behaviours. In relation to reckless driving (the variable of interest in this project), students who participated in reckless driving had more favourable images of the behaviour compared to those who did not engage in reckless driving. Additionally, prototype perception significantly changed across time, such that prototype perception improved for those engaging in reckless driving, and declined for those not engaging in reckless driving. Furthermore, results revealed that the predictive power of the prototype was significantly greater for students who engaged in more social comparison tendencies than those who engaged in less social comparison

tendencies. Social comparison was positively related to an increase in reckless driving, and men reported an increase in social comparison in reckless driving compared to women. In another study by Gibbons, Lane, Gerrard, Pomery and Lautrup (2002), the authors examined adolescent perceptions of the risks of drink driving, and also their perceptions on the prevalence of drink driving. These perceptions were then used to predict drink driving behaviour. Results revealed that the more common they thought drink driving was, the less risky (personal risk and general risk) they thought the behaviour was. However, this finding was only significant among those adolescents who reported high engagement in social comparisons. Additionally, low perceived risk (particularly relevant for personal risk), was correlated with an increase in drink driving behaviour. Later versions of the prototype/willingness model incorporated two new constructs of *risk prototypes* (images of others engaging in risk behaviours) and *behavioural willingness* (the persons' openness to engage in that risky behaviour) (Gerrard et al., 2008). Taking into consideration the results found in studies utilising the prototype model (more favourable images of reckless driving in participants who engaged in reckless driving), it would be worthwhile for interventions to aim to alter the perceived prototypes towards drink drivers.

Criminological theories

Deterrence theory posits that humans are rational human beings and that choices made are based on the cost/benefit analysis of a situation (Vingilis, 1990). Deterrence countermeasures can be general (tailored to the wider community) or specific (tailored to the individual). Specifically for the behaviour of DUI, the deterrence theory has the following assumptions: (a) DUI offenders are rational human beings; (b) they are hedonistic beings; (c) they behave from their own free will; (d) they are able to control their behaviour; (e) they understand what is harmful to them in each situation; (f) fear can be used to deter them; and (g) they are aware (or knowledgeable) of laws and penalties (Vingilis, 1990). As previously mentioned, an example of the successful application of the deterrence theory has been demonstrated in the RBT program as well as legal sanctions. The assumption of the theory however, is in order to reduce offending, the offender must perceive the punishment to be certain, swift and severe (Vingilis, 1990). Being caught drink driving can

never be 'certain', and thus, relying on a deterrence method alone is not enough to prevent DUI incidents.

Criticisms of theories and models in the impaired driving context

While the effectiveness of such theories and programs have been demonstrated in reducing drink driving, limitations of these interventions/theories focus solely on the individual rather than on external environmental factors. One such study demonstrated the complex interplay of social and cultural factors in Australia, particularly for indigenous Australians (Fitts, Palk, & Lennon, 2013). This qualitative study found that in many cases, cultural factors come into play where drink driving occurs because it is inappropriate to ignore an older family members' request to drive them home. Additionally, among the younger population of participants in this study, drink driving is sometimes seen as 'being the hero' or drink driving occurs because they are returning a favour from another occasion where someone else had driven them home. Thus, different populations may require different targeted interventions and may be more complex in motivational and volitional factors. Furthermore, previous theories and programs have missed the contextual factors involved in drink driving, such as theories often being based on rational thought processes without consideration for the impact of intoxication on executive functioning of memory and goal planning. This study demonstrates the complex phenomenon of how drink driving occurs, therefore, interventions should focus on both the individual and external factors, such as culture, social norms, and peers.

Predictors of drink and drug driving

When designing interventions for preventing impaired driving, the predictors of engaging in the behaviour need to be taken into consideration. Particularly relevant for this project, if health care professionals are able to identify the predictors of drink and drug driving at an early stage, these 'at risk' individuals may benefit from early intervention strategies applied by health care professionals. A series of tables outlining the biological, psychological and social/environmental predictors of both drink and drug driving will be presented (See Tables 6 to 10). Biological predictors of drug driving were not found in the literature therefore, have not been presented.

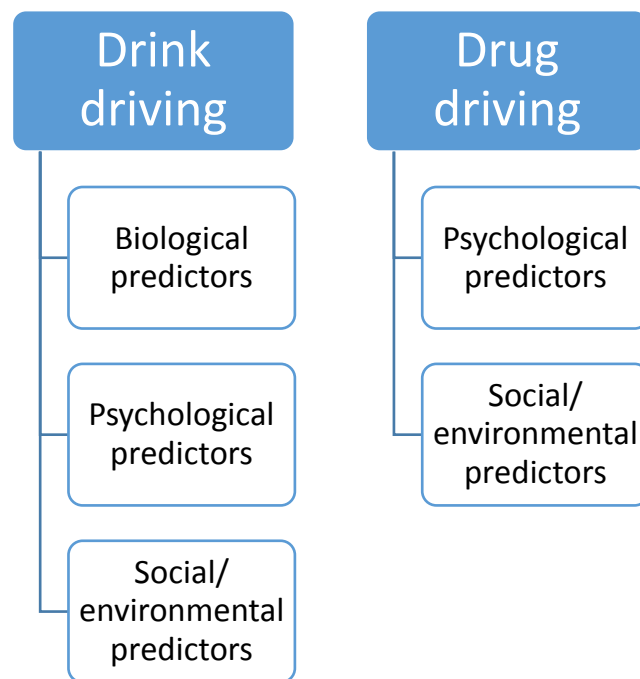


Table 6. Biological predictors of drink driving.

Title / Authors	Key aims	Method - outcomes	Key predictors	Other relevant findings
Brown, Gianoulakis, Tremblay, Nadeau, Doniger, Ng Ying Kin et al. (2005). Salivary cortisol: a predictor of convictions for driving under the influence of alcohol?	To examine the relationship between salivary cortisol and frequency of past driving under the influence of alcohol (DUI) convictions.	104 males with previous DUI (age M = 44.7)	Blunted cortisol response associated with increased number of prior convictions	Greater variability of cortisol response in first offenders – a more diverse subgroup of offenders

Table 7. Psychological predictors of drink driving.

Title / Authors	Key aims	Method - outcomes	Key predictors	Other relevant findings
Fernandes, Hatfield & Job. (2010). A systematic	To systematically examine a range of factors (i.e.,	108 participants aged 25 years and under, holding a	Gender (being male) was observed to	Sensation seeking was not associated with drink-driving

investigation of the differential predictors for speeding, drink-driving, driving while fatigued, and not wearing a seat belt, among young drivers	sensation seeking, perceived relative risk etc.) in the prediction of risky driving behaviours such as drink driving.	current licence for at least 1 year (age $M = 19.0$)	moderate the relationship between perceived risk and drink-driving. For males, lower specific perceived susceptibility (vulnerability to being caught by police, incurring demerit points, and having a crash) was significantly associated with greater intentions to drink-drive.	(limitation could be because a subscale of the Sensation Seeking Scale was employed)
Jornet-Gibert, Gallardo-Pujol, Suso, & Andres-Pueyo. (2013). Attitudes to matter: The role of attitudes and personality in DUI offenders.	To examine the differences in personality dimensions and attitudes between a group of DUI offenders and a comparison group.	A total of 98 males were assessed: 51 participants convicted of a DUI offense and 47 participants without a criminal record (age $M = 33.70$).	Offenders scored higher on the antisocial attitudes and neuroticism scale, and lower on conscientiousness than the comparison group.	Personality was not significantly different to the comparison group.
Lapham et al., (2001). Prevalence of psychiatric disorders among persons convicted of driving while impaired	To examine the prevalence of psychiatric disorders among DUI offenders	612 women, 493 men aged 23 to 54 years.	85% females and 91% males reported a life-time alcohol use disorder. 32% females and 38% males had a drug use disorder. Of the offenders	

			who had an alcohol use disorder, 50% of females and 33% of males reported at least one additional psychiatric disorder. The majority being posttraumatic stress disorder or major depression).	
Nelson, Belkin, La Plante, Bosworth & Shaffer (2015). A prospective	To examine whether offenders with certain types of disorders are more likely to reoffend than others.	743 repeat DUI offenders who had completed an intervention program (age <i>M</i> = 39.4) 82% male	Offenders who were diagnosed with lifetime ADHD were at a greater risk of reoffending post treatment than others.	

Table 8. Social/environmental predictors of drink driving.

Title / Authors	Key aims	Method - outcomes	Key predictors	Other relevant findings
Evans-Whipp, Plenty, Toumbourou, Olsson, Rowland & Hemphill (2013). Adolescent exposure to drink driving as a predictor of young adults' drink driving.	To examine the predictive relationship between early exposure of others' DUI as an adolescent and future DUI behaviours as a young adult	2,821 adolescents (age <i>M</i> = 15.0) at the first phase of the study 2,397 young adults (age <i>M</i> = 21.0) at the second phase. A total of 1,956 young adults with a license who	Exposure to others' drink driving as adolescents is associated with a greater likelihood of DUI as a young adult	Other related variables to DUI were being male, increased age, sensation-seeking and higher SES

		completed both phases		
Maldonado-Molina, Reingle, Delcher & Branchini (2011). The role of parental alcohol consumption on driving under the influence of alcohol: Results from a longitudinal, nationally representative sample	To use data from a longitudinal study to examine the influence of parental alcohol use during adolescence, on the risk of future drink driving during young adulthood.	9,559 young adults (age <i>M</i> = 15.1) 5,053 females; 4,506 males	Parental alcohol use during adolescence significantly predicted future drink driving in both females and males.	Peer influence during adolescents predicted future drink driving in both females and males when parents did not report alcohol use. However, when parents reported alcohol use, peer influence of alcohol use did not predict future drink driving.

Table 9. Psychological predictors of drug driving.

Title / Authors	Key aims	Method - outcomes	Key predictors	Other relevant findings
Australian Drug Foundation (2007). Drugs and driving in Australia: A survey community attitudes, experience and understanding	To examine Australian drivers' knowledge and attitudes in relation to drugs driving.	6,801 respondents.	Significantly more males than females drug drive Illicit drug users perceive DUI of drugs to be less risky than non-users.	Nearly 10% of all respondents reported using more than one drug while driving (polydrug use)

Table 10. Social/environmental predictors of drug driving.

Title / Authors	Key aims	Method - outcomes	Key predictors	Other relevant findings
Boorman & Owens	To evaluate the new	25,317 drivers tested	Predominantly	Polydrug use was

(2009). The Victorian legislative framework for the random testing drivers at the roadside for the presence of illicit drugs: An evaluation of the characteristics of drivers detected from 2004 to 2006	legislative framework of random drug testing and to also examine the characteristics of drug drivers	at the roadside 557 drivers (443 car drivers, 114 truck drivers) returned a positive result of an illicit drug present (age $M = 26$)	male drug drivers. Car drivers had a mean age of 24 years Truck drivers had a mean age of 38 years	found in about 24% of drivers. Three categories of drug using drivers: (1) being social, (2) occupational and (3) substance abuse
Begg, Langley & Stephenson (2002). Identifying factors that predict persistent driving after drinking, unsafe driving after drinking, and driving after using cannabis among young adults.	To identify adolescent/young adulthood factors that predict persistent cannabis use and driving.	N = 933, 474 males and 459 females. Data was collected at four intervals (ages 15, 18, 21 and 26 years).	Nearly 15% of males persisted in driving after the use of cannabis. Significant variables were cannabis dependence at age 21, at least a traffic conviction before the age of 21, a non-traffic conviction at the age of 18, and low constraint at 18 years of age.	
Dols, Gonzalez, Aleixandre, Vidal-Infer, Rodrigo & Valderrama-Zurian. (2010). Predictors of driving after alcohol and drug use among adolescents in Valencia (Spain).	To predict the factors of driving after the consumption of alcohol and use of drugs in adolescents.	11,239 student completed the self-report survey. About 20% (2,251) were drivers. Of the 20% 9% reported driving after alcohol/drugs.	Being male, having a worse family relationship and reporting substance use problems in their lifetime were more likely to drive after consuming alcohol and drugs combined.	

Preventing impaired driving before the first offence

Ideally impaired driving can be prevented, and numerous approaches have been put forward in an attempt to solve the problem on a large scale. The following section will discuss a number of approaches to prevent impaired driving.

A recent study currently in press in the United States (Xuan et al., n.d.) found a flow-on effect to drink driving in states with more restrictive alcohol policies and regulations. The authors assigned each state an 'alcohol policy score' and found that for each additional 1% increase in the alcohol policy score, an associated 1% decrease was found in the likelihood of impaired driving. It is suggested that there are two core parallel mechanisms to address drink driving, namely, drinking policies and driving policies. Drinking policies reduce the likelihood of an individual of becoming intoxicated, while driving policies reduce the likelihood of an individual to take the further step of driving after consuming alcohol. The author further posits that drunk driving is not just a driving problem, but perhaps, a drinking problem. Clearly, this 'drinking problem' in drink driving offenders relate to a specific portion of the drink driving population. Not all offenders have a drinking problem; some offenders drink drive due to poor decisions making, while some offenders have alcohol problems (Dill & Wells-Parker, 2006). This difference in the driving population further supports the notion that drink drivers are a heterogeneous group (Nochajski and Stasiewicz, 2006) who require different approaches and strategies to prevent drink driving.

Driving policies aimed to reduce impaired driving in some countries have enforced a reduction in the blood alcohol limit allowed in drivers. This driving policy was adopted in Japan in 2002, where the legal BAC limit had been reduced to 0.03 mg/ml (Desapriya, Shimizu, Pike, Subzwari & Scime, 2007). Desapriya et al., (2007) assessed the impact of lowering the legal BAC limit in alcohol-related crashes in Japan and found a significant reduction in alcohol-related crashes following the reduced BAC limit.

However, differing opinions exist regarding the reduction in BAC levels. For instance, the hospitality industry poses that stance that the reduction in BAC levels would penalise individuals who are able to drink accordingly and stay under the limit (Australian Hotels Association, 2011).

Despite these opposing views on the benefits of lowering the BAC limit, it seems as though lower BAC limits may possibly be associated with lower drink driving rates. One such study (Ahlnor, Holmgren & Jones, 2014) examined the prevalence of alcohol and other drugs

across 4 years (2008-2011) in Sweden. The study found that 21% of the fatalities had a BAC limit above the legal limit in Sweden. It should be noted however, that the limit in Sweden is 0.02mg/ml. When comparing the limit to the United States (0.08mg/ml), only 16% of the fatalities exceeded the 0.08 limit. While lowering the limit may seem to be associated with lower drink driving rates, these findings may be a result of community attitude change and other countermeasures employed at the same time as lowering the limit, so it may be difficult to tease out the effects of lowering the BAC specifically.

An example of a broader drinking policy could be increasing the legal drinking age. Unlike in Australia where the minimum legal drinking age (MLDA) is 18, the MLDA in the United States is 21. A recent study by McCartt, Hellinga and Kirley (2010) examined the trends in alcohol consumption, alcohol-related crashes, and the effects of lowering the MLDA in young people in the United States via a number of studies. They found that following the introduction of increasing the MLDAs, a decline drinking and in fatally injured drivers were seen in the ages directly affected by such laws (18-20 year olds).

School-based prevention program have also been used to prevent impaired driving in young adolescents. A study by Shope, Elliott, Raghunathan & Waller (2001) evaluated the long-term effects of a school-based alcohol misuse program on subsequent driving. Students were followed-up for an average of 7.6 years after obtaining their driving license. Results provided support for the use of school-based prevention programs to positively affect students' alcohol-related driving behaviour. However, these results were more prominent in students who do not use alcohol regularly, compared to those who do.

Other methods to prevent impaired driving could be the implementation of early intervention and treatment for individuals with alcohol or other drug abuse. Primary care is a unique environment where impaired driving may be assessed and treated before involvement with the criminal justice system, thus it is a preventative measure, which may be applied in a primary care setting. A study by Jones, Holmgren & Ahlner (2015) found that 75% of the fatalities that returned a positive reading for amphetamines had previous arrests for the use of illicit drugs and/or DUID. Assessment and treatment at the primary care level was supported by Jones and colleagues (2015). It was suggested that treating the core problem of substance abuse might be more beneficial than conventional penalties for drug driving. The core benefit that may result from early intervention by primary care

professionals is the opportunity to keep potential drink and drug drivers out of the criminal justice system in the first place.

A study by O'Donnell et al., (2014) conducted an overview of the systematic reviews and meta-analyses (papers published between 2002 and 2012) on the effectiveness of brief alcohol interventions in the primary healthcare setting. Overall, there was a consistent finding across the studies reviewed that brief interventions delivered in the primary healthcare setting were effective. That being said, it should be noted that the majority of studies reviewed focussed on male drinkers over the age of 18. The authors noted a lack of conclusive evidence for the effectiveness of brief interventions for other population groups (i.e., women, minority group, non-dependent patients, and patients with co-morbid medical or psychiatric conditions). The overview of the systematic review found a decayed effect of intervention effectiveness over time (48 months post-intervention) and evidence suggests that greater effect sizes may be possible with the use of multiple brief interventions through time. Finally, few reviews explored the effectiveness of the actual content in the interventions. Indeed, screening for impaired driving being a high risk and common behaviour could be considered for inclusion in alcohol brief interventions.

Psychiatric disorders among repeat driving under the influence (DUI) offenders

A study by Shaffer, Nelson, LaPlante, LaBrie & Albanese (2007) sampled 729 clients from an inpatient treatment program for court sentenced repeat DUI offenders in America. Nearly 100% of the sampled clients qualified for a lifetime diagnosis of alcohol-use disorder, and 40.6% qualified for a drug-use disorder, and 44.5% experienced symptoms that qualified them for a psychiatric disorder that was not related to alcohol or drugs. When categorising clients into qualifying for a disorder in the past 12 months, 73.5% qualified for an alcohol-use disorder, 10% qualified for a drug-use disorder, and nearly 30% experienced symptoms qualifying them for a psychiatric disorder not related to alcohol or drugs.

Similarly in another study by Lapham, Smith & Baca (2001), results revealed that 88% of repeat DUI offenders reported an alcohol-use disorder, and about a third qualified for a lifetime drug-use disorder. The high rates of drug and alcohol abuse/disorders warrants the need for early intervention in risky substance users by primary care personnel.

Importance of integrated primary healthcare

Defining primary care

The World Health Organisation (WHO) Alma-Ata Declaration defined primary health care (PHC) as incorporating curative treatment given by the first contact provider along with promotional, preventive and rehabilitative services provided by multi-disciplinary teams of health-care professionals working collaboratively (Australian Medical Association, 2010).

Primary health care is the first point of contact with a health professional that includes general practice, allied health services, community health, and community pharmacists. At this stage in order to identify a problem the following steps of screening, assessment and then treatment will take place.

Screening can be informal (i.e., using case files to understand an offender's substance abuse) or formal (i.e., testing or interviewing). The purpose of screening an individual is not to explain the severity or nature of a problem, but rather to raise suspicion of a problem to determine whether further assessment is needed. Assessment takes place if after screening in order to determine the extent and severity of the individual's problem. Assessment is generally more formal than the screening process and requires trained personnel.

Challenges for screening, assessment and the treatment of individuals exist which need to be acknowledged. The quality of screening instruments used on offenders can vary depending on what instruments are used; availability of treatment for offenders are not always accessible immediately when needed (sometimes put on waiting lists); and an area of concern is the general lack of aftercare treatment (Robertson, Simpson & Parsons, 2008). Finally, as previously mentioned, there is a lack of good quality research (i.e., insufficient data, poor research methods) analysing the effectiveness of current intervention programs (Miller and colleagues, 2014).

Collaborative treatment research

Research suggests that the integrated models of care may have the potential to improve the quality of treatment as well as improve access to treatment (Butler et al., 2008). For instance, rather than separating mental healthcare and medical healthcare into two systems, it is possible to integrate mental healthcare into medical healthcare settings (e.g., general physicians screening for alcohol problems). For instance Naughton, Alexandrou, Dryden, Bath & Giles (2013) found that problem drinkers took an average of about 9 years

before seeking for treatment after recognising that they have a problem. They found that problem drinkers initially seek help for psychosocial, health and situational problems rather than seeking help for their drinking problems. These findings highlight the importance of an integrated healthcare system where referral from the primary care setting (GPs, pharmacists etc.) to secondary care (AOD centres) is vital for early detection and treatment. Secondary care is provided by a specialist or facility, often referred to by personnel from a primary care setting (Nicholson, 2012).

A number of studies have will be discussed in relation to screening at the primary care level in different settings. An appropriate setting where screening takes place is in the Emergency Department (ED) setting. Yokell, Camargo, Wang and Delgado (2014) assessed the proportion of EDs in the United States which performed alcohol screening for patients with drinking-related complaints. Of the 350 EDs examined, only 27% and 22% of Level I/II trauma centre EDs routinely screened patients with drinking-related complaints.

A study in New Zealand studied customer attitudes towards pharmacists implementing screening and brief interventions (SBI) for risky drinking (Sheridan, Stewart, Smart & McCormick, 2012). A total of 2,384 customers completed the questionnaires, with nearly 84% whom reported ever drinking alcohol. Of the 84%, about 30% were considered to be risky drinkers. The study found that more than half of the participants thought it was acceptable for pharmacists to ask them about their drinking habits. Additionally, 60% of participants scoring positive on the alcohol use disorder test reported that they would be comfortable for their pharmacist to offer them advice if they believed the participant to be drinking in a harmful way. In addition to understanding customer attitudes towards primary care screening, further research would benefit from understanding primary care views on carrying out such tasks.

