



NDLERF

Interventions for reducing alcohol supply,
alcohol demand and alcohol-related harm

Final Report

A/Prof Peter Miller, Ashlee Curtis,
Prof Tanya Chikritzhs and Prof John Toumbourou

Monograph Series No. 57

Funded by the National Drug Law Enforcement Research Fund
An Initiative of the National Drug Strategy

Interventions for reducing alcohol supply, alcohol demand and alcohol-related harm

Final Report



AVProf Peter Miller

Ashlee Curtis

Prof Tanya Chikritzhs

Prof John Toumbourou

**Funded by the National Drug Law Enforcement Research Fund,
an initiative of the National Drug Strategy**

Produced by the National Drug Law Enforcement Research Fund (NDLERF)
GPO Box 2944, Canberra, Australian Capital Territory 2601

© Commonwealth of Australia 2015

ISSN: 1449-7476

This work is copyright. Apart from any use as permitted under the *Copyright Act 1968*, no part may be reproduced by any process without prior written permission from the Commonwealth available from the National Drug Law Enforcement Research Fund. Requests and enquiries concerning reproduction and rights should be addressed to the National Drug Law Enforcement Research Fund, GPO Box 2944, Canberra, Australian Capital Territory 2601.

Opinions expressed in this publication are those of the authors and do not necessarily represent those of the National Drug Law Enforcement Research Fund (NDLERF) Board of Management or the Australian Government Department of Health and Ageing.

The research on which this report is based was funded by the National Drug Law Enforcement Research Fund, an initiative of the National Drug Strategy.

Contents

Acknowledgements	vii
Intervention index	viii
1. Introduction	3
1.1 Reducing supply.....	4
1.2. Reducing demand	4
1.3. Harm reduction strategies.....	5
1.4. A theoretical framework.....	5
1.5. Summary and conclusion	6
2. Studies	7
2.1. Systematic literature review	7
2.2. Delphi	7
2.3. Delphi round one	7
2.4. Delphi round two	8
2.5. Delphi round three	10
3. Interventions	14
4. Synthesis and summary	68
4.1. Evidence Rating System.....	68
4.2. Reducing supply.....	68
4.3. Reducing demand	69
4.4. Reducing harm	69
4.5. Limitations	70
4.6. Mandatory versus voluntary interventions	71
4.7. Enforcement.....	71
4.8 Cost-effectiveness.....	72
4.9 Conclusions.....	72
5. Recommendations	79
5.1 Australian Government Responses	79
5.2 State Government Policy	82
5.3 Further research	84
5.4 Further matters for consideration	84
6. References	87
7. Appendix A	97

7.1 Community Approach.....	97
7.2 Reducing harm.....	97
7.3 Education.....	98
8. Appendix B	100

Tables

Table 1: Delphi responses on supply reduction measures	8
Table 2: Delphi responses on demand reduction measures.....	9
Table 3: Delphi round three responses on measures	10
Table 4 Delphi responses on harm reduction measures	12
Table 5: Associations between number of patrons/crowdedness and patron aggression	63
Table 6: Evidence and effectiveness rating system.....	68
Table 7: Summary table of interventions to reduce supply of alcohol effectiveness ratings.....	73
Table 8: Summary table of interventions to reduce demand of alcohol effectiveness ratings.....	74
Table 9: Summary table of interventions to reduce alcohol-related harm with effectiveness ratings.....	75

Figure

Figure 1: The ecological framework	5
--	---

Boxes

Box 1: Stockholm prevents alcohol and drug use (Wallin et al., 2005b).....	26
Box 2: The Strengthening Families Program for young adolescents (Bowes et al., 2012)	34
Box 3: Reducing access to alcohol for young people under age 18 program.....	47
Box 4: The Living With Alcohol Program	50
Box 5: Main themes of the Safer Bars training program (Graham et al., 2004)	57

Acknowledgements

We are grateful to co-investigator, Professor Steve Allsop, for his comments on final drafts and overall guidance on the project.

Special thanks to Detective Superintendent James Migro, Dr Maria Borzycki, Debra Salter, Inspector Steve Munro, Inspector William Graham, Sergeant Wayne Buck, Leading Senior Constable Bob Pupavac, Mr Barry Newell, Mr Pat Doyle, Mr Michael Sarquis, Superintendent Pat Paroz, Sergeant Jo Cameron, Senior Sergeant Tim Pfitzner, Mrs Pat Ward and Ms Katalina Bradley.