Another study by Fleming et al., (2002) studied the long-term effects of brief interventions administered to problem drinkers by their general physician and nurse (two physician visits and two nurse follow-up phone calls administered for all drinkers). The long-term follow up found reductions in alcohol use, health care utilisation, associated costs as well as motor vehicle events (fatalities, injuries and property damage due to drink driving). Similarly, Madras et al., (2009) studied the illicit drug and alcohol use of patients who received screening, brief interventions, referral to treatment (SBIRT) 6 months after intake.

Participants received SBIRT at the primary care setting from multiple sites (emergency

rooms, trauma centres etc.). They found significant improvements over baseline for participants' illicit drug use and heavy alcohol use.

These studies suggest that there is scope and a need for other non-traditional primary care settings to screen, assess and treat individuals with AOD problems, and finally refer individuals for further specialised treatment.

Alcohol and drug treatment centres: aims and parameters

Alcohol and drug treatment agencies generally aim to address issues related to substance use within a harm minimisation framework, as below.

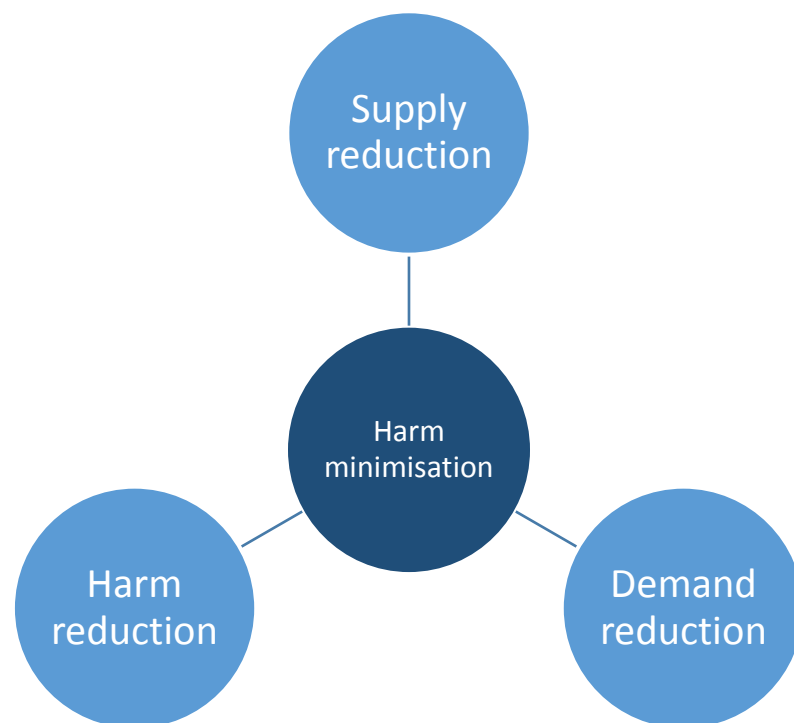


Figure i. Harm reduction framework

In the context of impaired driving, a harm reduction approach is used, generally aimed at separating drinking from driving. The overall harms related to alcohol and drug use are generally targeted by all three factors relating to the overall goal of harm minimisation.

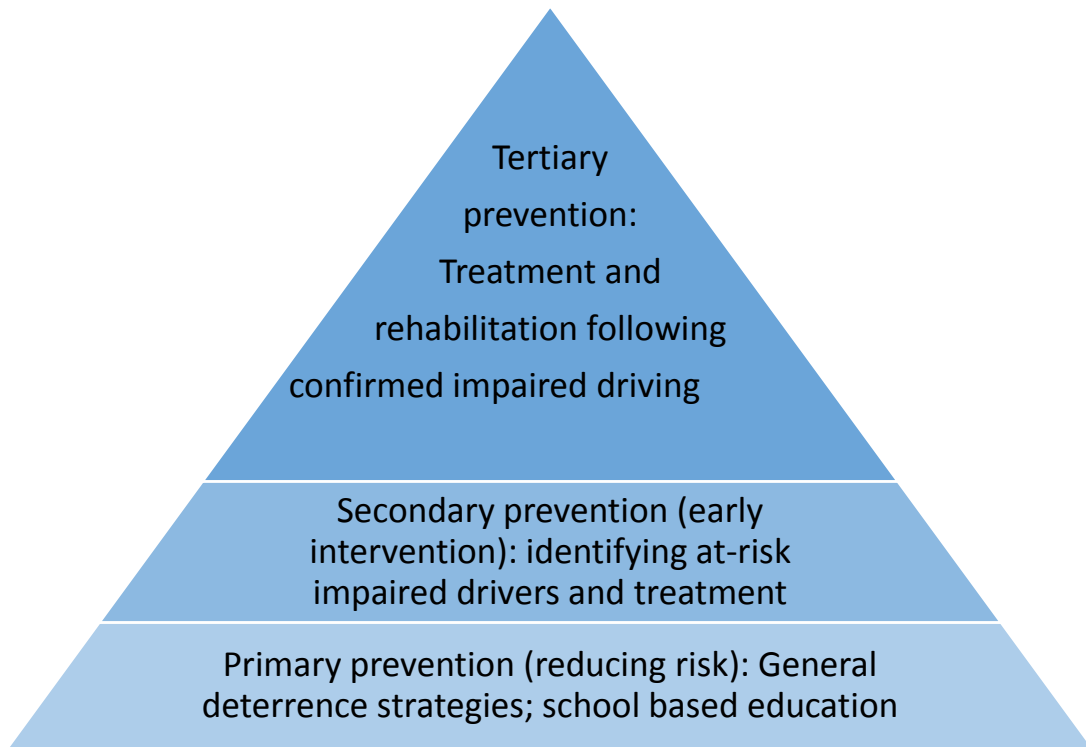


Figure ii. Prevention types as applied to impaired driving.

The first level of the harm minimisation framework uses general deterrence strategies such as school-based education, and driving under the influence mass media campaigns. As can be seen in Figure ii, prior to the existence of the harm (i.e., alcohol/drug use) the result of a primary intervention (i.e., school-based education) will protect the individual from the harm. The second level of the framework (the focus of this project) uses early intervention to identify at-risk individuals (i.e., at-risk impaired drivers) to conduct treatment. The third and final tier of prevention is tertiary, that is, treatment or rehabilitation of drink drivers to prevent ongoing damage (such as for repeat offenders).

The Australian Institute of Health and Welfare (AIHW; 2011) collects information about AOD treatment episodes. In a match of last available data in 2011 (see Figure iii), and calculating rates for AOD treatment episodes per 100,000 population, it can be seen that only the jurisdictions of the NT, VIC and ACT had the highest rates of AOD treatment episodes, with the remaining 5 states having a lower rates of AOD treatment episode and Tasmania having the lowest rate (AIHW, 2011; Australian Bureau of Statistics [ABS], 2011). Thus, targeting those in AOD treatment particularly in the regions where there is a higher percentage, represents a unique way to target individuals who may be at risk of impaired driving and other associated risk behaviours.

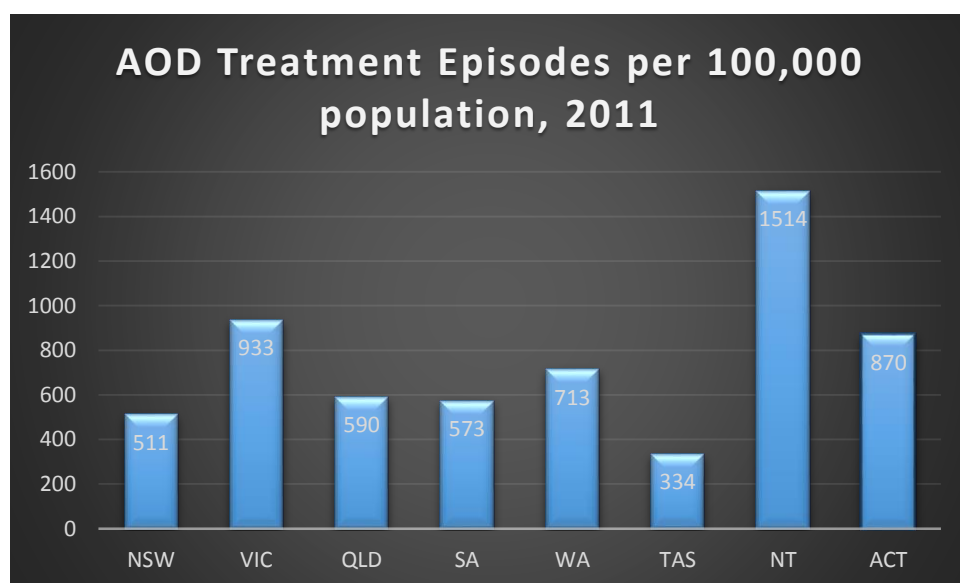


Figure iii. AOD treatment episodes per 100,000 population in 2011.

Impaired driving assessment and treatment in AOD agencies

The vast majority of standardised assessment forms for drug and alcohol agencies include items related to drink and drug driving as indicators of related behavioural problems. However, as with the other behavioural issues, it is not known whether the behaviour is always accurately addressed or noted within the context of a clinical interview. Within the context of primary care, there is a duty of care to screen for numerous risk issues when a substance use issue is identified, depending on the substance, such as injecting behaviour or binge drinking. Thus, questioning about drink and drug driving risk should be commonplace at least in areas with a strong AOD focus.

Potential barriers to assessment and treatment of impaired driving

A number of potential barriers for primary care providers to assess and treat and impaired driving will be discussed along with suggestions to how some of these barriers could be addressed. Barriers occur at the organisational level, provider and client/patient level. A potential barrier at the organisational level could be that the core/secondary aim of the organisation is to treat the problem of alcohol and drug use, without specifically focusing on the prevention of related problems such as impaired driving. Potential barriers for the provider include low training and knowledge of screening/brief intervention tools and lack of time. Barriers at the client/patient level could be the accuracy of self-report alcohol and drug use. Patients may be reluctant to fully disclose the extent of their alcohol/drug problem for not wanting to enter more intensive treatment plans. Possible solutions to address these issues could be to provide primary care personnel with adequate training to assess and implement treatment for impaired driving. To address the 'lack of time' issue, organisations/centres need to encourage impaired driving assessments as part of the routine assessment in individuals of alcohol and drug problems. In order to encourage accurate reporting of their alcohol/drug use, practitioners should create a non-threatening environment when carrying out assessments on patients.

While the link between risky alcohol use and drink driving is strong, it has also been demonstrated that many drink-driving offenders engage in other problem behaviours including substance use other than alcohol. For example, drink drivers engage in more cigarette smoking (Bingham et al., 2007; Everett et al., 1999), and cannabis use (Morrison et al., 2002) than non-offenders. It has been found that if a substance use disorder has been diagnosed in the past 12 months, this is a significant predictor of drink driving recidivism (Lapham, Skipper, & Simpson, 1997). Thus, questioning alcohol and drug users about impaired driving risks should be part of assessment processed.

Some 29% of first time drink driving offenders report to having been injured due to drinking alcohol in the year preceding their first offence, with 31% them reporting that a relative, friend, doctor or other healthcare worker has been concerned about their drinking or suggested that they cut down (Wilson, 2015). Therefore this research represents a potential opportunity to intervene with individuals who may be at risk of drink driving before they enter the criminal justice system.

The extent to which impaired driving is identified or treated within primary care environments is unknown. The first point of contact for impaired drivers is generally through the criminal justice system, and occurs when an offence takes place. There is a clear need to investigate preventative measures to reduce impaired driving risks before the point of involvement in the criminal justice system. This research project aims to explore one method of drink driving prevention, by targeting AOD users in primary care environments within a harm minimisation context.

It must be acknowledged that in some environments, such as during a routine GP visit, the assessment of alcohol use has already proved to be challenging. For example, uptake of screening and BI for substance use by GPs has been linked to numerous barriers such as limited access to resources/materials, lack of time, heavy workloads, lack of confidence, and concerns about raising sensitive issues with clients (Pennay, Lubman & Frei, 2014). Having an easily accessible resource available in brochure form may be an acceptable solution to address some of the aforementioned barriers. It is anticipated that similar concerns will be raised in the current context, as the link is one step further removed from substance use. However, this is likely to depend on the level of AOD focus within the organisation.

Brief interventions for impaired driving behaviour in primary care

Practitioners should be encouraged to offer brief interventions if impaired driving is identified. Brief interventions for alcohol use have consistently been found to be effective in treating risky alcohol use. Bien, Miller & Tonigan (1993) explored the dozen randomised control trials and 32 controlled studies that demonstrated the effectiveness of alcohol BI, particularly in primary healthcare settings. With impaired driving being a key risk behaviour identified by the population, and this effectiveness of BI well demonstrated, it is time to look into the possibility of adding education, advice or referral regarding impaired driving behaviour into the suite of existing techniques to reduce drug and alcohol risk taking behaviour such as impaired driving.

Brief interventions can be a short-term intervention of 4-6 sessions, but can also be defined as a single, precise question (Walton, 2014). For clients presenting with existing drug and alcohol issues, a carefully worded question or statement relating to impaired driving may be

a key way to engage the client in discussions of treatment for this risk behaviour, or lead to discussions of other risks. Brief interventions for impaired driving should be developed and assessed, to be used for clients who engage in impaired driving. Practitioners should be trained so that they are comfortable in addressing this issue with clients, similarly to how they are trained to assess for suicidality, or to address culturally specific issues. Assessing for impaired driving during routine assessment for alcohol and drug use represents a unique opportunity for early intervention.

An earlier study by Fleming (1999) aimed to describe the essential components of a brief intervention and also provide evidence for the effectiveness of brief interventions used in primary care settings. Brief interventions consists of five essential steps of (1) *assessment and direct feedback* (involves the health care provider assessing the person's alcohol use and alcohol-related problems, then the health care provider would express their concerns regarding the drinking pattern); (2) *negotiation and goal setting* (involves both the primary care provider as well as the patient to mutually agree on an acceptable goal to reduce their drinking patterns); (3) *behavioural modification techniques* (involves the health care provider identifying for the patient certain settings in which alcohol use would be high-risk, and a number of coping techniques would be identified for the patient to use in such situations); (4) *self-help-directed bibliotherapy* (involves the health care provider providing the patient with information related to alcohol use and the problems associated with it); and (5) *follow-up and reinforcement* (involves the health care provider engaging in telephone consultations as well as follow-up visits to ensure the BIs long-term effectiveness. Fleming (1999) reviewed six studies utilising brief intervention and found similar findings for BIs successfully reducing alcohol consumption in both men and women. Further, these studies showed similar success rates in BIs being administered by physicians and nurses, suggesting that brief interventions can be administered by a number of primary care professionals.

For example, Schermer, Moyers, Miller and Bloomfield (2006) demonstrated the successful implementation of BIs by social workers and trauma surgeons in a trauma centre on patients who had been injured in a motor vehicle collision with a BAC level over 0.08mg/ml or who had a score above 8 in the Alcohol Use Disorders Identification Test (AUDIT). Participants were randomly assigned to either the BI or standard care (SC) group. Results found that patients assigned to the BI group were less likely to be arrested for drink driving

(11%) within three years of being discharged from the hospital, compared to the SC group (22%).

Similarly, a recent study by Davis, Beaton, Worley, Parsons and Gunter (2012) used available data from a previous study (the Cutting Back study) which collected data from 1998 to 2002 on patients who had been in the intervention group (Screening and Brief Intervention [SBI]) and those in the control group (receiving usual care). Findings also supported the effectiveness of interventions being administered by a physician, mid-level provider or a nurse specialist. Additionally, this study found that patients in the intervention group had significantly less driving while intoxicated citations for at-risk drinkers, as well as demonstrating the lasting effects of the intervention 5 years post-intervention.

While it is evident from the above studies that BIs are effective, as with all interventions, there exists a number of BI strategies (differing content and structures to deliver the BI). It would be important to identify which BI strategy would be most effective in achieving the most desirable results. A study by Field, Walters, Marti, Jun, Foreman and Brown (2014) aimed to compare the effectiveness of a number of BI strategies such as brief advice, brief motivational intervention, and brief motivational intervention in addition with a telephone booster providing personalised feedback to at-risk drinkers who were admitted to Level 1 trauma centres. Compared to brief advice and brief motivational interviewing alone, results revealed that the combination of the brief motivational intervention with the telephone booster significantly reduced the number of standard drinks consumed per week at 3 months and 6 months post-intervention, it also significantly reduced the percentage number of days of heavy drinking at 6 months, reduced the maximum number of standard drinks consumed in a day at 3 and 12 months, and also reduced the number of standard drinks per drinking day at 3 and 6 months. Again, these findings provide support for interventions being administered by a number of personnel (i.e., social workers, graduate students in clinical, counselling, or psychology programs) provided that they receive the appropriate training.

Overall, it is anticipated that acceptability and feasibility to assess and treat for impaired driving will be more challenging for those organisations for whom AOD intervention is not considered to be core business. Nonetheless, this study aims to identify and potentially address the most challenging barriers in these environments.

Research aim and questions

The aim of this study is to identify the main barriers in impaired driving assessment and treatment within a primary care context.

This research project has two core research questions.

3. Where substance use intervention is core focus for an organisation, are drink and drug driving routinely and adequately assessed?
4. When drink driving is explored as an issue, are primary care workers adequately equipped to provide brief intervention to clients based on current, evidence based research?

To that end, qualitative and quantitative research methods have been utilised over two phases to explore the research questions. The sample is inclusive of AOD and non-AOD primary care practitioners, however AOD practitioners will be targeted for the large scale questionnaire. The findings of this study will inform the development of an online training module for practitioners to train them how to assess and treat impaired driving in primary care contexts.

Structure of the report

Chapter 2 details the methodology relating to the two phases of data collection. Chapter 3 reports on the results of the study over both phases. Chapter 4 presents a discussion and conclusion relating to the key study findings, and explores the content of a practitioner training module to be developed.

Chapter 2: Methodology

Phase 1

Participants

Participants were recruited using convenience sampling and snow-ball techniques. In total, 10 healthcare practitioners from different parts of Australia who engage with clients with AOD problems were interviewed. Participants comprised of seven registered psychologists, one psychiatrist, one nurse, and one medical doctor. The professional focus of the interviewed psychologists and the psychiatrists was clinical, forensic, and general adult psychology. The interviewed nurse specialised in AOD and the medical doctor in intensive care (including pre and post-surgery consultations). All participants routinely assessed and treated clients with substance use problems. The length of participants' practice ranged from 10 to 38 years, with an average length of 18 years. A detailed overview of participant characteristics is given in.

Materials and Procedure

Semi-structured telephone interviews were conducted based on an interview form (see Appendix). Broadly the questions addressed the length and focus of practitioners' professional practices as well as their experiences and opinions on the assessment and treatment of impaired driving within their organisation. Barriers and facilitators to the inclusion of impairment assessment and treatment were also explored. All interviews were recorded and transcribed verbatim. Participants were made aware that no identifying information would be linked to their responses to ensure confidentiality. Honest and complete answers were encouraged.

Data Analysis

A qualitative descriptive methodology was utilised. Inductive thematic analysis was performed to analyse the transcripts, with codes and theme development being directed by the content of the data itself. Inter-rater reliability was assessed by having two researchers examine the transcripts to determine the core themes. As per the guidelines set out in Braun & Clarke (2006), this involved a number of steps, including familiarisation with the data by reading and re-reading transcripts, coding with succinct labels to identify important

features of the data in relation to the research question, reviewing themes against the dataset for refinement, defining and naming core themes, and contextualising the analysis in relation to the literature on the topic. With these themes identified and the literature review completed, items were developed into the larger scale questionnaire for the next Phase.

Phase 2

Participants

Participants were 46 primary care providers working in Australia at the time of questionnaire completion. Participants were recruited through the Australian Psychological Society, LinkedIn groups, Facebook and, Twitter. They were also recruited through known networks of primary care providers by the investigative team, which enabled snowballing. The extensive dissemination of the survey resulted in the link being accessed 152, 442 times, which is indicative of the public interest in the research project.

Materials and procedure

An online questionnaire was developed using QUT KeySurvey software. The questionnaire contained key items to address the research questions including those derived from the qualitative interview results in Phase 1. The questionnaire is included in Appendix 2. The questionnaire was piloted among six university employed researchers. The pilot participants were asked to use their previous knowledge in questionnaire development to evaluate the current measure in terms of structure, comprehension, and relevance.

Data Analysis

The quantitative survey data was analysed using SPSS version 22. This involved firstly examining and reporting the frequencies and percentages within the data, and defining categories where required for analysis. Where Likert scales were used, the range was from 1-7. The selection of specific tests for analyses was based on the distributions of the data. Where the data violated the assumptions of the desired parametric test, the non-parametric alternative was used. When using Likert scales in the data, they were assumed to be of an interval nature unless otherwise specified.