Thank you to Elise Cox for proofreading the report.

Particular thanks go to Superintendent Anthony Cooke (NSW Police Force) and Dan Keating (QLD Police Service, superintendent retired) for their continued support and advice.

We are grateful to Prof Kate Graham and Prof Ross Homel for their guidance in many areas.

Intervention index

1. Accords (Voluntary Liquor Licensing Forums)	14
2. Advertisement of alcohol-related harms	17
3. Advertising and promotion restrictions	18
4. Alcohol content of drinks—limits after midnight	19
5. Alcohol diversion programs	19
6. Alcohol management plans	19
7. Alcohol-related harm/risk reduction via the development application process	20
8. Alcohol service to finish 30 minutes before closing	20
9. Alcohol warning labels	21
10. Application liquor restrictions s 64 <i>Liquor Control Act 1988</i>	21
11. Banning (venue-instigated sanctions imposed on repeat offenders)	21
12. Banning volume discounts	23
13. Beat da Binge	23
14. Beverage types sales restriction	23
15. Closed-circuit television	24
16. Community action projects	25
17. Community-led sales restrictions	26
18. Consequence policing	27
19. Developmental prevention interventions	28
20. Drink Safe precincts	28
21. Drug detection dogs	29
22. Drunk tanks	29
23. Dry or alcohol free zones	29
24. Early Intervention Pilot Program	30
25. Education	31
26. Energy drink restrictions	33
27. Enforcement of <i>Liquor Act 2010</i>	33
28. Family-based alcohol use prevention	33
29. Free water	34
30. Glassware and violence	34
31. Good sports	35
32. Healthy Sporting Environments Demonstration Project	36
33. High visibility security clothing	36
34. High risk venue designation	37
35. Holyoake family alcohol and drug programs	37

36. ID-scanner technology	37
37. Individualised control of drinkers	38
38. Liquor accords in Indigenous communities	39
39. Liquor Advisory Board (LAB)	39
40. Liquor licence application interventions/objections	40
41. Liquor restricted area s 175(1a) <i>Liquor Control Act 1988</i>	40
42. Liquor restricted premises s 152P <i>Liquor Control Act 1988</i>	40
43. Lockouts.....	41
44. Mandatory treatment	42
45. Multi Agency Liquor Taskforce (MALT)	42
46. No sale of shots or strong mixed drinks	43
47. Operations alcohol-related violence.....	43
48. Outlet density.....	43
49. Patron dispersal	44
50. People management by pedestrianising.....	45
51. Pharmaceutical treatments	45
52. Planning assessment process changes to liquor licences.....	45
53. Preparing youth and parents for night-life.....	46
54. Purchase age restrictions.....	46
55. Police interventions	47
56. Precinct Ambassadors.....	48
57. Price including excise and taxation.....	49
58. Radio communication networks.....	50
59. Random breath testing in venues.....	52
60. Risk-based licensing	52
61. RSA-program effectiveness.....	53
62. RSA marshals	55
63. Sales restrictions.....	56
64. Safer Bars.....	56
65. Secondary supply restrictions	57
66. Security personnel	57
67. Security plans	58
68. Service (opening) hours for venues.....	59
69. Sunshine Coast Drink Safe Coalition Project	60
70. Test purchasing.....	60
71. Transport availability	60

72. User pays policing alternatives	62
73. Venue capacity, crowding and aggression.....	62
74. Venue comfort	63
75. Venue design and structural plan	64
76. Venue entrance queues	65
77. Venue order and cleanliness.....	65
78. Venue staff-to-patron ratio	66
79. Venue staff gender	66
80. Venue staff drinking.....	66
81. Violent venues register (sch 4, <i>NSW Liquor Act 2007</i>).....	67

1. Introduction

Alcohol accounts for about four percent of deaths worldwide and 4.65 percent of the global burden of injury and disease. This places it alongside tobacco as one of the leading preventable causes of death and disability (Rehm et al., 2009). Four out of five Australians aged over 14 years report being recent drinkers and one in five report drinking seven or more drinks on a single occasion at least monthly (Australian Institute of Health and Welfare, 2008). Two-thirds (61%) of 18 29-year olds report consuming alcohol to get drunk (Laslett et al., 2010). The annual cost of alcohol-related harm in Australia is estimated to be between \$15.6 (Collins & Lapsley, 2008) and \$36 billion (Laslett et al., 2010) depending on the model used and whether harm to others is included in the model. The personal cost of alcohol-related trauma to many individuals is overwhelming (Laslett et al., 2010). Virtually every type of alcohol-related harm is on the rise in Australia (Livingston et al., 2010).