The qualitative open ended survey responses were analysed using content analysis methods. Content analysis shares similarities with thematic analysis in the sense that

common patterns, or themes, are identified across the data set. However, rather than focusing on latent meaning, content analysis can be used with a focus on describing the obvious aspects of a phenomenon under investigation (i.e., manifest content; Kondracki, Wellman, & Amundson, 2002). Further, content analysis lends itself to generation of descriptive quantitative data through frequency counts. Qualitative data from open ended questionnaire items are typically limited in breadth and often lack the detail needed to make inferences regarding latent content. Moreover, the generation of frequency counts allows for a better understanding of the prevalence of different constructs, such as barriers to impaired driving assessment and treatment, among participants. As such, content analysis was deemed appropriate for the current study.

Taking an inductive approach to the data, analysis was conducted by identifying content areas (conceptualised as passages of text relating to a distinct topic) and meaning units (conceptualised as passages of text describing a single idea) within those content areas. Meaning units were then coded, descriptions for these codes were generated, and finally the data was abstracted by organising codes into higher level categories (see Graneheim & Lundman, 2004 for an overview). The initial organisation of data produced using this framework, was examined by a second research to increase trustworthiness. Differences between the two researchers' interpretation in terms of coding and categorisation was identified and consolidated. Once the organisation of the data was complete, the level of similarity among codes was examined to determine if meaningful frequency counts could be developed from the data.

Chapter 3: Results

Phase 1

Overview

Overall, the results showed that impaired driving was a fairly regular component of participants' clinical practice, with six of 10 practitioners stating that they routinely assessed for the presence of this behaviour among clients. For these practitioners, impaired driving assessment was typically integrated into broader substance use assessment practices and when impaired driving was addressed, it was done by drawing on established counselling principles. However, the analysis also revealed several barriers to assessment and treatment which related to the characteristics of both practitioners and clients, as well as the therapeutic process itself. An overview of these findings, illustrated by representative quotations is presented below. Generally, the uncovered themes did not differ markedly between the different professional groups, and as such, data from all participants is presented together.

Integrated assessment

General substance use assessment was a common part of most participants' practice, allowing them to gather the information that is required to determine clients' counselling and/or treatment needs. During assessment, specific consideration was given to the impact of clients' substance use on their social, legal, and vocational functioning. Within this context, impaired driving was often conceptualised a risky behaviour that provided information regarding the seriousness of clients' substance use issues.

"But it's only one of the considerations in terms of, so I'll be, you know, looking at what's going on in terms of their alcohol in relation to whether they report that they are driving, but I'd also be looking at their alcohol and or drug use in regards to, you know, when they're in care of children, when, you know, they're doing responsible things at work and things like that. So it's part of the assessment. . ." (Participant 2, Psychologist)

Impaired driving was understood as having potential legal ramification, as having detrimental impact on relationships, and as a behaviour that could result in loss of livelihood in instances where a valid driver's licence is required for work.

"I mean somebody who's impaired enough that they're possibly lost their licence or is about to lose their licence, are they also going to lose their job, are they also under stress with their relationships with their family and significant others. So it's all going to have an overall effect on the individual's health and well-being. . ." (Participant 3, Nurse)

Thus, assessing for the presence of impaired driving formed part of a complete "360 degree review" (Participant 4, Psychologist), which allowed the practitioners to formulate a well-informed and holistic approach to treatment. It was, however, of interest to note that impaired driving was typically not the presenting issue among clients and practitioners did not perceive it to be a central issue for clients or as an appropriate focus for treatment.

"It's usually not the key one, it's not, they're never been sent to me for traffic matters. If they're there for traffic then methamphetamines or whatever or assault or grievous harm ... or breaches of domestic violence orders. They're not there for their drink driving." (Participant 5, Psychologist)

Among those participants that did not typically assess for (or treat) impaired driving, reasons included a focus on forensic psychological assessment for court proceedings rather than ongoing counselling with individuals or not believing that impaired driving was a prevalent problem among clients. Moreover, one participant stated that he did not assess for impaired driving, as clients often faced more pressing issues:

"Well essentially it is not, because they have such bigger issues that they're facing. So they're facing incarceration, they're facing problems with the Parole Board, to try and get out, they're facing issues about whether they should go into residential rehab treatment, whether they can get into a residential rehab treatment, whether they can abide by the conditions of a community based order, whether they want to do urine

analysis, whether don't want to do urine analysis. So realistically, impaired driving doesn't really get a mention, or doesn't get a mention, unless the impaired driving the index offence, it's not something that I would address." (Participant 6, Psychologist)

By focusing on impaired driving rather than more pressing issues (which could include suicidally), clients may not feel heard, which in turn could damage the therapeutic relationship and have serious consequences for the recovery process. Last, one participant spoke of not having included impaired driving assessment as part of her practice; however, during the course of the interview, she started to question that exclusion.

"I think it's actually quite important because, for me, when I started to talk to you about it, I guess I identified it as another a risk taking behaviour that often goes in line with substance use. So, you know, we ask about things like, have you been, you know have you had any contact with the law, we ask about, you know, the impact on, you know, occupation; have you missed, you know, days at work and things like that. So for me, impaired driving in think would be another indicator of a risk factor and poor judgement as a result of substance use. So, you know, I actually think it is something that defiantly, you know, should be incorporated and should probably have it more at the forefront of our mind than we do." (Participant 1, Psychologist)

Perceived utility thus appeared to key to the inclusion of impaired driving assessment into practice, while misalignment between assessment and practice goals, perceptions of impaired driving as uncommon among clients, as well as the presence of competing, more serious substance abuse issues appeared to be barriers to the inclusion of impaired driving assessment.

Approach to assessment

As impaired driving assessment (when it occurred) was integrated into current risk assessment practices, the manner in which it was conducted varied according to participants' preferred therapeutic approach. Some practitioners employed structured assessment methods, where questions about impaired driving were part of a set of standard

questions that were always asked during assessment. In these structured approaches, questions directly addressing impaired driving were posed, for example:

“Yeah if they drink, if I find they drink or use drugs, well then I ask them how frequently they drive. If they operate a motor vehicle, if they, when was the last time? It is a full life-scope interview, the structured interview.” (Participant 4, Psychologist)

Those practitioners who used a more informal approach to substance use assessment often avoided direct questions, instead piecing together information or paying attention to and following up on information that could indicate the presence of impaired driving. One such example:

“Usually, you just work it out. So you’ll be talking to someone about what they do, how they’re getting around and how much they drink and you put two and two together and you go; hang on a sec, how, it sounds like you might be intoxicated (laughs) when you were doing that trip that you just told me about there, you know. And; ah yeah, truth be told that is happening, you know.” (Participant 7, Psychologist)

In these instances, impaired driving was uncovered through a general conversation about clients’ substance use. This finding that impaired driving assessment followed participants’ general therapeutic approach further highlighted the integrated nature of this impaired driving assessment into current clinical practice.

Approach to treatment

Those practitioners who addressed impaired driving typically used established counselling principles to treat this behaviour. For instance, some practitioners focused on the identification of risk factors and triggers for impaired driving. Using a harm minimisation approach, strategies were then designed to remove or minimise these risk.

“I would treat, you know, alcohol and other drug, I would treat them, you know, in a very similar way. . . you know, again, there’s things about, well, what safety

behaviours could you put in place? I.e., have you got a friend that would take you keys off you?” (Participant 1, Psychologist)

“The first one is to, you know, is to take a harm minimisation approach with the client to negotiate with them different kind of behaviour around when you’re going to drink, contingency planning, getting there, getting their agreement on that.”
(Participant 2, Psychologist)

One participant (6, psychologist) also described how he on occasion would talk to his clients about strategies to separate drinking from driving, which reflects the most current best practice in drink driving rehabilitation. The need for a collaborative approach was highlighted (as evidenced by the above quotation), whereby practitioners worked together with their clients to identify appropriate and effective risk minimisation strategies. Negotiation and agreement with clients was of key importance to such collaboration. Some practitioners also reported that they assessed the willingness and ability of clients to change, and worked to elucidate the underlying decisional balance associated with impaired driving behaviour. An example of the latter:

“I guess it would be things like: ‘well, what would it be like for you if you were to lose your licence, what impact would that have on you?’ So that, you know, we start to look at the potential consequences. . . But it also a little bit about thinking about, just the same as you would if somebody said: ‘you know, I’ve missed a few days’ work.’ ‘OK, well if that was to continue happening, what would happen if you were to lose your job?’ So you address it in much the same way: what would the consequences be for you, you know, what would be the good things and not so good things about, you know, having a drinking and getting in your car? You know, and then going through those with them. So I think it’s very easy to incorporate into a treatment plan.
(Participant 1, Psychologist)

Some participants spoke of the importance of educating clients by providing information regarding the impairing effects of different substances and legal requirements in relation to driving (psycho-education). In terms of drink driving specifically, several

participants also referred their clients to independent drink driving intervention or rehabilitation programs, indicating a relatively high awareness and use of such programs. However, referrals were not seen as an appropriate option by all participants:

“I guess with me there would also be a GP (involved), so to involve a third service, I think could be complicating it for the person and unless they saw it as a need or a particular concern, they’d probably wouldn’t be the at engaged or positive around going to another service to deal with that specifically.” (Participant 7, Psychologist)

Thus, while some practitioners felt that clients would benefit from the additional support and perspectives supplied by external programs, others felt that such intervention would overwhelm clients.

Barriers to assessment and treatment of impaired driving

The participants, including those that did not currently assess or treat impaired driving, were asked to describe any barriers they faced or could imagine facing in relation to impaired driving treatment. One identified barrier to assessment was the possibility of having to report current and ongoing impaired driving to relevant authorities (e.g., police), resulting in a breach of confidentiality. Practitioners were concerned that this potential outcome would negatively impact on their therapeutic relationship with clients and also believed that it could reduce clients’ willingness to truthfully discuss their driving habits. Time constraints were further identified as a barrier by two psychologists, one who felt that their standard substance use assessment was already lengthy and complex and one who felt that considerable time would have to be dedicated to convince clients to change a harmful behaviour such as impaired driving. Similarly, an inability or unwillingness among clients to recognise their own impaired driving as problematic was identified as barriers, as was non-compliance:

“I don’t know whether I can say this but for some people, it’s not really going to stop them doing it. You know, if you’re thinking of impaired driving, but above that there’s this umbrella surrounding intravenous addiction, I mean you are simply not going to stop them doing it. I mean when they are physically craving an opioid-based

substance, the last thing they are going to be thinking about is whether they should drive impaired or not.” (Participant 6, Psychologist)

A lack of knowledge among practitioners, specifically in relation to drug driving, was also identified as a barrier to assessment and treatment. Last, in addition to being a problem for assessment, the fact that many clients faced issues perceived to be more serious than impaired driving was seen as a barrier to impaired driving treatment.

“I would say that they would see [impaired driving] as a secondary issue compared to other issues, and therefore maybe less willing to actively address it before addressing other issues for themselves.” (Participant 8, Psychologist)

Among the interviewed practitioners, embarrassment on behalf of themselves or their client was, however, not perceived to be a problem. Moreover, the practitioners did not believe that stigma around impaired driving was common among clients or influenced their willingness to address impaired driving. Two examples:

“I’ve never had a barrier; I don’t even have a barrier for asking people about their sex life [laughs].” (Participant 4, Psychologist)

“Um... I guess some do but by and large, when people have already decided to see a psychiatrist, they’re usually pretty open to discussing what issues are going on in their lives. They know we respect their right to confidence, confidentiality. So usually when people come, they are reasonably open about what they have.” (Participant 9, Psychiatrist)

However, participants recognised that the relative ease with which they approached impaired driving and other sensitive topics was due to their professional training or experience in dealing with such issues. Practitioners were able to draw on several therapeutic principles, such as adopting an accepting and non-judgemental stance and normalising clients’ experiences to mitigate clients’ potential embarrassment and unwillingness to discuss impaired driving. However, some participants conceded that

embarrassment could be an issue for practitioners without similar experience and knowledge.

“I don’t think you’d see that much with the drug and alcohol specialists, I think, you know, we got past that a long time ago (laughs), we’re pretty comfortable with asking those kinds of questions so, I wouldn’t [inaudible] with that, but in that sort of private practice setting, maybe even in some other services, it might sort of get overlooked more as something that we don’t want to go near that because it might sort of, yeah, be upsetting.” (Participant 7, Psychologist)

Taken together, barriers to impaired driving assessment and treatment were identified both in relation to practitioner characteristics (lack of time and knowledge, perceptions of impaired driving as uncommon), client characteristics (non-compliance or denial of problems, the presence of competing issues) as well as in relation to the therapeutic process itself (misalignment with goals of therapy, breach of confidentiality).

Summary of findings

Phase 1 of this research was conducted to form an initial understanding of the prevalence of impaired driving assessment among organisations where the core focus is substance use treatment. Moreover, this first phase sought to understand if practitioners within these organisations are equipped with the necessary information and skills to implement evidence based brief interventions around impaired driving. Results from the interviews showed that impaired driving assessment was fairly common, being routinely implemented by six of the 10 interviewed practitioners. Typically, impaired driving assessment was integrated into general substance abuse assessment practices and the format (structured or unstructured) that was used to assess substance use more broadly was drawn on to assess impaired driving specifically. Although practitioners did not view impaired driving as a key focus for treatment, it was nonetheless understood as an important measure of the impact that clients’ substance misuse has on their social, legal, and vocational functioning. This was an important finding as it highlights that impaired driving assessment may hold a meaningful place in substance use assessment. Framing impaired driving assessment as a first step to

protect welfare and safety of clients, *as well as* a useful clinical tool for practitioners, may increase uptake of this practice.

In terms of impaired driving treatment, the results indicated that practitioners have several therapeutic tools to address impaired driving at their disposal. Specifically, the interviewed practitioners reported that they employed (or would employ) the same counselling principles that they used to treat general risky behaviour to treat impaired driving. For instance, practitioners spoke of assessing clients' ability and willingness change, examining the decisional balance behind impaired driving, and engaging in harm minimisation and psycho-education. Moreover, some practitioners worked with clients to separate drinking from driving and referred clients to external drink driving programs. As such, by drawing on their existing skill set and by making use of external resources, participants were well equipped to deal with impaired driving in their practice. The finding that existing counselling principles were applied to impaired driving is also of important to note as it further highlights the potential ease with which treatment of this behaviour could be integrated into current AOD practices.

However, results also uncovered several barriers to assessment and treatment which needs to be addressed to increase uptake and effectiveness of impaired driving intervention among AOD practitioners. Issues relating to assessment included misalignment between inclusion of assessment and therapeutic goals, a perception that impaired driving was not a common problem among clients, and a concern among practitioners that they would have to report impaired driving to the police, while non-compliance among clients was identified as a barrier to treatment. Time constraints, lack of knowledge among practitioners (particularly in relation to drug driving), and the presence of other serious and competing issues among clients were seen as barriers to both assessment and treatment.

Taken together, these findings indicate that current therapeutic skills and practices employed in AOD settings may be amenable to impaired driving assessment and treatment. Moreover, by using on existing therapeutic infrastructures, impaired driving assessment and treatment within AOD agencies has the potential to be a both cost effective and far-reaching approach to impaired driving reduction. However, while some of the foundations for successful interventions appear to be in place, the results also indicated that further encouragement and support for AOD practitioners in addressing barriers to impaired driving assessment and treatment is needed.

Implications for Phase 2

The interview methods employed for Phase 1 enabled an exploration of current impaired driving assessment and treatment practices among AOD agencies. This exploration allowed for the identification of areas and issues that warrant attention and which should be considered in the development of interventions. However, due to their exploratory and in-depth focus, qualitative methods such as interviews are inherently limited in breath. As such, a survey method was used for Phase 2, where quantitative data as well as data from open ended questions were collected from a broader sample of practitioners. Drawing on the findings from the interviews, current impaired driving assessment practices were further explored by including questions regarding how practitioners' approached assessment and by measuring the likelihood that they would implement this practice as well as their willingness and confidence to do so. Moreover, those interviewed had revealed that impaired driving assessment was integrated within broader substance use assessment. As such, the likelihood, willingness, and confidence in relation to substance use assessment in general were also measured to allow for formal assessment of link between these two areas of assessment. The approach to impaired driving treatment was similarly measured through both closed and open-ended questions. Practitioners' perceived skill, knowledge, and confidence in relation to impaired driving treatment was also assessed, as were the prevalence of referral to independent impaired driving education and/or rehabilitation program. Last, practitioners were asked to indicate how relevant the barriers identified in the interviews were to their own practice and were given the option to identify other, non-listed barriers. The identified issues around having to report clients' impaired driving to police or relevant authorities was explored separately by asking participants to answer questions regarding their duty of care in relation to risky behaviours in general as well as in terms of impaired driving specifically. Participants were also asked to indicate whether their workplace had clear procedures around reoccurring or imminent impaired driving among clients. Moreover, participants were also asked to describe what they thought would happen if they were to report their clients' impaired driving.

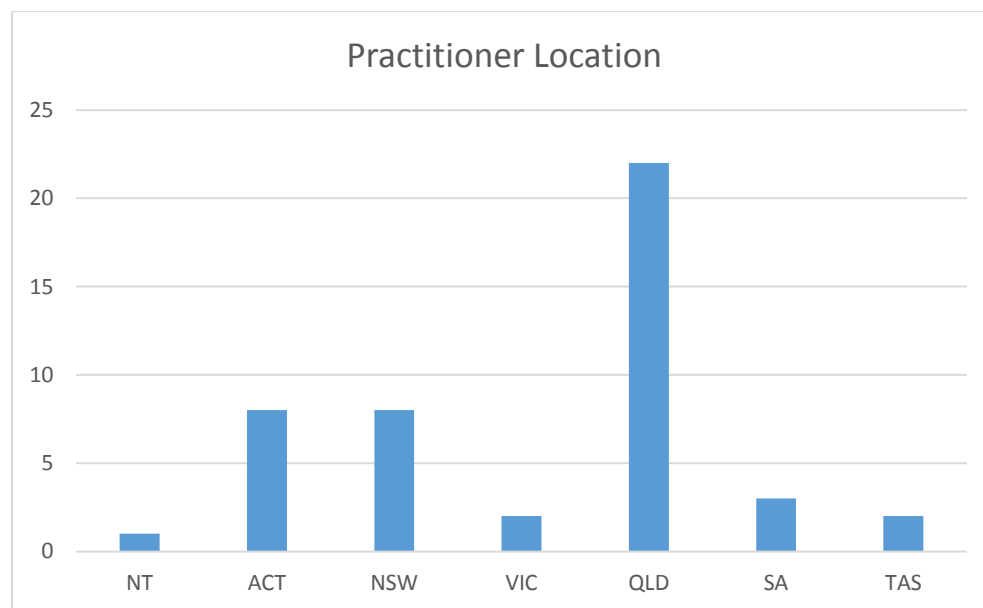
Phase 2

Survey responses

Of those who completed the survey, data from 46 practitioners was able to be used for the following analyses.

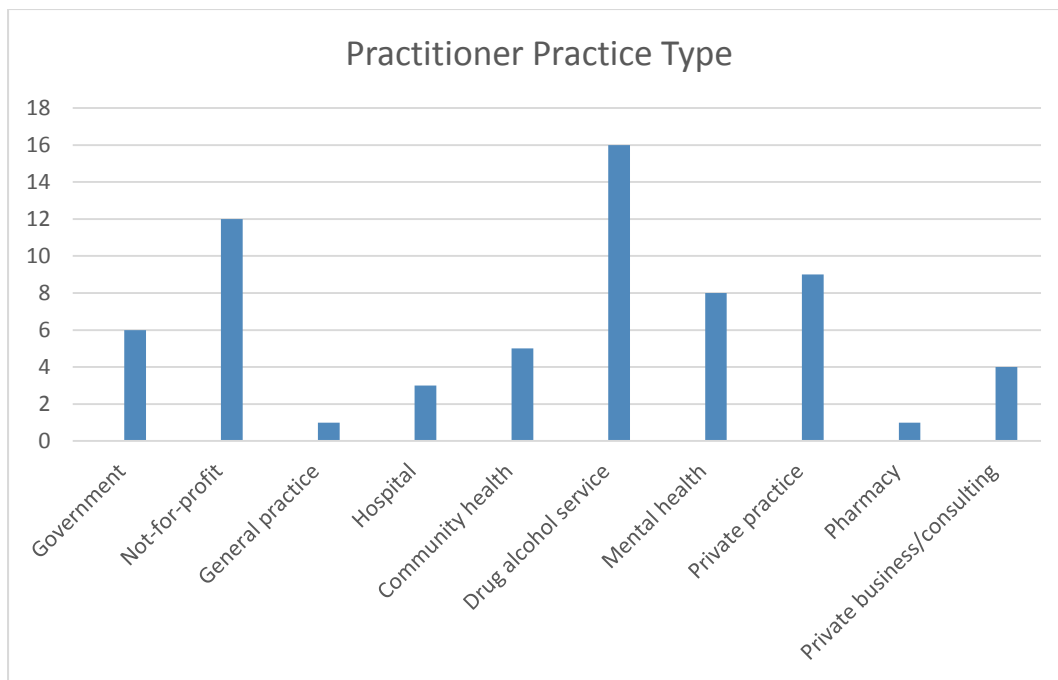
Postcode

Of the 46 respondents, the largest majority were located in Queensland (n = 22), with the remainder in ACT (n = 8), NSW (n = 8), SA (n = 3), TAS (n = 2), VIC (n = 2) and NT (n = 1).



Practitioner practice types

Respondents were asked about what kind of practice they worked in. Practitioners could list more than one type of service for this item. The largest numbers were in AOD services (n = 16), followed by not for profit organisations (n = 12), private practice (n = 9), mental health (n = 8), Government (n = 6), community health (n = 5), private business/consulting (n = 4), hospital (n = 3), general practice (n = 1) and pharmacy (n = 1).

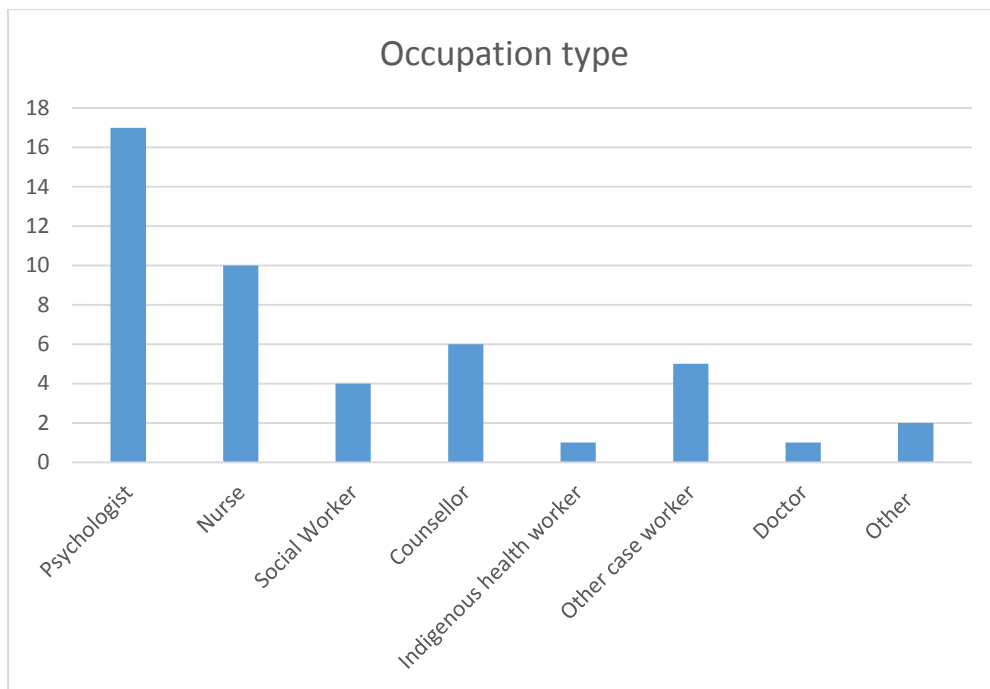


Primary area of service in AOD

We were interested in determining the number of practitioners who considered AOD to be their primary area of service. Of the 46 respondents, 25 (54.3%) identified AOD as their primary type of clinical service. This dichotomous variable will be used for subsequent analysis to make comparisons of AOD/Non-AOD practitioners.

Occupation type and length

Of the 46 respondents, the majority were psychologists ($n = 17$) and nurses ($n = 10$). The remainder of the occupation types fell into the categories of counsellor ($n = 6$), other case worker ($n = 5$), social worker ($n = 4$), indigenous health worker ($n = 1$) and other ($n = 2$), which included a pharmacist and a director of AOD and clinical services. Of the 46 respondents, the mean length of time as a practitioner was 13.8 years ($SD = 11.35$), ranging from 1 year & 8 months, to 46 years.



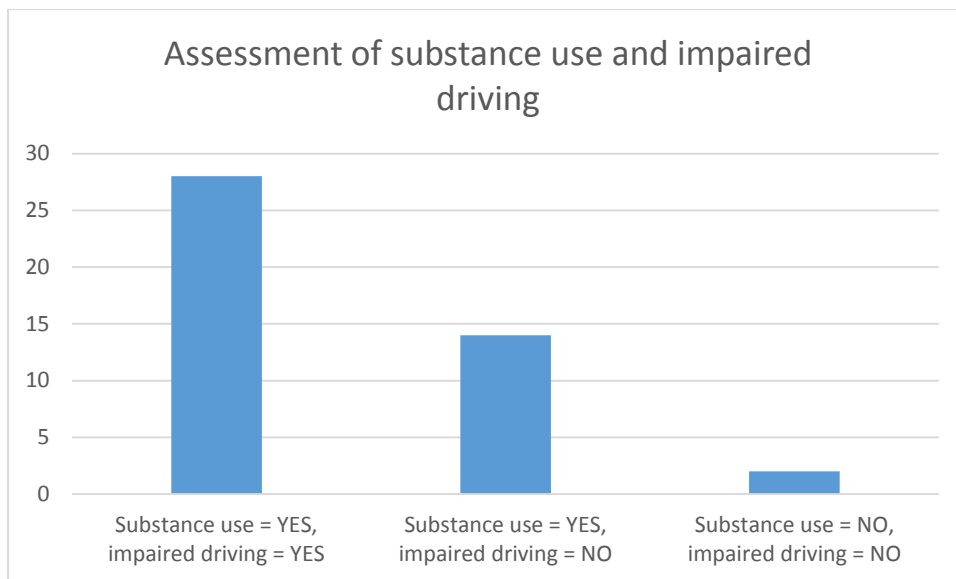
Client specific information

Practitioners reported that the average number of clients seen in a week was 27 (SD = 30.4).

Of those, it was reported that the percentage that could be diagnosed with alcohol issues was 40.64% (SD = 32.09), the percentage that could be diagnosed with illicit drug issues was 49.27% (SD = 38.52), and the percentage that could be diagnosed with alcohol and drug issues was 35.73 (SD = 34.45). Practitioners reported that on average 23% (SD = 28.29) of all clients only attended one session.

Assessment of substance use and impaired driving

Practitioners completed items relating to their assessment of both substance use and impaired driving. Of the 46 practitioners, 2 didn't respond. Of the remaining 44, the categories fell into practitioners confirming that they conducted assessment of: substance use and impaired driving (n = 28, 63.3%), substance use but not impaired driving (n = 14, 31.8%), and not assessing either substance use or impaired driving (n = 2, 4.5%).



There were no differences in assessment of substance use or impaired driving between AOD and Non-AOD practitioners, $\chi^2 (2) = 0.52, p = 0.97, \phi_c = 0.97$.

Assessment of impaired driving – questions asked

Those participants who reported that they assessed for impaired driving were asked to describe how they worded questions about this to this topic. A total of 27 participants responded, together describing 30 different types of questions (i.e., meaning units). Analysis of these questions showed that the majority (22) were fairly direct, openly querying clients' impaired driving habits and previous apprehensions (e.g., *Have you ever driven when using alcohol or drugs?*). Additionally, one of the direct question also explored the emotional impact of licensure loss (e.g., *How would you feel if you lost your licence due to DUI?*). The remaining eight questions were posed in a more indirect manner, often in the context of a broader conversation about clients' substance use and related risks. Some indirect questions about impaired driving were posed by asking about safety (e.g., *How do you feel your ability to drive is? Are you able to respond quickly in emergency situations?*), rather than by about impaired driving per se. In some instances, impaired driving was addressed only if it was brought up by clients themselves and in some it was brought up when clients' were asked if they had encountered any legal problems as a result of their driving.

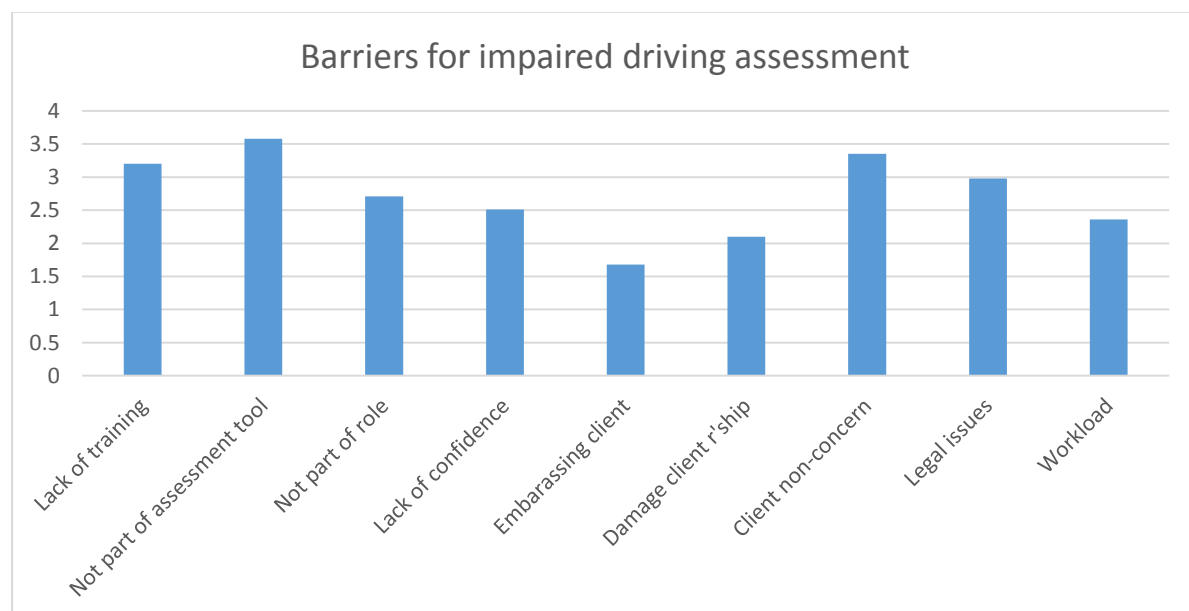
Assessment tools for impaired driving

Of the 46 practitioners surveyed, 41 responded to the item regarding assessment tools relating to substance use. Of those, 28 (68.3%) stated that they had a tool to assess for

substance use issues, while 13 (31.7%) did not. Interestingly, AOD practitioners were no more likely to have a substance use assessment tool than Non-AOD practitioners $\chi^2 (1) = 3.19, p = 0.07, \phi_c = .07$. Of the 28 practitioners responding to the item relating to tools to assess impaired driving, 23 (82.1%) responded that their assessment tool did not have questions about impaired driving, while 5 (17.9%) did have items relating to impaired driving in their standard assessment tools.

Barriers to assessing and treating impaired driving

Practitioners were questioned on a number of potential barriers to the screening, assessment, and treatment of impaired driving in their practice. Likert scale items ranging from very unlikely – very likely were used with a scale of 1-7. Of the 9 barriers listed in the items, impaired driving not being part of the assessment tool was the primary barrier for many practitioners ($M = 3.6, SD = 2.02$). This was followed by reports of clients/patients not caring about drink driving ($M = 3.35, SD = 1.86$), and lack of training in how to screen and treat the behaviour ($M = 3.2, SD = 1.90$). The mean scores are represented in the table below.



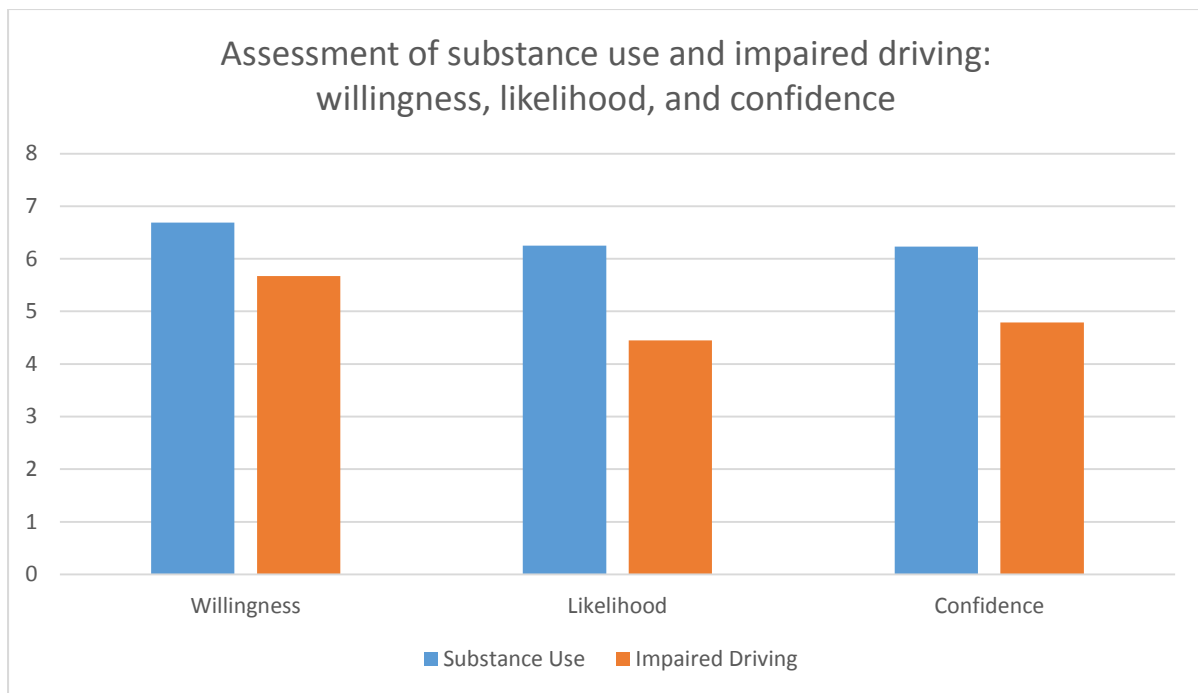
Of the practitioners responding to the item, 12 described other barriers (each listing one barrier), and rated them generally higher than the barriers listed in the former items ($M = 4.37, SD = 2.06$). One participant described the importance of ensuring that clients' understood the limits of confidentiality in terms of impaired driving as a barrier. The

remaining participants listed barriers related either to the clients (6) or to the practitioners themselves (5). The former included dealing with intoxicated clients who have drive to sessions, defensiveness and a lack of honesty among clients, and denial and misinformation (e.g., *Clients believe they are better drivers when under the influence*). Barriers pertaining to practitioners included a lack of training, not wanting to ask the question, and assessment not being a part of participants' formal role.

To determine whether barriers were related to occupation type (AOD vs. Non-AOD), Spearman's rho correlations were applied to each of the barriers. The barriers that were significantly higher when moving towards the general (Non-AOD) occupations were lack of training in how to screen and treat the behaviour $r_s = .419, p = .007$, it not being part of the assessment tool $r_s = .346, p = .029$, lack of confidence in what to do $r_s = .348, p = .030$, fear of embarrassing the client $r_s = .415, p = .008$, and fear of damaging the patient/client relationship $r_s = .457, p = .003$.

Willingness, likelihood and confidence to assess for substance use and impaired driving

Practitioners were asked whether they are willing, likely, and confident in assessing both substance use and impaired driving over 6 items with Likert scale responses, with 40 practitioners completing the scale items in total. Overall, practitioners were likely to be willing ($M = 6.69, SD = 0.66$), likely ($M = 6.25, SD = 1.30$), and confident ($M = 6.23, SD = 1.03$) in assessing for substance use. They were less likely on all counts to be willing ($M = 5.67, SD = 1.56$), likely ($M = 4.45, SD = 2.02$) and confident ($M = 4.79, SD = 1.88$) in assessing impaired driving in their practice. A series of paired samples t-tests were conducted to compare the differences in willingness, likelihood and confidence of practitioners to assess substance use versus impaired driving. There was a significant difference in willingness of practitioners to assess for substance use vs impaired driving $t(38)=4.42, p<.001$. Similarly, there was a significant difference in likelihood of practitioners to assess for substance use versus impaired driving $t(39)=5.55, p<.001$. Finally, there was a significant difference in the confidence of practitioners when assessing for substance use versus impaired driving $t(37)=4.63, p<.001$. Mean scores are represented in the table below.



On assessment of the differences in AOD versus Non-AOD professionals, there were no differences in willingness or likelihood to assess for either substance use or impaired driving. However, AOD practitioners were significantly more confident to assess both substance use $r_s = -.454, p = .004$ and impaired driving $r_s = -.565, p = <0.001$ than their Non-AOD counterparts.

Timing and reason for assessing impaired driving

To further understand respondents' current practice around impaired driving assessment, the practitioners were also asked, in an open ended question, to imagine that they are treating a client who in the first session report daily alcohol and other drug use. In relation to this scenario, participants were then asked to state whether they would ask about impaired driving and why. A total of 30 participants responded, of whom five reported that they would not ask about impaired driving. Reasons for this included not being sure about duty of care in relation to dealing with impaired driving, having clients that typically do not drive, and not having considered impaired driving to be a problem for clients. Among the remaining, around half stated that they would always ask about impaired driving while the remaining half stated that they would explore it in some cases but not others, that they sometimes forgot, or that they would only explore impaired driving if it was raised by clients. Some also reported that they might explore it but not as a priority, or in the first

session due to a desire to build rapport before approaching sensitive topics or because clients had often faced more pressing issues. Among those that always and sometimes asked about impaired driving, reasons included: the serious social (1), legal (3), and safety (9) consequences that impaired driving might present to clients, their families, and other road users. A further reason that some practitioners assessed for impaired driving was that it was part of their formal substance use assessment and treatment plan and/or their risk management strategies (7).

Duty of care and reporting impaired driving

To further explore participants' willingness to address impaired driving, duty of care in relation to risky behaviours and in terms of impaired driving specifically was explored in three open-ended questions. In total, 26 participants described their general duty of care, of which five simply stated that they had a duty of care without describing what that duty entailed, and reported that they were unsure. The remaining 19 practitioners described 38 different actions that they were required to take as part of their duty of care. These actions were: assessing the level of risk to clients and those around them (7) addressing those risks with clients (16), providing referral to appropriate services (3), and to ensure that clients are aware of the risks associated with the identified risky behaviours (3). In nine responses, a duty of care to report risky behaviours that placed the client or others at risk of significant harm to relevant authorities was identified. In addition to the 26 participants who described their general duty of care, four participants answered this question by focusing on impaired driving specifically. Two of these participants stated that they were unsure about their duty of care in relation to impaired driving, one described that they would report impaired driving to the police, and one that they would remove clients' keys.

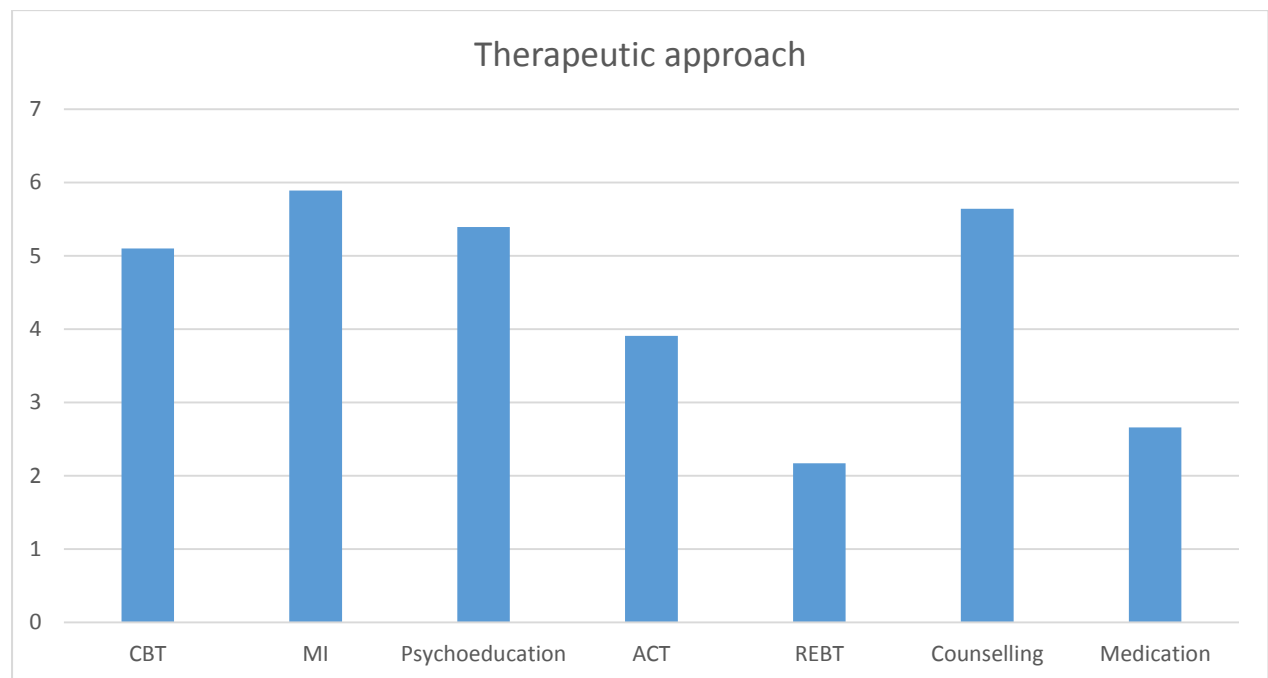
In terms of impaired driving, participants were first asked to describe their professional obligation to report impaired driving to the relevant authorities. Overall, 30 participants responded to this question of which three stated that they had no obligation to report this behaviour to the police and two that they did not have a general obligation to report impaired driving unless it was planned or if children were involved. One participant also reported that they would not report impaired driving to the police but might report it to a GP, who in turn would report to the police. A further four practitioners were unsure about their obligations around impaired driving. The remaining participants identified 21 different

approaches they would take to impaired driving. The most common identified approach (11) was to report impaired driving to the relevant authorities. However, six responses also outlined that reporting of impaired driving only occurred if this behaviour could not be managed with the client. One participant described that they would only report impaired driving if a crash resulting in injury had taken place and one participant that they would only report impaired driving if it was currently taking place (i.e., an intoxicated client attempting to drive after a session). Two participants stated that they would discuss or report colleagues or report it to their manager. In addition to these approaches, two participants simply stated that they had a duty of care, without further specifying what this included. Last, participants were asked what they thought would happen if they reported impaired driving to the relevant authorities. Twenty-eight participants answered this question, of which one participant was unsure of what the consequences might be. The remaining participants described 36 different potential outcomes. Of these outcomes, ten related to the impact on the treatment process: two participants described that reporting clients' impaired driving might result clients receiving additional treatment for this risky behaviour (e.g., *them I assume they would be charged with something. After that referrals could be made to address the issues through psychological help*), while eight thought it could damage or destroy the therapeutic relationship with clients. A further five participants believed that the police would respond, however, one participant felt that the response of the police varied. Ten participants believed that the client would be detained, charged, or lose their licence and one participant believed that reporting impaired driving might prevent a crash. Six participants did, however, believe that nothing would happen if they reported impaired driving (e.g., *I'd be put in a queue*) or that it was unlikely that there would be consequences for the client. One participant, who worked with carers and foster parents, believed that clients' fitness to care for children might be investigated. Last, two participants were concerned that reporting would make them vulnerable to litigation (due to breach of confidentiality) or that it might give their organisation a bad reputation.