Many interventions currently exist which attempt to reduce the supply, demand and harm associated with alcohol. In Australia, alcohol is related to around 3,000 deaths and 65,000 hospitalisations every year (Collins & Lapsley, 2008). During an average week, four people under the age of 25 die as a direct result of alcohol-related harm, and 70 Australians under 25 are hospitalised due to injury associated with alcohol consumption (Chikritzhs et al., 2003). A substantial proportion of the problems associated with alcohol and interpersonal violence appears to arise in or around licensed premises in the night-time economy.

While many interventions have been implemented to curb alcohol-related violence and injury, few local community level responses are based on evidence. This is due to several factors, including the widespread acceptance of alcohol consumption and related violence as a part of Western culture, as well as the difficulty in trialling many of the interventions in a scientifically rigorous fashion (Graham, 2008). Many initiatives are thus created, based on little empirical evidence, and are seldom implemented with an integrated evaluation strategy (Saffer, 1991).

The most authoritative review of alcohol-related harm and the measures to reduce it is *Alcohol: No ordinary commodity* (Babor et al., 2010). The book uses an expert consensus model with the author panel representing a collection of the leading international researchers in the field. The author group then meets over the course of the project and produces a consensus version of each chapter. The main problem with this method is that it relies on the final version reflecting a consensus opinion and there is no formal documentation of the process or feedback behind the final document. Despite this, the book is authored by the leading researchers in the field, and it accurately reflects the major issues in alcohol supply and demand.

Other smaller reviews examine more specific issues or locations. For example, Anderson and Baumberg (2006) produced a comprehensive description of alcohol-related harm and the measures required to address it for the European Union. Alternatively, a substantial number of topic-specific reviews focus on strategies to reduce supply or demand. Recent stand-out examples in supply reduction are the book *Raising the bar* (Graham & Homel, 2008) providing a comprehensive review of strategies around licensed venues and the National Drug Research Institute report *Restrictions on the sale and supply of alcohol: Evidence and outcomes* (Chikritzhs et al., 2007b) looking at restricting supply more broadly. Specific reviews around demand reduction strategies include the review article *Interventions to reduce harm associated with adolescent substance use* (Toumbourou et al., 2007) and *The prevention of substance use, risk and harm in Australia: A review of the evidence* (Loxley et al., 2004).

Babor et al. (2010) identifies seven different ways in which alcohol-related harm can be addressed:

- applying alcohol taxes and other price controls;
- regulating physical availability through restrictions on time and place of sales and density of alcohol outlets;
- altering the drinking context;
- using drink-driving countermeasures;
- providing information to adults and young people especially through mass media and school-based alcohol

education programs;

- regulating alcohol advertising and other marketing; and
- conducting screening and brief interventions in health care settings; increasing availability of treatment programs.

These strategies have been widely researched globally. They reflect the evidence and are reliable when applied in the real world. Many of the interventions discussed have not been tested in Australia, and some that have been tested (particularly increasing the price of alcohol) have not been popular with politicians, policymakers nor the public. This was also noted in a major Australian review by the National Preventative Taskforce Alcohol Working Group (2008). These major reviews have tended to focus on categories based on response type, rather than their intended effect (ie reducing supply, demand or harm). The UN has conceptualised strategies under such categories since the late 1990s.

1.1 Reducing supply

In this project, we define reducing supply or supply reduction as any measures associated with the supply of alcohol. Measures can include serving practices in licensed venues or the number of outlets in a specific geographic area. They can also include restricting access such as minimum purchase age or restricting trading hours. Some strategies for reducing supply have a strong empirical basis in relation to reducing alcohol-related harm. While major measures are well researched, many practices that are generally considered best practice have little or no evidence. For example, the recent case study of trading restrictions imposed on venues in Newcastle in New South Wales incorporated restricted trading hours (which have a strong evidence base) along with restricting the types and quantities of drinks that could be sold (Miller et al., 2011a).

1.2. Reducing demand

A vast array of strategies can be included under the banner of reducing demand. Major areas include: restricting advertising/marketing, prevention programs, early intervention programs for people exhibiting alcohol problems, education measures, and treatment and policy-level measures such as pricing controls – though some may see this as reducing supply.