Therapeutic approaches

Practitioners' use of therapies were assessed as part of the survey. Of the practitioners surveyed, 37 responded to the items relating to therapeutic approach. The highest rated therapeutic approaches were Motivational Interviewing (MI) ($M = 5.89$, $SD = 1.78$),

counselling ($M = 5.64$, $SD = 1.65$), psychoeducation ($M = 5.39$, $SD = 1.94$) and CBT ($M = 5.11$, $SD = 1.93$). Less likely were the use of Acceptance and Commitment Therapy (ACT) ($M = 3.91$, $SD = 2.03$), Rational Emotive Behaviour Therapy (REBT) ($M = 2.17$, $SD = 1.67$), and medication ($M = 2.67$, $SD = 1.91$).



Another 12 practitioners listed additional therapeutic approaches and were asked to rate this on the same scale ($M = 6.41$, $SD = 0.7$). The following 14 different approaches identified by these 12 practitioners (1 practitioner stated that they would simply refer clients to a GP for further treatment): hypnosis (2), dialectical behavioural therapy (3), mindfulness (1), collaborative therapy (1), gestalt therapy (1), Occupational therapy including sensory modulation (1), narrative therapy (1), relapse prevention (1), attachment theory (1) trauma informed frameworks 'such as NMT, sensorimotor therapy, COS, and van der Kolk's work' (1), and strength based approaches (1).

Brief interventions and referrals

Practitioners were asked about their use of brief interventions (BI) with high risk substance users. Practitioners were quite likely to use brief interventions ($n = 38$, $M = 5.45$, $SD = 2.00$). They were also highly likely to advise clients/patients with substance use issues to attend follow up care post-treatment ($n = 38$, $M = 6.05$, $SD = 0.91$). In terms of impaired driving, the majority of practitioners who responded to the item ($n = 37$) reported that they would

provide both intervention and referral ($n = 23$, 62.2%), with a smaller number reporting to provide intervention only ($n = 10$, 27.0%) and provide referral options only ($n = 3$, 8.1%). There were no differences in the reported use of BI or referrals made by AOD versus Non-AOD professionals $r_s = -.209$, $p = .207$.

Managing differences in client–practitioner concerns

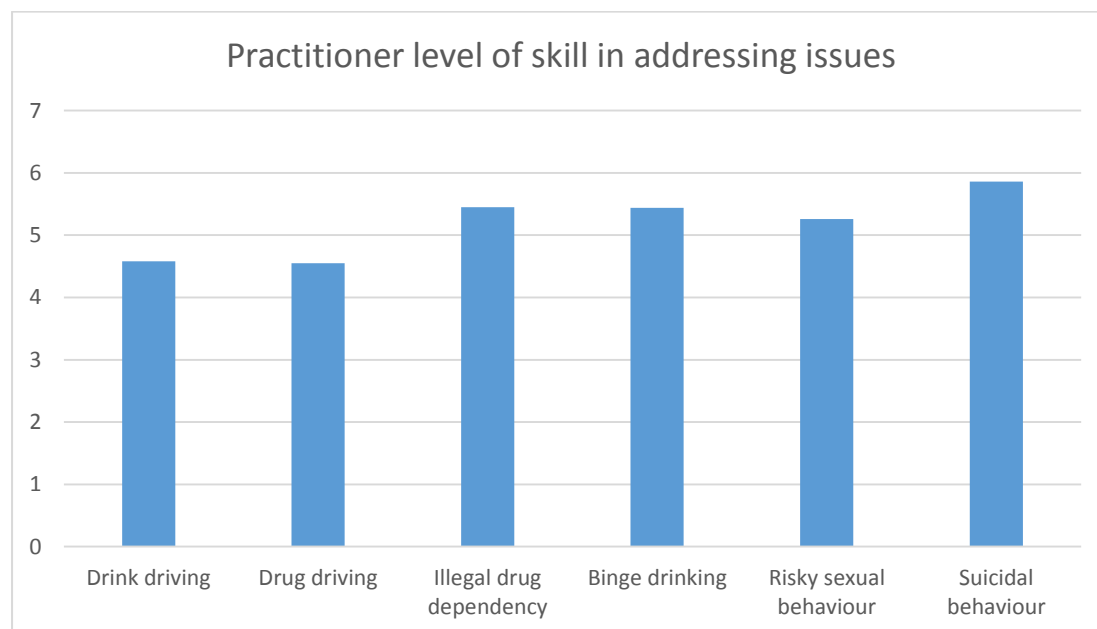
Impaired driving may not be the presenting issue when people with alcohol and substance use issues seek medical or therapeutic care. To better understand practitioners' willingness to approach behaviours identified as problematic, but that were not understood as such by clients, participants were asked to describe how they currently prioritised areas to be focused on when treating clients. Overall, 31 practitioners responded to this question. Among these, 14 practitioners described their approach as either solely (6) or partly (8) driven by the concerns of the clients. In terms of the former, the needs, goals, and motivations of the clients guided the treatment; however, one practitioner stated that if risk to clients existed, this took priority. For the latter, a similar approach was taken, however, practitioners worked actively to problems they had identified into the treatment plan. In addition to the distinction between client and client/practitioner driven approaches, responses also induced 33 descriptions of ongoing problems and outcomes that were typically prioritised in treatment. The safety of the client (including suicidally) and those around them was identified in 12 among these descriptions and level and impact of substance use was identified in nine descriptions. Additional identified areas were: psych-social, financial, and vocational functioning (4); mental health (2); emotional regulation and the use of adoptive coping strategies (1); and an appraisal of the need for medical interventions (1). Moreover, one practitioner prioritised the development of therapeutic relationships and two practitioners to conduct case formulation and triage-style assessment. Last, one practitioner stated that they felt no need to prioritise client issues (*Not really much time to prioritise. Basically whoever comes in*).

Practitioners were also asked to describe what they would do if they identify problems that were different from those identified by the client. Again, 31 participants responded to this question. Of these, three participants stated that they would discuss self-identified problems regardless, while five stated that they avoid discussing these problems. Among the remaining responses, 20 different strategies for dealing with client–practitioner

discrepancies were identified. Six responses describe the strategy of raising the issues practitioners-identified issues and continue to explore them if clients were willing to do so. This included focusing on clients' concern first and then raising other issues, waiting until the client is ready to discuss additional concerns, and to focus on building rapport with clients to increase willingness. If four responses, practitioners described that they would draw links between the issues identified by the clients and those by the practitioner. A further eight responses described challenging clients' thought processes, of which four described using motivational interviewing to do so. Last, using referral as a strategy to deal with client–practitioner differences were identified in two responses.

Perceived skill level for treatment of impaired driving compared to other issues

Practitioners were asked about their level of skill in addressing various risk issues that can come up in practice. Of the items provided, practitioners ($n = 38$) felt that their level of skill was lower in treating drug driving ($M = 4.55$, $SD = 1.86$) and drink driving ($M = 4.58$, $SD = 1.84$) than in the other domains, including (in order) risky sexual behaviour ($M = 5.26$, $SD = 1.59$), illegal drug dependency ($M = 5.45$, $SD = 1.46$), binge drinking ($M = 5.45$, $SD = 1.50$), and suicidal behaviour ($M = 5.67$, $SD = 1.42$).

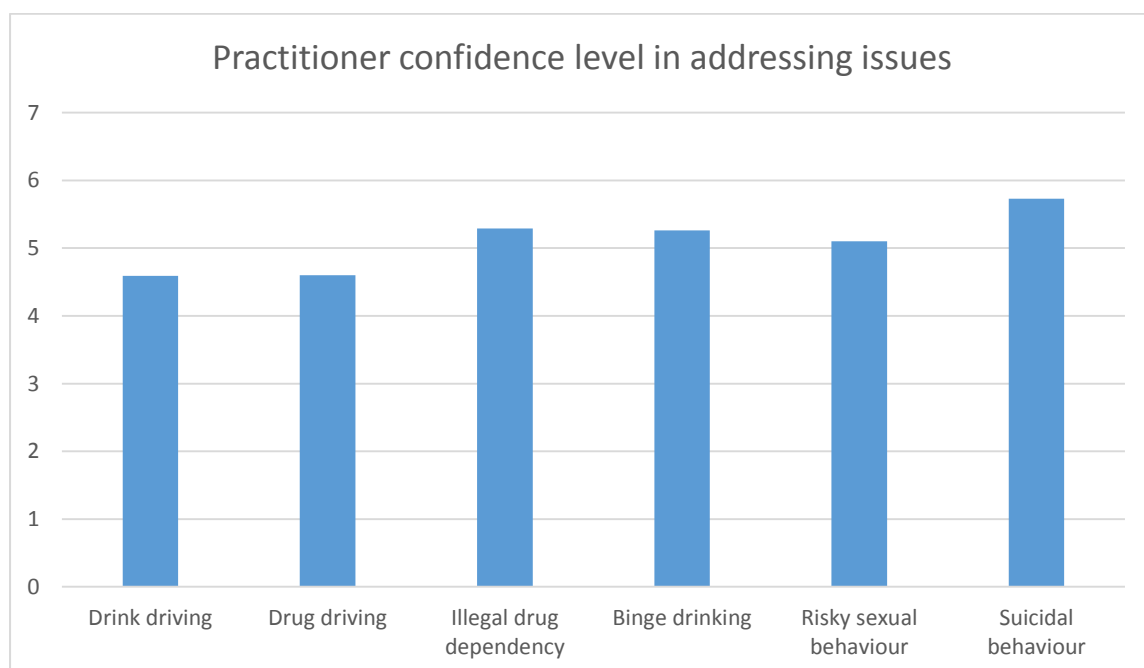


There were significant differences in the perceived level of skill in addressing issues between AOD and Non-AOD practitioners on all behaviours except suicidal behaviour. Being an AOD practitioner was correlated with perceived skill in addressing drink driving $r_s = -.488$, $p =$

.002, drug driving $r_s = -.532$, $p = .001$, illegal drug dependency $r_s = -.694$, $p = <0.001$, binge drinking $r_s = -.491$, $p = .002$, and risky sexual behaviour $r_s = -.399$, $p = .013$.

Perceived confidence level for treatment of impaired driving compared to other issues

Practitioners were asked about their level of confidence in addressing various issues in their practice ($n = 38$). As with perceived level of skill, confidence was lowest in treating drink driving ($M = 4.59$, $SD = 2.02$) and drug driving ($M = 4.60$, $SD = 1.98$) than in treating the other areas of risky sexual behaviour ($M = 5.11$, $SD = 1.86$), binge drinking ($M = 5.26$, $SD = 1.68$), illegal drug dependency ($M = 5.29$, $SD = 1.77$), and suicidal behaviour ($M = 5.72$, $SD = 1.57$).



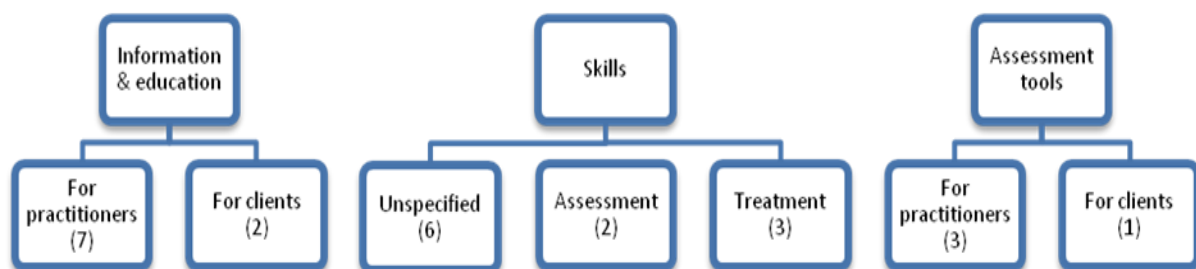
Similarly to perceived skill level, there were significant differences in the perceived level of confidence in addressing issues between AOD and Non-AOD practitioners on all behaviours, this time including suicidal behaviour. Being an AOD focused practitioner correlated with perceived confidence in addressing drink driving $r_s = -.545$, $p = <0.001$, drug driving $r_s = -.617$, $p = <0.001$, illegal drug dependency $r_s = -.730$, $p = <0.001$, binge drinking $r_s = -.483$, $p = .002$, risky sexual behaviour $r_s = -.448$, $p = .005$, and suicidal behaviour $r_s = -.421$, $p = .010$.

Improving practitioner self-efficacy to address impaired driving

Using an open ended question, participants were asked to state what would help increase their confidence in treating impaired driving. A total of 19 participants identified 24 different aspects that would increase impaired driving treatment self-efficacy. Among these,

three overarching categories emerged, with participants stating that more information, better skills, and the availability of assessment tools would increase their confidence (see Figure IV). Participants felt that they needed information about impaired driving which would help them discuss this behaviour with their clients. Specifically, participants stated that they needed general information to help increase their awareness of impaired driving as well as the legal implications of this behaviour more specifically. However, participants also wanted information developed directly for clients to which they could refer. They felt that clients could benefit from general information about impaired driving, as well as information pertaining to standard drinks and the legal BAC limit. Skills referred to a better practical understanding of how to assess and how to treat impaired driving. This theme also contained 'unspecified skills' where participants simply stated that they required more skills without further specification. Last, participants felt that the availability of assessment tools that they could either use themselves or disseminate to clients for self-assessment would increase their confidence in dealing with impaired driving.

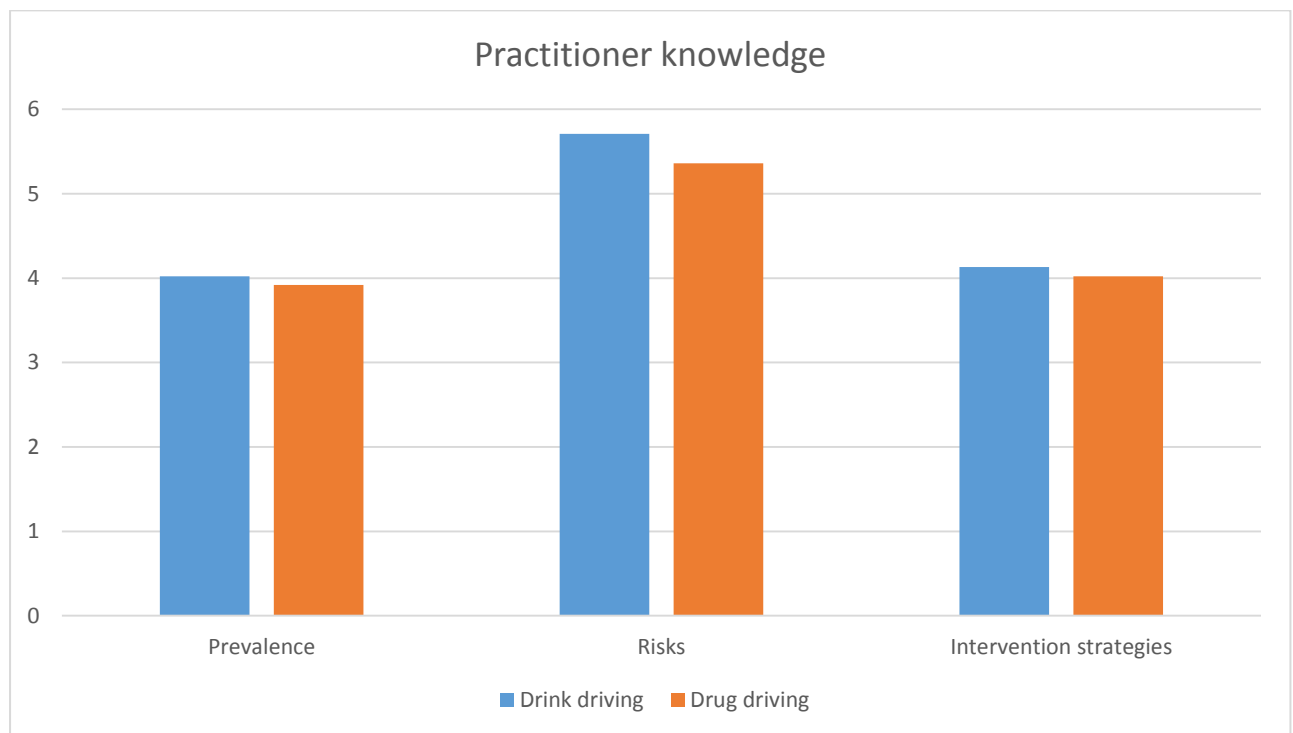
Figure iv. Requirements for increased confidence in addressing impaired driving among practitioners



Practitioner knowledge of impaired driving

Practitioners were asked about their knowledge relating to three aspects of impaired driving, the prevalence, associated risks, and interventions strategies related to alcohol and drug impaired driving. On the whole, practitioners were comfortable in their knowledge about the risks of drink driving ($M = 5.71$, $SD = 1.39$), and drug driving ($M = 5.36$, $SD = 1.58$). They had less knowledge on the prevalence of drink driving ($M = 4.02$, $SD = 2.03$) and drug

driving ($M = 3.92$, $SD = 1.99$) and the intervention strategies for drink driving ($M = 4.13$, $SD = 1.93$) and drug driving ($M = 4.02$, $SD = 1.84$).



There were a number of differences in AOD versus Non-AOD practitioners with regard to knowledge about impaired driving. AOD practitioners were more likely to report more knowledge on the prevalence of both drink driving $r_s = -.432$, $p = .007$ and drug driving $r_s = -.539$, $p = <.0001$, the risks of drug driving $r_s = -.346$, $p = .033$ (but not drink driving), and intervention strategies for both drink driving $r_s = -.379$, $p = .019$ and drug driving $r_s = -.430$, $p = .007$.

Pharmaceutical drug assessment

Practitioners were asked about their screening of pharmaceutical drugs when doing standard assessment. Practitioners responding to this item ($n = 31$) were on the whole likely ($M = 4.9$, $SD = 2.17$) to ask questions to clients/patients relating to prescription medication, with 22 (71%) agreeing to the item with a score of 4 or more on the scale. However, this leaves 9 practitioners (29%) who rated this item as less than 3 – indicating that for this proportion of practitioners it was unlikely they would screen for pharmaceutical medication use. There was no difference in the responses to this survey item between AOD and Non-AOD professionals $r_s = -.275$, $p = .135$.

Pharmaceutical drug assessment - additional information

Participants were also asked to provide additional comments they might have about the assessment and treatment of driving that is impaired by pharmaceutical drugs. A total of 16 participants responded to this question of whom six stated that they had a poor understanding of the impact of pharmaceuticals on driving. Among these six, one participant explicitly stated that their lack of knowledge was concerning and one stated that they would like further training. A further four expressed general concern about the presence of pharmaceutical drugs among drivers. A further six participants stated that they currently addressed pharmaceutical drugs and driving among their clients—or stated that they would do so in the future. However, the notion that GPs should be responsible for the impact of pharmaceutical medication on driving was also expressed by three participants.

Practitioner training package needs

In the final part of the survey, participants were asked to identify the content in an impaired driving intervention package that would be most useful to them. Among the 20 participants who answered this question, one participant stated that nothing was needed in terms of impaired driving assessment and treatment, while one stated that “anything” would be beneficial. The remaining participants gave 34 suggestions in terms of what they would like to see included in a practitioner training package. The need for impaired driving assessment tools and advice on when to use them was highlighted by nine participants. Six participants mentioned that a better understanding of how to ask sensitive questions about impaired driving and to manage the therapeutic relationship would be beneficial. More information was also commonly identified, which included information regarding: therapeutic techniques and impaired driving treatment (6), the legal aspects of impaired driving (3), duty of care and reporting (3) general information (e.g., *Information and resources*, two participants) and information regarding the impact of both legal and illicit drugs on driving (2). Moreover, three participants mentioned the need for information that could be given directly to clients.

Chapter 4: Discussion & Conclusions

Impaired driving is a significant issue, and there is an opportunity to address the behaviour in a preventative way to prevent or limit criminal justice involvement if addressed early in primary care environments. This research project has demonstrated that the area of screening, assessment and treatment of impaired driving in primary care is an important clinical consideration that should be taken into account as part of a broader AOD intervention. The research questions for this study were twofold: Where substance use intervention is core focus for an organisation, are drink and drug driving routinely and adequately assessed? When drink driving is explored as an issue, are primary care workers adequately equipped to provide brief intervention to clients based on current, evidence based research? To that end, an extensive literature search, qualitative interviews and an online survey were conducted to address these questions.

Is impaired driving routinely and adequately assessed?

This project has illuminated a number of important considerations for primary care practitioners in terms of screening and assessment. In-depth discussions with practitioners' in Study 1 revealed that 60% of the practitioners interviewed routinely screened and assessed impaired driving as a standard part of assessment. This was integrated into a broader substance use assessment, especially when determining social, legal, vocational impact and risk of harm to clients and those around them. Thus, for the practitioners in this study who reported routine screening and assessment for substance use, there is a gap that could equate to up to 40% of practitioners in the screening and assessment of impaired driving. This was further examined in the Study 2 survey population, as study 1 was limited to practitioners who all identified substance use assessment as part of their role. Study 2, which included a higher proportion of the Non-AOD workforce further demonstrated that there is a need for more stringent routine assessment of impaired driving behaviour. Impaired driving was assessed by just over 60% of practitioners, with no difference in rates of AOD versus Non-AOD practitioners who assessed for this behaviour in the study. An additional 30% of practitioners assessed for substance use but not impaired driving. Therefore this could be an avenue for training primary care practitioners in how to make the next step in assessing associated risks with substance use behaviour. Equally, the willingness, likelihood, and confidence to assess for impaired driving were lower than to

assess for substance use. This also highlights practitioners that could be targeted for training or provision of resources to address impaired driving. If substance use assessment is common and impaired driving could be an integral component in this assessment, then interventions could aid in decreasing the gap between substance use and impaired driving assessment. Likewise, it is likely that confidence for impaired driving assessment can be raised to similar levels as substance use assessment, given appropriate information and training.

One of the key barriers reported by over half of the sample on average is that impaired driving is not part of their standard assessment tool. While almost 70% of practitioners reported having substance use items on their assessment tool, only 5 practitioners had additional items regarding impaired driving. This could indicate that including this behaviour as a common risk behaviour associated with substance use on standardised assessment tools could normalise the requirement for assessment by practitioners.

Are practitioners equipped to provide impaired driving interventions?

In Study 1, interviews with practitioners demonstrated that methods for impaired driving treatment often follow the therapeutic style of the clinician, that is, they integrate this into their existing practice rather than being added as a separate component. This indicates that they were able to tackle impaired driving as one of the cluster of substance use behaviours that could be treated along with other presenting issues.

Study 2 revealed that practitioners feel that they are more skilled and confident in assessing other risk behaviours than impaired driving in primary care environments. Despite this, practitioners were highly willing to treat impaired driving in their practice, with 90% willing to do so. Thus, we could conclude that provided the same level of training as is standard with other risk behaviours (e.g. suicidality), practitioners could improve their self-efficacy to provide interventions to their clients engaging in impaired driving. Practitioners were more aware of the risks of impaired driving than of the prevalence or intervention strategies, which indicates that there is scope to improve knowledge of impaired driving and how this can inform interventions in practice.

A number of analyses indicated that there were significant differences between AOD and Non-AOD practitioners, and this should therefore be a target for improvement in this area.

AOD practitioners generally perceive themselves to be more skilled, knowledgeable and confident in assessing issues related to substance use, including impaired driving, than Non-AOD practitioners. Non-AOD practitioners were more likely to report having more barriers to impaired driving assessment, including lack of training, lack of items in assessment tools, lack of confidence, fears of embarrassing the client and fears of damaging the therapeutic relationship. Thus, there are important considerations for training such professionals of the importance of screening, assessment and treatment of impaired driving in primary care, and this is likely amplified in Non-AOD focused environments.

Thus, based on the analysis of the data from Phase 1 and 2 conclusions relating to three broad areas can be made:

- There is a case for expansion of impaired driving screening, assessment and treatment for AOD and non-AOD practitioners who deal with clients with AOD issues;
- There are a number of areas that should be targeted to improve how impaired driving is addressed in primary care (needs analysis); and
- A training package intervention could be designed for practitioners to address these target areas.

While there were many strengths to this project including an in-depth analysis of practitioners, there were limitations that should be discussed. Of the occupational types covered, there were mainly psychologists and nurses. Thus, the results may not be generalizable to other professions such as doctors. Importantly, doctors (such as GPs in primary care) often have less opportunity for screening and assessment of patient risk behaviours and limited time. Thus, the findings relating to rates of screening, assessment and treatment in this sample are likely to be an overestimate for primary care providers generally. Therefore, future research should identify the practices of other professionals including GPs in terms of screening and assessment, as well as treatment and referral of impaired driving in their practice. This will also impact on the potential training needs of this population as their professional views may not have been incorporated in the study findings.

Translating research into practice: Developing content for a practitioner education package

In Study 2, practitioners were asked in an open ended item what they considered to be important to improve their self-efficacy to address impaired driving in practice. The three core themes in terms of perceived needs to build confidence were information and education, skills, and assessment tools. In another survey item, practitioners provided feedback on what they think would be useful for them in a training package to address how to screen, assess and treat impaired driving in their practice. The main themes related to impaired driving assessment tools (and advice on their use), how to ask sensitive questions and manage the therapeutic relationship, and information (for example relating to therapeutic techniques, impacts of impaired driving, and duty of care).

There is therefore an opportunity to provide evidence-based information regarding screening, assessment and treatment of impaired driving. For instance, in the Study 1 interviews, only one practitioner mentioned working with clients to separate driving from drinking. Although permissible driving in Australia up to (but not including) BAC levels of 0.05%, the separation of drinking from driving is recognised as the best advice to avoid drink driving. Based on research identify the difficulty inherent in estimating BAC levels, and the impairments of judgement that is the results of alcohol consumption. When drinking, people experience a lowered ability to make sound choices such as when to stop drinking and when to seek alternative transport. Balancing personal freedom against risks, limit has been set at 0.05% as this point indicates the doubling of crash risk. However, it is recognised that risk of crash increases before this point, providing further support for the practice of separating drinking from driving.

The final stage of this project involved the development of a brief, interactive online training package aimed at primary care practitioners for the screening, assessment, and treatment of impaired driving in primary care environments (see Appendix 4 for screenshots). This was based on the findings of Study 1 and 2 and the background literature.

Proposed learning outcomes for the training package were:

- Understand the risks related to alcohol and drug impaired driving and how these risks impact on other domains
- Apply evidence-based approaches to the screening and assessment of impaired driving

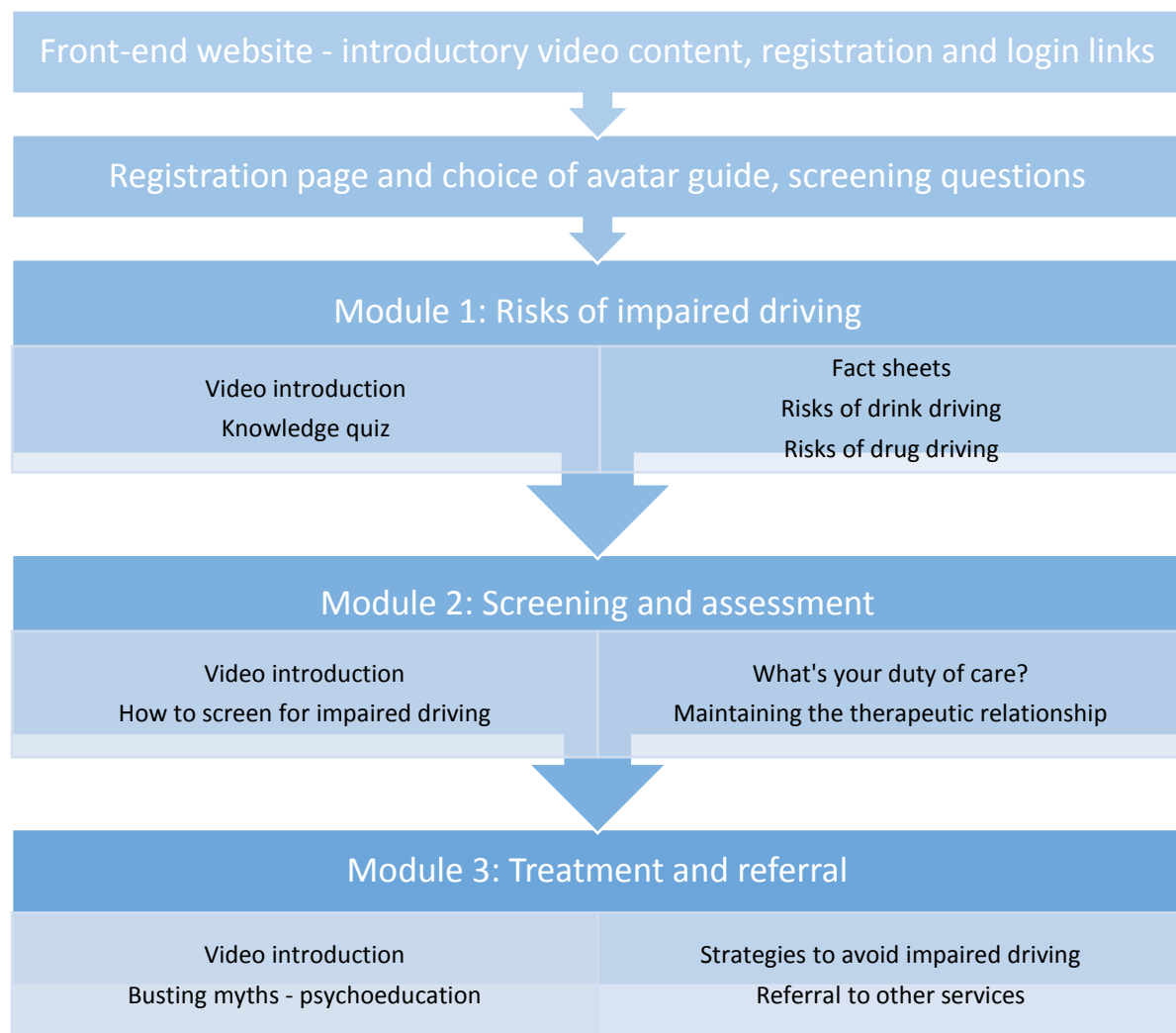
- Analyse the context of impaired driving for clients / patients and utilise evidence-based methods of behaviour change to adapt impaired driving behaviour
- Demonstrate an understanding of local behavioural road safety interventions and avenues for referral

To that end, three core modules were developed:

- Risks of impaired driving
- Screening and assessment
- Treatment and referral

Each of the modules contains a brief introductory video with 5 road safety experts that introduces the user to the topic. It then provides guided activities relating to the module topic to provide information and test recall. The training package was built on the basis of the key learning areas defined and refined throughout this program of research.

Figure v. Impaired driving training package structure



The training package is now available at www.impaireddriving.com.au. Please email Dr Hollie Wilson (hollie.wilson@gut.edu.au) or CARRS-Q reception (carrsq@gut.edu.au) to request access to this training.

References

- Ahlner, J., Holmgren, A., & Jones, A. W. (2014). Prevalence of alcohol and other drugs and the concentrations in blood of drivers killed in road traffic crashes in Sweden. *Scandinavian Journal of Public Health*, 42, 177-183. doi:10.1177/1403494813510792
- Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50, 179-211. doi:10.1016/0749-5978(91)90020-T
- Alcohol and Public Policy Group (2010), Alcohol: No Ordinary Commodity – a summary of the second edition. *Addiction*, 105, 769–779. doi:10.1111/j.1360-0443.2010.02945.x
- Australian Hotels Association. (2011). *Submission in response to: Draft National Road Safety Strategy 2011-2020*. Canberra, ACT.
- Australian Institute of Health and Welfare (AIHW). (2011). *Alcohol and other drugs (AODT-NMDS) data cubes. Closed treatment episodes: Client profile by drug of concern and treatment type by state/territory*. Retrieved from <http://www.aihw.gov.au/alcohol-and-other-drug-treatment-services-data-cubes>
- Australian Institute of Health and Welfare (AIHW). (2013). *Alcohol use in the general population*. Retrieved from <http://www.aihw.gov.au/alcohol-and-other-drugs/ndshs-2013/ch4/>
- Australian Medical Association (2010). Primary Health Care – 2010. Retrieved from <https://ama.com.au/position-statement/primary-health-care-2010>
- Australian Transport Council (2011). National Road Safety Strategy 2011-2020.
- Begg, D. J., Langley, J. D., & Stephenson, S. (2002). Identifying factors that predict persistent driving after drinking, unsafe driving after drinking, and driving after using cannabis among young adults. *Accident Analysis and Prevention*, 35, 669-675. doi:10.1016/j.aap.2004.03.001
- Beitel, G. A., Sharp M. C., & Glauz W. D. (2000). Probability of arrest while driving under the influence of alcohol. *Injury Prevention*, 6, 158–161. doi:10.1136/ip.6.2.158
- Boorman, M., & Owens, K. (2009). The Victorian legislative framework for the random testing drivers at the roadside for the presence of illicit drugs: An evaluation of the characteristics of drivers detected from 2004 to 2006. *Traffic Injury Prevention*, 10, 16-22. doi:10.1080/15389580802542365

- Bureau of Infrastructure, Transport and Regional Economics (BITRE). (2000). *Road crash cost in Australia, Report 102*. Retrieved from https://bitre.gov.au/publications/2000/report_102.aspx
- Bureau of Infrastructure, Transport and Regional Economics (BITRE) 2009. *Cost of road crashes in Australia 2006. Research Report 118*. Retrieved from http://www.bitre.gov.au/publications/2010/files/report_118.pdf
- Butler, M., Kane, R. L., McAlpine, D., Kathol, R. G., Fu, S. S., Hagedorn, H., & Wilt, T. J. (2008). Integration of mental health/substance abuse and primary care. Retrieved from Agency for Healthcare Research and Quality website <http://www.ahrq.gov/sites/default/files/wysiwyg/research/findings/evidence-based-reports/mhsapc-evidence-report.pdf>
- Davey, J., Armstrong, K., & Martin, P. (2014). Results of the Queensland 2007-2012 roadside drug testing program: The prevalence of three illicit drugs. *Accident Analysis and Prevention*, 65, 11-17. doi:10.1016/j.aap.2013.12.007
- Davey, J., Armstrong, K., & O'Donnell, L-M. (2009). Roadside drug and alcohol testing in Queensland: An overview. Presented at the 2nd International Symposium on Drugs and Driving. Retrieved from <https://www.drugfoundation.org.nz/drugdriving2014/presentations>
- Department of Planning, Transport and Infrastructure. (2014). Alcohol and drugs in road crashes in South Australia.
- Department of Transport and Main Roads (TMR) (2010). *Drink driving in Queensland: A discussion paper*. [Brisbane]: Department of Transport and Main Roads. Retrieved from http://www.cabinet.qld.gov.au/documents/2010/nov/results%20of%20consultation%20on%20drink%20driving%20discussion%20paper/Attachments/pdf_drink_driving_discussion_paper%5B1%5D.pdf
- Desapriya, E., Shimizu, S., Pike, I., Subzwari, S., & Scime, G. (2007). Impact of lowering the legal blood alcohol concentration limit to 0.03 on male, female and teenage drivers involved alcohol-related crashes in Japan. *International Journal of Injury Control and Safety Promotion*, 14, 181-187. doi:10.1080/17457300701440634
- DeYoung, D. J. (2013, August). *Controlling the risk of impaired drivers through use of vehicle-based sanctions. Impoundment, forfeiture, and license plate sanctions*. Paper

- presented at Alcohol, Other drugs, and transportation committee transportation research board. Retrieved from <http://onlinepubs.trb.org/onlinepubs/circulars/ec174.pdf>
- Dill, P. L., Wells-Parker, E. (2006). Court-mandated treatment for convicted drinking drivers. *Alcohol Research and Health*, 29, 41-48. doi:10.1007/978-1-4614-0905-2
- Dols, S. T., Gonzalez, F. J. A., Aleixandre, N. L., Vidal-Infer, A., Rodrigo, M. J. T., & Valderrama-Zurian, J. C. (2010). Predictors of driving after alcohol and drug use among adolescents in Valencia (Spain). *Accident Analysis and Prevention*, 42, 2024-2029. doi:10.1016/j.aap.2010.06.013
- Evans-Whipp, T. J., Plenty, S. M., Toumbourou, J. W., Olsson, C., Rowland, B., & Hemphill, S. A. (2013). Adolescent exposure to drink driving as a predictor of young adults' drink driving. *Accident Analysis and Prevention*, 51, 185-191. doi:10.1016/j.aap.2012.11.016
- Ferris, J., Mazerolle, L., King, M., Bates, L., Bennett, S., & Devaney, M. (2013). Random breath testing in Queensland and Western Australia: Examination of how the random breath testing rate influences alcohol related traffic crash rates. *Accident Analysis and Prevention*, 60, 181-188. doi:10.1016/j.aap.2013.08.018
- Field, C., Walters, S., Marti, N., Jun, J., Foreman, M., & Brown, C. (2014). A multisite randomized controlled trial of brief intervention to reduce drinking in the trauma care setting: How brief is brief? *Annals of Surgery*, 295, 873-880. doi:10.1097/SLA.0000000000000339
- Fitts, M. S., Palk, G. R., & Lennon, A. J. (2013). *Why do Indigenous Australians drink and drive? A qualitative exploration of self-reported influences on drink driving behaviours of Indigenous peoples from remote communities*. Paper presented at Proceedings of the 23rd Canadian Multidisciplinary Road Safety Conference, Montreal, Canada. Retrieved from http://eprints.qut.edu.au/62563/1/FITTS63-final_versionx.pdf
- Fleming, M., & Manwell, L. B. (1999). Brief intervention in primary care settings – A primary treatment method for at-risk, problem, and dependent drinkers. *Alcohol Research & Health*, 23(2), 128-137.
- Fleming, M. F., Mundt, M. P., French, M. T., Manwell, L. B., Stauffacher, E. A., & Barry, K. L. (2002). Brief physician advice for problem drinkers: long-term efficacy and benefit-

- cost analysis. *Alcoholism: Clinical and experimental research*, 26, 36-43.
doi:10.1111/j.1530-0277.2002.tb02429.x
- Freeman, J., Liossis, P., Schonfeld, C., Sheehan, M., Siskind, V., & Watson, B. (2006). The self-reported impact of legal and non-legal sanctions on a group of recidivist drink drivers. *Transportation Research Part F*, 9, 53-64. doi:10.1016/j.trf.2005.08.005
- Gerrard, M., Gibbons, F. X., Houlihan, A. E., Stock, M. L., & Pomery, E. A. (2008). A dual-process approach to health risk decision making: The prototype willingness model. *Developmental Review*, 28, 29-61. doi:10.1016/j.dr.2007.10.001
- Gibbons, F. X., & Gerrard, M. (1995). Predicting young adults' health risk behavior. *Journal of Personality and Social Psychology*, 69, 505-517. doi:10.1037/0022-3514.69.3.505
- Gibbons, F. X., Lane, D. J., Gerrard, M., Pomery, E., & Lautrup, C. L. (2002). Drinking and driving: A prospective assessment of the relation between risk cognitions and risk behavior. *Risk, Decision and Policy*, 7, 267-283. doi:10.1017/S1357530902000601
- Governors Highway Safety Association. (2015). Drug impaired driving. A guide for what states can do. Retrieved from
http://ghsa.org/html/files/pubs/GHSA_DruggedDriving2015_R7_LoResInteractive.pdf
- Graneheim, U. H., & Lundman, B. (2004). Qualitative content analysis in nursing research: concepts, procedures and measures to achieve trustworthiness. *Nurse education today*, 24(2), 105-112. doi:10.1016/j.nedt.2003.10.001
- Health.Vic. (2015). Victorian accredited driver education program – Agency directory, July 2013. Retrieved from
<https://www2.health.vic.gov.au/about/publications/researchandreports/Victorian%20accredited%20driver%20education%20programs%20Victoria%20Drink%20and%20Drug%20Driver%20Program%20%20Agency%20directory%20July%202013>
- Kondracki, N. L., Wellman, N. S., & Amundson, D. R. (2002). Content analysis: review of methods and their applications in nutrition education. *J Nutr Educ Behav*, 34(4):224-30.
- Davis, H. T., Beaton, S. J., Worley, A. V., Parsons, W., & Gunter, M. J. (2012). The effectiveness of screening and brief intervention on reducing driving while intoxicated citations. *Population Health Management*, 15, 52-57.
doi:10.1089/pop.2011.0003