As with reducing supply, there are many targeted reviews and more general reviews for specific locations and intervention types. For example, conceptual frameworks for thinking around reducing the demand for substance use have been identified (Loxley et al., 2004; Toumbourou et al., 2007). Toumbourou et al. (2007) found that prevention is a central demand reduction strategy. Traditional classification of prevention approaches includes primary, secondary, and tertiary strategies. Primary prevention aims to reduce risks and prevent new cases, secondary prevention seeks to limit harm in the early stages of a disorder, and tertiary prevention treats the long-term sequelae and consequences of a disorder.

An alternative conceptualisation categorises approaches based on level of risk of a disorder in various targeted groups. Universal interventions are directed at whole populations at average risk; selective interventions target groups at increased average risk, and indicated interventions target individuals with early emerging problems. Reductions in pre-birth maternal use of drugs, environmental tobacco smoke, and substance-impaired parenting have been associated with reduced risk of adolescent alcohol misuse and mental health problems. Unsurprisingly, developmental perspectives have been widely incorporated in attempts to understand and reduce adolescent substance use. Social developmental risk and protective factors originate not only during the early years but also in a range of environments, such as education systems and local communities, and are affected by cultural factors.

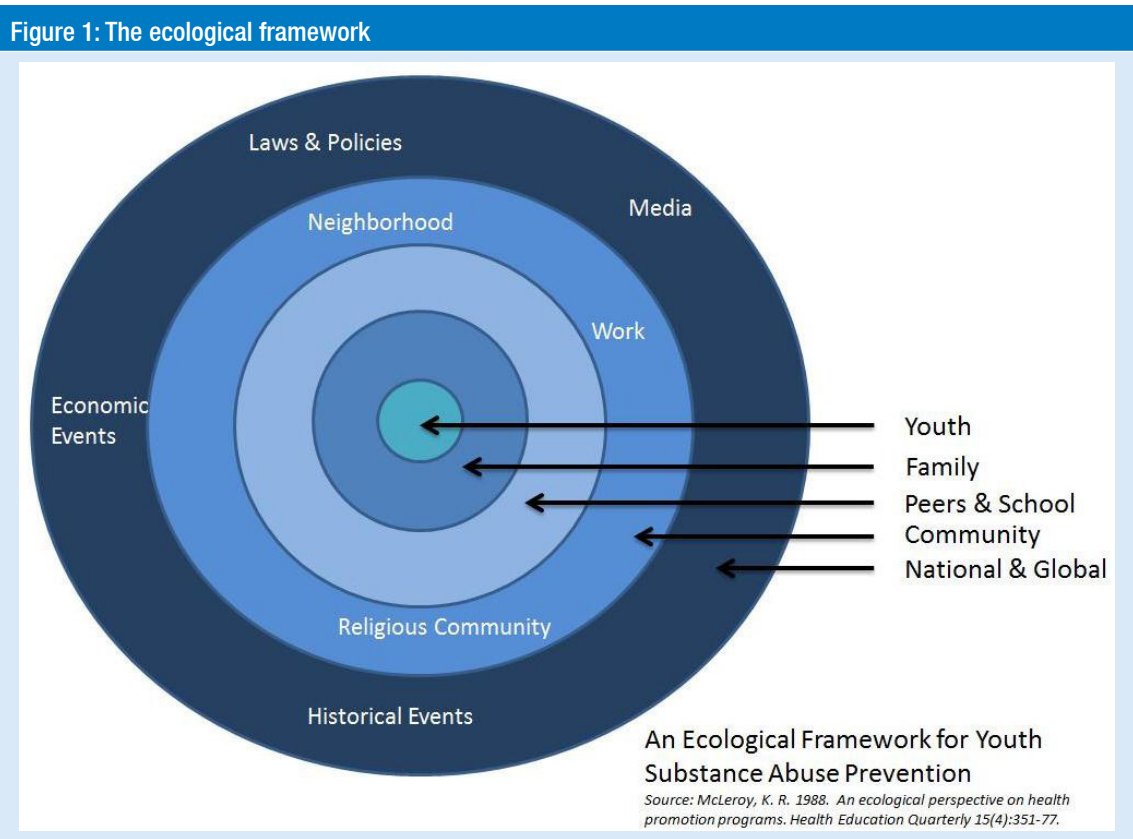
In general, prevention programs seem more successful when they maintain intervention activities over several years and incorporate more than one strategy. Developmental prevention programs are unlikely to be adequate as a stand-alone policy to reduce population harm related to substance use, particularly for substances such as tobacco where the burden of harm falls late in life.

1.3. Harm reduction strategies

Many strategies have elements of reducing both supply and demand. In keeping with UN categories, this report includes these under the banner of harm reduction strategies. Major elements of harm reduction approaches include Responsible Service of Alcohol (RSA) programs, community intervention programs, security and management strategies around licensed venues and newer technological innovations such as closed-circuit television (CCTV) in venues, radio networks and ID scanners. The RSA interventions typically involve education about the minimum legal purchase age (MLPA) and public drunkenness, the physiological effects of alcohol, identifying overt signs of patron intoxication, legal issues of alcohol service, management training and policy development (Graham & Homel, 2008). While positive effects have been found in some studies, effect sizes have generally been small and often short-lived (Johnsson & Berglund, 2003; Wagenaar et al., 2005a). Many harm reduction strategies for which there is literature, are not mentioned in this brief summary. Many practices also remain which deserve further consideration, such as models of providing security (ie staff/patron ratios), high visibility clothing for staff in venues, CCTV, ID scanners and radio networks, etc. This information needs to be collated and independently assessed.

1.4. A theoretical framework

The report will use the ecological framework (McLeroy et al., 1988) when describing interventions to allow for further understanding of the types of interventions being used from a broader perspective, as well as to acknowledge any gaps in existing interventions.



1.4.4 Societal

Societal interventions influence whether alcohol consumption is encouraged or inhibited. They include economic (eg tax) and social policies and the advertising and availability of alcohol.

1.4.2. Community

Community factors include an individual's neighbourhood, any religious communities within the community, and factors such as those unique to the situation in which the alcohol is being consumed. For example, the policies put in place by venues around alcohol consumption. Situational interventions are therefore those that focus on managing alcohol consumption of an individual while they are in the community.

1.4.3. Social

Social interventions focus on peer groups and social norms and their influence on alcohol. These interventions approach alcohol consumption acknowledging the importance of an individual's group of friends, and well as known social norms.

1.4.4. Family

Family can have considerable influence over an individual's alcohol use, and can provide an environment that encourages or discourages alcohol consumption. Family interventions focus on incorporating an individual's family within the intervention to provide the individual with the support they require.

1.4.5. Individual

Individual interventions focus on helping the individual to make changes in their alcohol consumption and behaviour while consuming alcohol. This may include placing the individual on medication or helping them to change their behaviours towards alcohol.

1.5. Summary and conclusion

Use of alcohol contributes substantially to the burden of disease and harm in society. Some evidence suggests it can be reduced through applying a combination of regulatory, early-intervention, and harm-reduction approaches. The diversity of research knowledge and practical experience often leads to confusing messages for practitioners wishing to reduce alcohol-related harm in their community. Much of the evidence remains of poor quality and is often of limited relevance to multiple settings. Further, a plethora of interventions have not yet been evaluated. Although great progress has been made over the past three decades, many interventions still only have evidence of efficacy, and need to be evaluated in real-world settings to establish effectiveness.

2. Studies

2.1. Systematic literature review

A systematic computer database search of all EBSCO databases, ProQuest, EMBASE and Sociological Abstracts used the following search terms: 'supply reduction' or 'demand reduction' or 'harm reduction' AND 'alcohol' or intox* AND intervention* or treatment* or program*. A Google Scholar search was also used as it searched all databases, ensuring all relevant papers were captured. Reference lists of previous reviews and articles in the area were also read to ensure all relevant studies were included.

2.2. Delphi

The Delphi method provides a reliable consensus of opinion from a panel of experts. It involves conducting a series of structured surveys, the responses from which are summarised and returned to the panellists in the next survey (Hasson et al., 2000). This iterative process continues until consensus is reached, that is responses are stable through a series of rounds (Crisp et al., 1997). In round one, panel members were asked to rate the importance of the supply and demand reduction strategies as well as harm reduction strategies identified from the systematic literature review and environmental scan. The participants were asked to rate interventions on its effectiveness for reducing alcohol-related assaults, reducing intoxication, solving crime, preventing crime, reducing alcohol-related harm, and reducing alcohol consumption.

Round two involved presenting interventions back to the panellists to rate. Firstly, they were asked to re-rate any interventions that received low mean effectiveness scores on each of the domains. After this, they were asked to rate any new interventions that were suggested from round one of the Delphi process. Participants were given the opportunity to comment on any of the interventions from both round one and two so that any qualitative feedback could be analysed. This qualitative feedback assisted in understanding why some interventions rated more highly on the different domains than others.