- Inman, M. (2015). NRMA supports ACT's zero-tolerance drug-drive regime. *Canberra Times*.
- Jiang, H., Livingston, M., & Manton, E. (2014). The effects of random breath testing and lowering the minimum legal drinking age on traffic fatalities in Australian states. *Injury Prevention, 21*, 77-83. doi:10.1136/injuryprev-2014-041303
- Johnson, M., Jackson, R., Guillaume, L., Meier, P., & Goyder, E. (2011). Barriers and facilitators to implementing screening and brief intervention for alcohol misuse: A systematic review of qualitative evidence. *Journal of Public Health, 33*, 412-421. doi:10.1093/pubmed/fdq095
- Jones, A. W., Holmgren, A., & Ahlner, J. (2015). High prevalence of previous arrests for illicit drug use and/or impaired driving among drivers killed in motor vehicle crashes in Sweden with amphetamine in blood at autopsy. *International Journal of Drug Policy, 26*, 790-793. doi:10.1016/j.drugpo.2015.04.011
- Jornet-Gibert, M., Gallardo-Pujol, D., Suso, C., & Andres-Pueyo, A. (2013). Attitudes do matter: The role of attitudes and personality in DUI offenders. *Accident Analysis and Prevention, 50*, 445-450. doi:10.1016/j.aap.2012.05.023
- Lapham, S. C., Kapitula, L. R., Baca, J. C., & McMillan, G. P. (2006). Impaired-driving recidivism among repeat offenders following an intensive court-based intervention. *Accident Analysis and Prevention, 38*, 162-169. doi:10.1016/j.aap.2005.08.009
- Lapham, S. C., Smith, E., Baca, J. C., Chang, I., Skipper, B. J., Baum, G., & Hunt, W. C. (2001). Prevalence of psychiatric disorders among persons convicted of driving while impaired. *Archives of General Psychiatry Journal, 58*, 943-949. doi:10.1001/archpsyc.58.10.943
- Madras, B. K., Compton, W. M., Avula, D., Stegbauer, T., Stein, J. B., & Clark, H. W. (2009). Screening, brief interventions, referral to treatment (SBIRT) for illicit drug and alcohol use at multiple healthcare sites: Comparison at intake and 6 months later. *Drug and Alcohol Dependence, 99*, 280-295. doi:10.1016/j.drugalcdep.2008.08.003
- Maldonado-Molina, M. M., Reingle, J. M., Delcher, C., & Branchini, J. (2011). The role of parental alcohol consumption on driving under the influence of alcohol: Results from a longitudinal, nationally representative sample. *Accident Analysis and Prevention, 43*, 2182-2187. doi:10.1016/j.aap.2011.06.012

- Mallick, J., Johnston, J., Goren, N., & Kennedy, V. (2007). Drugs and driving in Australia: A survey of community attitudes, experience and understanding. Melbourne: *Australian Drug Foundation*. doi:10.1016/j.jsr.2010.01.002
- McCartt, A. T., Hellinga, L. A., & Kirley, B. B. (2010). The effects of minimum legal drinking age 21 laws on alcohol-related driving in the United States. *Journal of Safety Research*, 41, 173-181.
- McKeown, C., & Hippel, R. (2013). Tasmania alcohol report 2013, *Population Health Services Department of Health and Human Services*, Hobart.
- Miller, P., Curtis, A., Sonderlund, A., Day, A., Droste, N. (2014). Effectiveness of interventions for convicted DUI offenders in reducing recidivism: A systematic review of the peer-reviewed scientific literature. *The American Journal of Drug and Alcohol Abuse*, 41, 16-29. doi:10.3109/00952990.2014.966199
- National Centre for Statistics and Analysis. (2010). Drug involvement of fatally injured drivers. Retrieved from <http://www-nrd.nhtsa.dot.gov/Pubs/811415.pdf>
- National Highway Traffic Safety Administration (NHTSA). (2013). State alcohol-impaired-driving estimates. Retrieved from <http://www-nrd.nhtsa.dot.gov/Pubs/812102.pdf>
- National Highway Traffic Safety Administration (NHTSA). (2015). *Results of the 2013-2014 National roadside survey of alcohol and drug use by drivers*. Retrieved from [http://www.nhtsa.gov/Driving+Safety/Research+&+Evaluation/Impaired+driving+\(drug-related\)+reports](http://www.nhtsa.gov/Driving+Safety/Research+&+Evaluation/Impaired+driving+(drug-related)+reports)
- Nelson, S. E., Belkin, K., LaPlante, D. A., Bosworth, L., Shaffer, H. J. (2015). A prospective study of psychiatric comorbidity and recidivism among repeat DUI offenders. *Archives of Scientific Psychology*, 3, 8-17. doi:10.1037/arc0000009
- Nicholson, C. (2012, July). Development of a framework for integrated primary/secondary health care governance in Australia. Paper presented at Australian Government Department of Health and Ageing. Retrieved from http://files.aphcri.anu.edu.au/resources/lectures-presentations/conversations-aphcri/c_nicholson_presentation.pdf
- Nochajski, T. H., & Stasiewicz, P. R. (2006). Relapse to driving under the influence (DUI): A review. *Clinical Psychology Review*, 26, 179-195. doi:10.1016/j.cpr.2005.11.006

- Northern Territory Government. (2014). *Alcohol and drugs*. Retrieved from <http://transport.nt.gov.au/safety/road-safety/our-safer-road-users/alcohol-and-drugs>
- NRMA-ACT Road Safety Trust. (n.d.). *Drink driving*. Retrieved from <http://www.roadsafetytrust.org.au/c/rtt?a=da&did=1000000>
- Owens, K.P., & Boorman, M. (2011). *Evaluating the deterrent effect of random breath testing (RBT) and random drug testing (RDT): The driver's perspective*. Monograph series no. 41. Retrieved from http://www.ndlrf.gov.au/pub/Monograph_41.pdf
- Owusu-Bempah, A. (2014). Cannabis impaired driving: An evaluation of current modes of detection. *Canadian Journal of Criminology and Criminal Justice*, 56, 219-240. doi:10.3138/CJCCJ.2014.ES05
- Prochaska, J. O., & DiClemente, C. C. (1983). Stages and processes of self-change of smoking: Toward an integrative model of change. *Journal of Consulting and Clinical Psychology*, 51, 390-395. doi:10.1037/0022-006X.51.3.390
- Prochaska, J. O., & Velicer, W. F. (1997). The transtheoretical model of health behaviour change. *American Journal of Health Promotion*, 12, 38-48. doi:10.4278/0890-1171-12.1.38
- Queensland Police. (2015). Reported crime trend data. Queensland reported offences number. Retrieved from <https://www.police.qld.gov.au/online/data/>
- Reducing blood alcohol limit to 0.02 won't stop car crashes, say experts. (2010). Retrieved from <http://www.news.com.au/national/reducing-blood-alcohol-limit-to-02-wont-stop-car-crashes-say-experts/story-e6frfkvr-1225840719393>
- Rider, R., Kelley-Baker, T., Voas, R. B., Murphy, B., McKnight, A. J., & Levings, C. (2006). The impact of a novel educational curriculum for first-time DUI offenders on intermediate outcomes relevant to DUI recidivism. *Accident Analysis and Prevention*, 38, 482-489. doi:10.1016/j.aap.2005.11.004
- Road Crash Information Unit. (2013). *Road Crashes in South Australia: Statistical summary of road crashes & casualties in 2012*. Retrieved from http://www.dpti.sa.gov.au/__data/assets/pdf_file/0016/111553/Pink_Book_2012.pdf
- Road Safety Advisory Council. (2015). *Alcohol and drugs*. Retrieved from <http://www.rsac.tas.gov.au/road-safety/alcohol-and-drugs/>

- Road Safety Commission. (2013). *Reported road crashes in Western Australia 2013*. Retrieved from <http://rsc.wa.gov.au/Stats/Annual/annual-crash-statistics-2013.aspx>
- Road Safety Victoria. (2013). *Drug Driving*. Retrieved from <http://www.roadsafety.vic.gov.au/key-issues/drug-driving.html>
- Robertson, A. A., Gardner, S., Xu, Xiaohe, & Costello, H. (2009). The impact of remedial intervention on 3-year recidivism among first-time DUI offenders in Mississippi. *Accident Analysis and Prevention*, 41, 1080-1086. doi:10.1016/j.aap.2009.06.008
- Robertson, R. D., Simpson, H. M., & Parsons, P. (2008). Screening, Assessment and Treatment of DWI offenders: A guide for justice professionals and policy makers. Retrieved from Traffic Injury Research Foundation website http://www.tirf.ca/publications/PDF_publications/TIRF_DWI_Treatment_Report_2008.pdf
- Robertson, R. D., Wood, K. M., & Holmes, E. A. (2014). Impaired driving risk assessment: A primer for practitioners. Retrieved from Traffic Injury Research Foundation website http://www.tirf.ca/publications/PDF_publications/CIHR_Practitioners_16%20web.pdf
- Schaffer, H. J., Nelson, S. E., LaPlante, D. A., LaBrie, R. A., & Albanese, M. (2007). The epidemiology of psychiatric disorders among repeat DUI offenders accepting a treatment-sentencing option. *Journal of Consulting and Clinical Psychology*, 75, 795-804. doi:10.1037/0022-006X.75.5.795
- Schermer, C. R., Moyers, T. B., Miller, W. R., & Bloomfield, L. A. (2006). Trauma center brief interventions for alcohol disorders decrease subsequent driving under the influence arrests. *The Journal of TRAUMA Injury, Infection, and Critical Care*, 60, 29-34. doi:10.1097/01.ta.0000199420.12322.5d
- Schwarzer, R. (1992). Self-efficacy in the adoption and maintenance of health behaviors: Theoretical approaches and a new model. In R. Schwarzer (Ed.), *Self-efficacy: Thought control of action* (pp. 217-243). Washington, DC: Hemisphere.
- Sheehan, M., Fitts, M., Wilson, H., & Schramm, A. (2012). A process and outcome evaluation of the Under the Limit (UTL) therapeutic drink driving program for recidivist and high range offenders. *Foundation for Alcohol Research & Education. Centre for Accident Research & Road Safety*. Retrieved from <http://www.fare.org.au/2012/02/a-process->

and-outcome-evaluation-of-the-under-the-limit-utl-therapeutic-drink-driving-program-for-recidivist-and-high-range-offenders/

Shope, J. T., Elliott, M. R., Raghunathan, T. E., & Waller, P. F. (2001). Long-term follow-up of a high school alcohol misuse prevention program's effect on students' subsequent driving. *Alcoholism: Clinical and Experimental Research*, 25, 403-410.
doi:10.1097/00000374-200103000-00012

Siskind, V., Sheehan, M., Schonfeld, C., & Ferguson, M. (2000). The impact of the Under the Limit Drink-Driving rehabilitation program on traffic safety. Federal Office of Road Safety (FORS) Monograph Series CR186. Canberra, Australia: AGPS.

Sniehotta, F., Pressau, J., & Araújo-Soares, V. (2014). Time to retire the theory of planned behaviour. *Health Psychology Review*, 8, 151-155.
doi:10.1080/17437199.2013.869710

Terer, K. (2014). Effective drink driving prevention and enforcement strategies: Approaches to improving practice. *Trends and issues in crime and criminal justice*. Retrieved from <http://www.aic.gov.au/publications/current%20series/tandi/461-480/tandi472.html>

The Allen Consulting Group. (2009). Review of current and future trends in interactive gambling activity and regulation. Literature review. Retrieved from https://www.dss.gov.au/sites/default/files/documents/05_2012/gambling_25june.pdf

The International Drug Evaluation & Classification Program (DECP). (2015). *Drug Recognition Experts*. Retrieved from <http://www.decp.org/experts/>

Transport Accident Commission. (2012). *Drink driving statistics*. Retrieved from <http://www.tac.vic.gov.au/road-safety/statistics/summaries/drink-driving-statistics>

Transport and Main Road. (2009). *Road traffic crashes in Queensland*. Retrieved from <http://www.tmr.qld.gov.au/Safety/Transport-and-road-statistics/Road-safety-statistics.aspx>

Transport for NSW. (2015a). *Interactive crash statistics*. Retrieved from <http://roadsafety.transport.nsw.gov.au/statistics/interactivecrashstats/index.html?tab=2>

- Transport for NSW. (2015b). *Drug driving fact sheet*. Retrieved from <http://roadsafety.transport.nsw.gov.au/downloads/drug-driving-f.pdf>
- Vingilis, E. (1990). A new look at deterrence in: Drinking and Driving. J. Wilson and R. Mann (eds.) Guilford Publ. New York, U.S.A.
- Voas, R.B., & Lacey, J.H. (1990). Drunk Driving Enforcement, Adjudication, and Sanctions in the United States', in R.J. Wilson and R.E. Mann (Eds.), *Drinking and Driving: Advances in Research and Prevention*. Guildford Press: New York.
- Wagenaar, A. C., Maldonado, M. M., Erickson, D. J., Ma, L., Tobler, A. L., & Komro, K. A. (2007). General deterrence effects of U.S. statutory DUI fine and jail penalties: Long-term follow-up in 32 states. *Accident Analysis and Prevention*, 39, 982-994. doi:10.1016/j.aap.2007.01.003
- Walsh, J. M., Flegel, R., Crouch, D. J., Cangianelli, L., & Baudys, J. (2003). An evaluation of rapid point-of-collection oral fluid drug-testing devices. *Journal of Analytical Toxicology*, 27(7), 429-439. doi:10.1093/jat/27.7.429
- Warchol, G. L. (2000). Intensive supervision probation: An impact evaluation. *The Justice Professional*, 13, 219-232. doi:10.1080/1478601X.2000.9959589
- Watson, B. & Freeman, J. (2007). Perceptions and experiences of random breath testing in Queensland and the self-reported deterrent impact on drunk driving. *Traffic Injury Prevention*, 8, 11-9. doi:10.1080/15389580601027360
- Weatherburn, D., & Moffatt, S. (2011). The specific deterrent effect of higher fines on drink-driving offenders. *British Journal of Criminology*, 51, 789-803. doi:10.1093/bjc/azr043
- Wells-Parker, E., Bangert-Drowns, R., McMillen, R., & Williams, M. (1995). Final results from a meta-analysis of remedial interventions with drink/drive offenders. *Addiction*, 90, 907-926. doi:10.1046/j.1360-0443.1995.9079074.x
- West, R. (2005). Time for a change: Putting the Transtheoretical (Stages of Change) Model to rest. *Addiction*, 100, 1036-1039. doi:10.1111/j.1360-0443.2005.01139.x
- West, R. (2006). *Theory of Addiction*. Malden, MA; Oxford: Blackwells Publishing Ltd.
- Wiliszowski, C. H., Fell, J. C., McKnight, A. S., Tippetts, A. S., & Ciccel, J. D. (2010). An evaluation of three intensive supervision programs for serious DWI offenders. *Association for the Advancement of Automotive Medicine*, 54, 375-387. Retrieved

- from <http://www-ncbi-nlm-nih-gov.ezp01.library.qut.edu.au/pmc/articles/PMC3242566/?tool=pmcentrez>
- Wilson, H. (2015). *Reducing recidivism by first time drink driving offenders* (PhD Thesis). Retrieved from <http://eprints.qut.edu.au/82215/>
- Wilson, H., Sheehan, M. C., & Palk, G. R. (2010, August). Who are the real “first offenders”? Paper presented at In International Council on Alcohol, Drugs and Traffic Safety Conference (T2010), Oslo, Norway. Retrieved from <http://eprints.qut.edu.au/40063/>
- World Bank. (2014). *Global Road Safety Facility (GRSF) strategic plan 2013-2020*. Retrieved from <http://documents.worldbank.org/curated/en/2014/01/18845473/global-road-safety-facility-grsf-strategic-plan-2013-2020>
- Xuan, Z., Blanchette, J. G., Nelson, T. F., Heeren, T. C., Nguyen, T. H., & Naimi, T. S. (in press). Alcohol policies and impaired driving in the United States: Effects of driving- vs. drinking-oriented policies. *International Journal of Alcohol and Drug Research*. Retrieved from <http://www.ijadr.org/index.php/ijadr/article/view/205/335>
- Yokell, M. A., Camarge, C. A., Wang, N. E., & Delgado, M. K. (2014). Characteristics of United States emergency departments that routinely perform alcohol risk screening and counselling for patients presenting with drinking-related complaints. *Western Journal of Emergency Medicine*, 15, 438-445. doi:10.5811/westjem.2013.12.18833
- Yu, J. (2000). Punishment and alcohol problems: Recidivism among drink-driving offenders. *Journal of Criminal Justice*, 28, 261-270. doi:10.1016/S0047-2352(00)00047-7

Appendix 1: Semi-structured interview questions

State of primary practice

Type of practice - Government/not-for-profit/other health service,

GP/Hospital/CHC/AOD/MH/private practice

Focus: AOD, non AOD (%)

Type of practitioner (e.g. Psychologist/psychiatrist/counsellor/doctor)

Time working as primary care practitioner (overall)

- Do you regularly assess your clients/patients for substance use issues? Why/why not? Does this form part of a regular assessment instrument?
- Does your regular client/patient assessment include an item on assessing the risk of impaired driving? (If no, why not?) (If so, how do you word the question?)
- What are your views on the assessment and treatment of impaired driving behaviour in your profession?
- What do you consider to be the main barriers?
- Do you know what your professional guidelines would require if impaired driving was identified for a client/patient?
- If a client/patient identified impaired driving was an issue for them, would you feel comfortable and confident in addressing and treating that behaviour?
- If not, which organisations or services would you refer them to?
- What do you think you would say?
- What do you think would be useful in a practitioner training course for impaired driving?
- How often would your patient/client individually or self-identify impaired driving as an issue for them?

Appendix 2: Questionnaire items

1. Main location of clinical practice (Aus postcode)
2. Type of service: Government/not-for-profit/ GP/Hospital/ CHC/AOD/MH/private practice/other (please specify)
3. Primary service focus: AOD/Other
4. Practitioner occupation type
 - a. Psychologist
 - b. Psychiatrist
 - c. General Practitioner
 - d. Nurse
 - e. Social Worker
 - f. Counsellor
 - g. Indigenous health worker
 - h. Other (please specify)
5. Time registered as practitioner (overall) years/months
6. What is the average number or percentage of clients/patients seen with diagnosable alcohol issues?
7. What is the average number or percentage of clients/patients seen with diagnosable drug issues?
8. What is the average number or percentage of clients/patients seen with diagnosable alcohol and drug issues?
9. Approximate attrition (rate of clients who only attend one appointment)
10. Most practitioners use a combination of different approaches to intervene with high risk substance users. In general, what is the likelihood that you would use the following intervention types with this group? (scale 1-7, very unlikely – very likely)
 - a. Cognitive Behavioural Therapy
 - b. Motivational Interviewing
 - c. PsychoEducation
 - d. Acceptance and Commitment Therapy
 - e. Rational Emotive Behaviour Therapy
 - f. Counselling
 - g. Pharmacological therapies (medication)
 - h. Other (please state)
11. How likely are you to use brief interventions? (Scale 1-7, very unlikely – very likely)
(add definition of bi)

Brief intervention aim to motivate those at risk to change their behaviour. Brief intervention can range from 5 minutes of brief advice to 15-30minutes of brief counselling. The aim of BI is to help the patient understand that their behaviour is putting them at risk, and to encourage them to reduce or give up that risky behaviour (WHO, 2003).

12. How often do you advise your client/patient for follow-up care, post treatment?
(Scale 1-5, Never, rarely, sometimes, Most of the time, every time)
13. Do you have a standard assessment form?
14. Does your assessment form have questions about impaired (drink/drug) driving?
 - a. (If yes) What does the form say? (logic inserted, if yes to Q11, Q12 will appear. If no to Q11, Q13 will appear).
 - b. How do you typically ask the question?
 - c. How often do you ask the question? (Never, rarely, sometimes, most of the time, every time) *OR* only if impaired driving is suspected
15. Do you have any workplace procedures or policies relating to alcohol and drug impaired driving (e.g. If someone arrives by car to an appointment clearly intoxicated; if they report drink or drug driving; or for addressing risk behaviours in therapy).
16. Please rate on the following scale your willingness, likelihood and confidence to assess for **substance use**: (1-7 not at all – very much)
 - a. I am willing to assess for substance use
 - b. I am likely to assess for substance use
 - c. I am confident in assessing for substance use
17. Please rate on the following scale your willingness, likelihood and confidence to assess for **impaired (drink or drug) driving**: (1-7 not at all – very much)
 - a. I am willing to assess for impaired driving
 - b. I am likely to assess for impaired driving
 - c. I am confident in assessing for impaired driving
18. I have a lot of knowledge about the evidence on impaired (drink and drug) driving behaviour (1-7 not true at all, very true)
19. What do you believe could improve your level of confidence in addressing this impaired driving (open text box)?
20. What is your duty of care in addressing risk behaviours?
21. If impaired driving is identified by you, what would you be likely to do?
 - a. Provide intervention myself
 - b. Provide referral options

- c. Provide both intervention and referral
22. The next section provides two case studies related to impaired driving. Please read the case study and you will then be asked to decide the appropriate treatment options based on your own professional knowledge and experience:
- a. Imagine you come across a client/patient who tells you that they have a serious problem with impaired driving. They say they don't know how to stop and they need your help. What would your approach be?
 - b. Imagine you come across a client/patient who reports to you that they drink or take an illicit drug every day. How likely are you to ask them about their impaired driving behaviour in the first session and why?
23. What are your professional obligations in disclosing a behaviour like impaired driving to authorities? What do you think would happen should you report this behaviour?
24. How skilled do you feel in treating the following issues? (Scale 1-7, not skilled at all – very skilled)
- a. Illicit drug dependency
 - b. Binge drinking
 - c. Drink driving
 - d. Drug driving
 - e. Risky sexual behaviour
 - f. Suicidal behaviour
25. How confident do you feel in treating the following issues? (Scale 1-7, not confident at all- very confident)
- a. Illicit drug dependency
 - b. Binge drinking
 - c. Drink driving
 - d. Drug driving
 - e. Risky sexual behaviour
 - f. Suicidal behaviour
26. There are some barriers that may be relevant to you in assessing and treating impaired driving, and these may differ between primary care providers. How much would you consider the following to be barriers to impaired driving assessment and treatment [please rate on the scale below]:(1-7; Not much at all – Very much)
- a. Lack of training in how to screen and treat the behaviour
 - b. It's not part of my standard assessment tool
 - c. It's not part of my role
 - d. Confidence in what to do
 - e. Potential legal issues
 - f. Workload concerns
 - g. Other (please note)

27. How do you go about prioritising, presenting, and assessing client/patient issues in your practice? Do you treat their issues of concern first? Why? What if there are other more major issues you identify?
28. We plan to develop an online training course to assist practitioners in how to assess and treat alcohol and drug impaired driving. What do you think would be the most useful content for you in such a training course? (Open text box/s)
29. Thank you for your time. Would you be happy for us to contact you by email for the option of free access to the practitioner training module when it has been developed? You will receive a Certificate of Completion if you take part in the following training module. (Provide email here) (Opens another survey to separate email addresses)

Appendix 3 - Summary of drink driving rehabilitation programs operating in Australia

Queensland - Current programs in Queensland include the UTL program, Driving with Care, Attitudinal Driving Workshops and Traffic Offender Program (operated at the Gold Coast only). These programs are all voluntary, offered at the discretion of a Magistrate during sentencing, with payment generally being in lieu of a larger fine. The UTL program is the only program available that has been thoroughly evaluated. All programs are offered face to face with a facilitator or clinician.