2.3. Delphi round one

The first round was labelled as the environmental scan. The environmental scan round was conducted to gather information on any interventions for alcohol supply, demand and harm reduction that might be being used around Australia. The survey contained questions regarding the person's suburb, state, occupation, as well as asking participants to describe any interventions that they were aware of, or that they may be involved in applying. Recruitment was via a snowball email method, first contacting those who were known to the researchers or who held relevant institutional roles, and then asking them to pass on to others who may have been interested in participating. A link to the survey was sent to existing alcohol and drug email lists and via police newsletter. Any person with information about interventions to reduce alcohol supply, demand and harm was eligible to participate.

The first round of the Delphi received 83 responses. Respondents came from across Australia (43.9% NSW; 11% Vic; 9.8% Qld; 8.5% NT; 4.9% SA; 8.5% Tas and 4.9% ACT). Most respondents were members of the police force (51.8%). In total, eight responses were received for supply reduction, five for demand reduction and 44 for harm reduction.

Participants mentioned several interventions that had already been incorporated into the literature review. These included, but were not limited to, ID scanners, reducing trading hour, increasing alcohol taxes, and alcohol free zones. Measures are listed in Section 3.

2.4. Delphi round two

A panel of 20 people specialising in alcohol-related harm responded in round two of the Delphi study. Participants were able to select whether they thought the intervention would have any impact at all, and if they chose 'yes' they then rated the interventions effectiveness on six domains: reducing alcohol-related assaults, reducing intoxication, solving crime, preventing crime, reducing alcohol-related harm, and reducing alcohol consumption. The data presented in the tables below are based on responses of those participants who believed the intervention would have some impact. The interventions were rated on a scale of 0 (not effective) to 10 (very effective). For the purposes of this report, a mean rating of 0–3.9 is considered to have low effectiveness, 4–6.9 to be moderately effective, and 7–10 to be very effective.

Two interventions consistently scored poorly across each of the domains, namely alcohol warning labels, and the liquor advisory board. These were included in round three of the Delphi study, and participants were asked to re-rate them and provide reasons for why they were rating the interventions in that particular way. Participants were also given the opportunity to suggest any interventions to include that had not yet been incorporated. This prompted seven new suggestions:

- preparing youth and their parents for night-life;
- manipulating the environment to reduce crowding by pedestrianising areas around premises;
- manipulating the environment to reduce crowding by placing food outlets on the outskirts of drinking areas;
- involving health and safety officials in licensing;
- restricting secondary supply;
- controlling the availability of energy drinks; and
- using drug detection dogs.

These interventions were included in the survey for round two of the Delphi study, and participants were able to rate and comment.

Each intervention discussed in this report will be given a specific code number for future reference.

2.4.1. Reducing supply

The intervention that consistently scored the highest for supply reduction was Western Australia's liquor licensing restriction, s 64 (see 10). The violent venues register (81) also scored highly enough to be considered likely to be effective.

Table 1: Delphi responses on supply reduction measures

	Yes, has an impact (N)	Reducing alcohol related assaults	Reducing intoxication	Solving crime	Preventing crime	Reducing alcohol related harm	Reducing alcohol consumption
Liquor licensing restriction s 64 (10)	20	6.10	5.90	n.a.	5.55	6.30	5.55
Liquor licence planning involving health & safety officials in licensing, 40)	18	4.11	3.50	n.a.	n.a.	4.17	3.44
Schedule 4 (violent venues register) NSW (81)	17	6.35	5.06	n.a.	5.53	6.18	4.76

2.4.2. Reducing demand

Only three interventions were suggested for reducing demand for alcohol. The intervention that received the highest mean ratings for demand reduction was the Early Intervention Pilot Program (24).

Table 2: Delphi responses on demand reduction measures

	Yes, has an impact (N)	Reducing alcohol related assaults	Reducing intoxication	Solving crime	Preventing crime	Reducing alcohol related harm	Reducing alcohol consumption
Advertisement of harms (2)	18	n.a.	3.72	n.a.	2.39	4.5	4.5
Early Intervention Pilot Program (24)	17	3.94	4.06	2.18	4.24	4.35	4.76
Alcohol warning labels (9)	14	n.a.	2.71	n.a.	n.a.	3	3.57

2.4.3.Reducing harm

The interventions that received the highest mean ratings for effectiveness were: 175(1a) Western Australia's Liquor Control Act (41), reducing alcohol content (4) and designating venues as high risk (34).