Name of program	Program Length	Delivery	Cost	Offender target group	Evaluations of effectiveness	Methods of referral
Under the Limit (CARRS-Q)	6 weeks, 2 hour sessions	Group sessions with facilitator	\$500	<i>High range & recidivist drink drivers</i>	<i>55% reduction in subsequent drink driving offences for repeat offenders¹</i>	Discretion of magistrate (on probation order) or voluntary
Driving With Care (ADFQ)	3 or 12 weeks, 2 hour sessions	Group sessions with AOD clinician	\$300 (3 week course) \$700 (12 week course)	<i>3 week course – low range first offenders, 12 week course high range repeat offenders</i>	<i>Preliminary evaluation (n=21) indicates 95% did not reoffend (self-report)</i>	Discretion of magistrate, police, solicitors, and voluntary
Traffic Offender Program	5 weeks, 1hr 45min sessions	Group sessions with facilitator	\$165	<i>First and second time drink driving and unsafe driving offenders</i>		Discretion of magistrate (adjourned until program completed) or voluntary

¹ Siskind, Sheehan, Schonfeld & Ferguson (2000).

New South Wales - As a pre-sentence option, offenders can take part in a generalised Traffic Offenders Program. There is also a specific Sober Driver Program aimed at repeat offenders. Note there is no program which aims to target first offenders or is delivered in an online mode.

Name of program	Program Length	Delivery	Cost	Offender target group	Evaluations of effectiveness	Methods of referral
Traffic Offenders Program	8 weeks, 2 hour sessions	Group sessions with facilitator/ expert presenters	Free	All traffic offenders	Reduce probability of reoffending by 25% ¹	Pre or post sentencing, magistrate, voluntary
Sober Driver Program	9 weeks, 2 hour sessions	Group sessions with facilitator		Repeat drink driving offenders	43% reduction in recidivism compared with controls	Magistrate or Probation officer

Victoria - The Victorian Accredited Driver Education Program comprises a range of requirements including attendance at an eight-hour education course and one or more assessments for alcohol problems. The course which is run by a number of regulated agencies is a pre-requisite for drivers apprehended for, and convicted of drink driving before regaining their licence. The course is not available in an online mode. While there are currently no therapeutic programs available for drug driving, there are drug driving education programs available.

Name of program	Program Length	Delivery	Cost	Offender target group	Evaluations of effectiveness	Methods of referral
Victorian Accredited Driver Education Programs (drink driver/drug driver)	8 hours	Group sessions with facilitator (or assessment); numerous providers	Recommended fees: Assessment fee: \$165-\$175 Program \$185 Court report \$75 Interlock removal order assessment \$220	All drink drivers		Magistrate (requirement for re-licencing)

Australian Capital Territory - In November 2010, the ACT Legislative Assembly passed the *Road Transport (Alcohol and Drugs) Legislation Amendment Act 2010*, which included a range of drink and drug driving reforms. The amendments included the requirement for people convicted of drink or drug driving to complete an alcohol and drug awareness course before a restricted or probationary licence can be issued to the person by the road transport

¹ <http://www.trafficoffenders.com.au/rtaevaluation.htm>

authority. This requirement applied to a person who committed an offence on or after 25 November 2011. The courses, run by the ACT Government Provider 'Get Road Ready' are two instructor led courses which are determined by the level of offence (2 hours of educational awareness or 6 hours of therapeutic and educational awareness). The two hour course is only available to those offenders who are under 0.08 at the time of offence and who have not committed a prior offence.

Name of program	Program Length	Delivery	Cost	Offender target group	Evaluations of effectiveness	Methods of referral
Get Road Ready (ACT Gov't)	2 hours or 6 hours	Group sessions with facilitator	\$85 (2 hour) \$220 (6 hour)	<i>2 hour course – first offenders under 0.08, 6 hour course – all other offence levels</i>		Court referred

Tasmania - Tasmania currently has an option to attend a sober driver program (based on the NSW model). Again, this program is focussed on repeat offenders and is not available on an online mode.

Name of program	Program Length	Delivery	Cost	Offender target group	Evaluations of effectiveness	Methods of referral
Sober Driver Program	9 weeks, 2 hour sessions	Group sessions with facilitator		<i>Repeat drink driving offenders</i>		Magistrate (on probation order)

Northern Territory - Northern Territory has been offering a drink driver education program since 1995 and offenders who have been disqualified from driving must complete this program as a legislative requirement before they are eligible to be re-licensed. The program consists of two modules. First time offenders with a BAC less than 0.15 must complete the first module of five sessions of two hours duration that addresses the short term effects of alcohol and alternative strategies. Repeat offenders and offenders with a BAC of 0.15 or greater must complete the first module as well as an additional module that addresses the long-term effects of alcohol and alternative strategies. Dwyer and Bolton (1998) evaluated the program and found that only 12.8% of successful completers had re-offended within two years following re-licensing. This evaluation, however, failed to account for those offenders who moved or didn't renew their licence.

Name of program	Program Length	Delivery	Cost	Offender target group	Evaluations of effectiveness	Methods of referral
Course in Drink	Unit 1: 1.5 days	Group sessions	Unit 1: \$230	<i>Unit 1: First offenders</i>	<i>12.8% reoffence</i>	Magistrate (requirement)

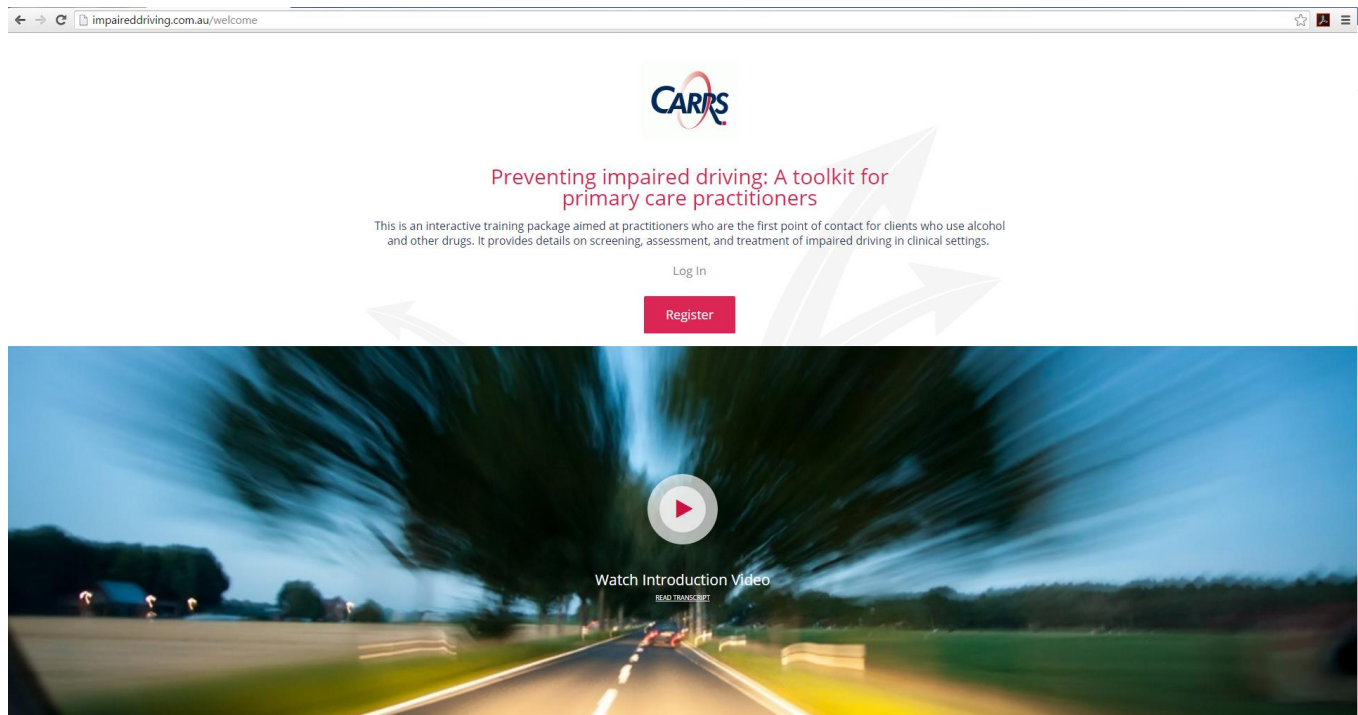
Driver Education (DDE)	max., 10 hour session Unit 2: 4 hours on top of unit 1	with facilitator	Both units: \$320	<i>with BAC between 0.08 - 0.15 or DUI² Unit 2: Offenders over 0.15, repeat offenders and refusal to supply offenders</i>	<i>rate in participants after 1 year³</i>	for relicensing)
------------------------	---	------------------	-------------------	--	--	------------------

Western Australia and South Australia do not have any programs available for drink driving offenders.

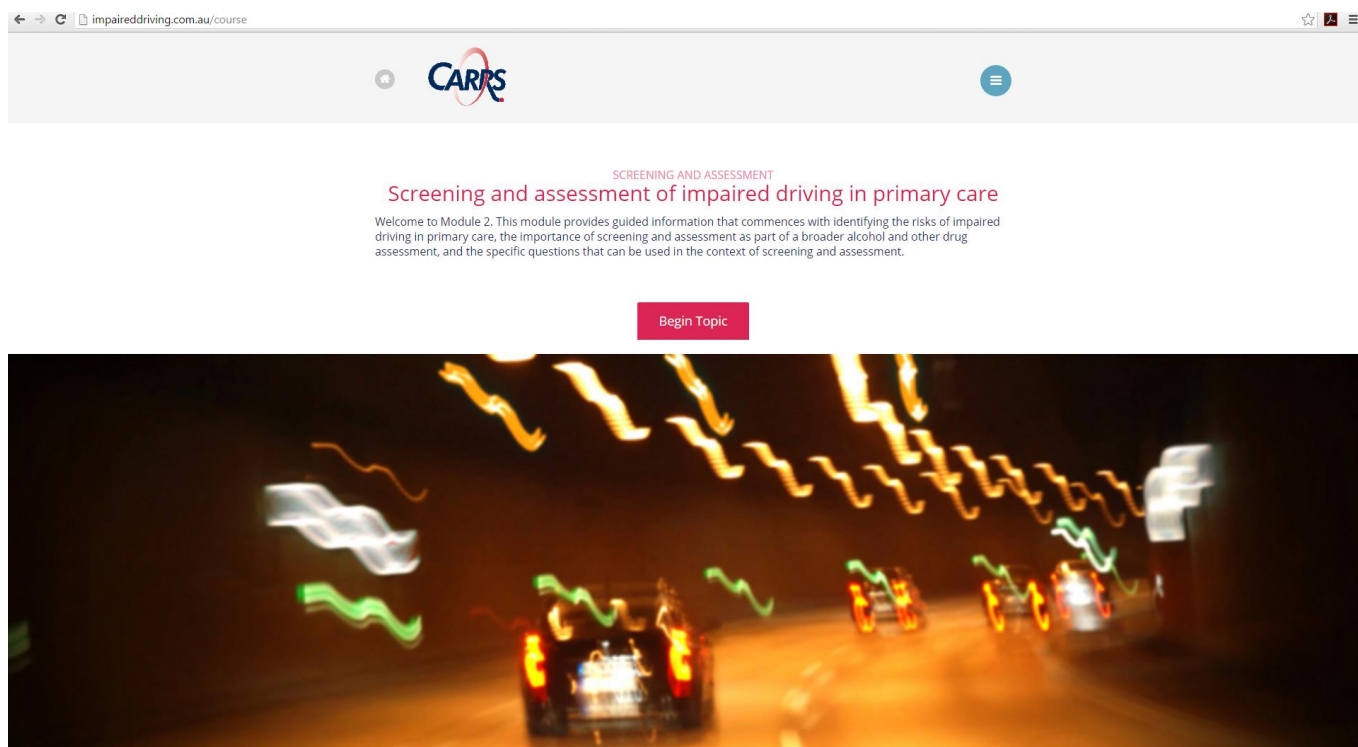
² A person can be charged with DUI if found to be incapable of having proper control of a motor vehicle due to the influence of any concentration of alcohol in the blood. In some cases people with very low BAC readings may be charged with DUI.

³ Dwyer & Bolton, 1998

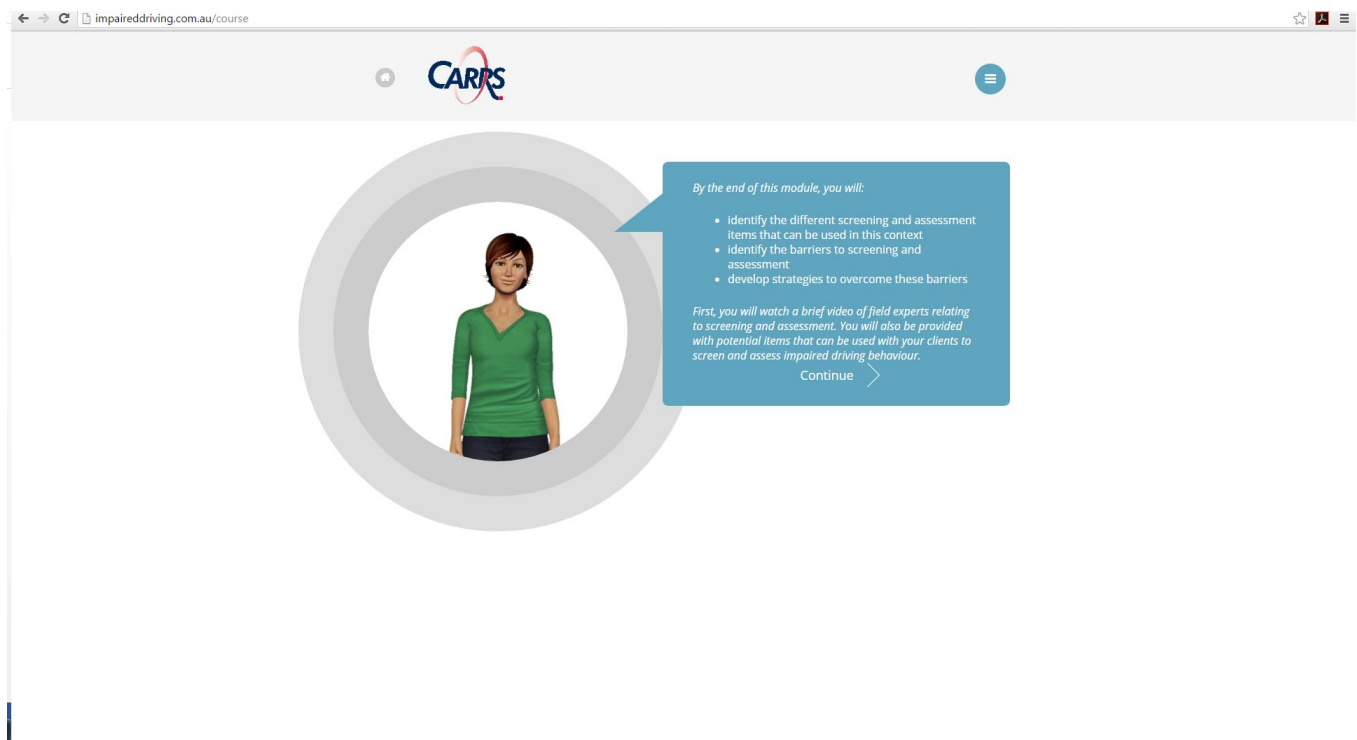
Appendix 4: Preventing Impaired Driving: A toolkit for primary care practitioners screenshots



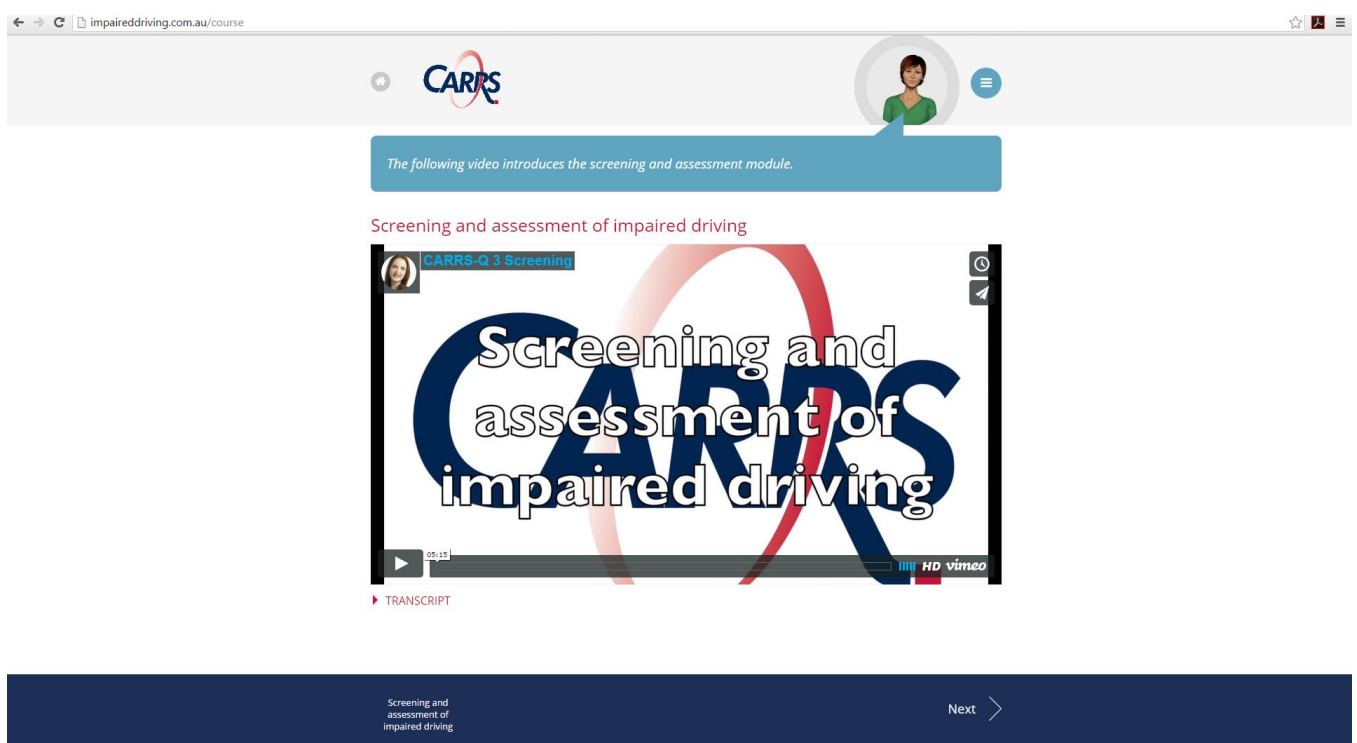
Welcome page



Module introduction page



Avatar guided page (with module learning outcomes)



Video introduction page


CARRS

Let's start with a little quiz. How much do you know about alcohol and the body? Answer true or false to the following statements to see how much you know...

Bars and restaurants always serve standard drinks

☐ True ☒ False ✓

Correct, bars and restaurants don't always serve standard drinks. For example, a standard glass of wine is 100ml, which is commonly poured as 150-180ml in bars and restaurants.




Back Risks of impaired driving Quiz Risks of drink driving Risks of drug driving Next

Knowledge quiz

CARRS

The following 'drug driving' fact sheet can be downloaded for your information or provided to your clients.

Drug driving fact sheet



Risks of impaired driving Quiz Risks of drink driving Risks of drug driving Fact sheets Next

Links to CARRS-Q fact sheets