Effectiveness

This section summarises the findings of the Delphi survey regarding the effectiveness ratings supplied by the expert panel.

Reducing Alcohol-Related Assaults

The top three scoring interventions for reducing alcohol-related assaults were: sch 4 violent venues register (81; M=6.53), liquor licence restriction, s 64 (10; M=6.10), and 175(1a) Liquor Control Act (41; M=6.06). The interventions receiving the lowest mean ratings for effectiveness in reducing alcohol-related assaults were: liquor advisory board (39; M=3.25), Multi Agency Liquor Taskforce (45; M=3.50), and banning volume discounts (12; M=3.81).

Reducing Intoxication

The top three rated interventions for reducing intoxication were: 175(1a) Liquor Control Act (41; M=6.67), reducing alcohol content (4; M=6.45) and no sale of shots etc (46; M=6.00). The three lowest scoring interventions for reducing intoxication were: alcohol warning labels (9; M=2.71), drunk tanks (22; M=3.29), and venue instigated sanctions (11; M=3.32).

Solving Crime

The three interventions rated as most effective for solving crimes were: user pays policing (72; M=3.84), development application process (40; M=3.83), and consequence policing (18; M=3.78), although all of the interventions rated below four out of 10.

Preventing Crime

The three most highly rated interventions for preventing crime were: 175(1a) Liquor Control Act (41; M=6.06), liquor licensing restriction, s 64 (10; M=5.55), and sch 4 NSW violent venues register (81; M=5.53). The three

interventions that received the lowest mean effectiveness ratings were: advertisement of harms (2; M=2.39), Holyoake drug and alcohol treatment (35; M=3.42), and alcohol diversion programs (5; M=3.47).

Reducing Alcohol-related Harm

The three interventions that received the highest mean effectiveness rating for reducing alcohol-related harm were: 175(1a) Western Australia's Liquor Control Act (41; M=6.67), liquor licensing restrictions 64 (10; M=6.30), and sch 4 of the New South Wales violent venues register (81; M=6.18).

The three interventions that scored the lowest for reducing alcohol-related harm were: alcohol warning labels (9; M=3), liquor advisory board (39; M= 3.13), and Multi Agency Liquor Taskforce (45; M=3.43).

Reducing Alcohol Consumption

The three most effective interventions for reducing alcohol consumption were: reducing alcohol content (4; M=6.15), liquor licensing restrictions 64 (10; M= 5.55), and no sale of shots etc (46; M=5.61). The three lowest scoring interventions were: drunk tanks (22; M=3.06), operations targeting alcohol-related violence (47; M=3.50), and risk-based licensing (59; M=3.73).

2.5. Delphi round three

The third round of the Delphi had two major components. Firstly, participants were asked to re-rate two interventions in round two with very low scores in effectiveness on many outcome measures—alcohol warning labels and liquor advisory board. Further clarification was given for these interventions to ensure panel members were clear about what the intervention involved. The panel was given an opportunity to comment on these. The second aspect of round three involved the panel rating new interventions suggested from round two on each of the outcome measures. The results are shown in the following table.

Table 3: Delphi round three responses on measures

	Reducing alcohol related assaults	Reducing intoxication	Solving crime	Preventing crime	Reducing alcohol related harm	Reducing alcohol consumption
Preparing youth and parents (53)	4.46	4.38	–	3.77	4.77	4.15
People management via pedestrianising (50)	5.77	–	–	5.23	4.77	–
Energy drink restrictions (26)	4.75	4.75	–	3.5	4.67	4.42
Secondary supply restrictions (65)	3.75	4.08	–	3.75	4.25	4.5
Involving health and safety officials in licensing (40)	3.83	3.18	–	3.67	4.25	3
Alcohol warning labels (9)	–	3.93	–	–	3.93	4.14
Liquor advisory board (39)	3.92	–	–	–	3.92	3.31
People management by food outlet placement (50)	3.36	–	–	3	3.09	–
Drug dogs (21)	2.08	2.33	5.33	5.17	2.83	2

The two interventions that were re-rated received consistently higher mean effectiveness ratings for each of the outcome variables than in the previous round. However, ratings remained low (below 4) for the liquor advisory board. On the other hand, alcohol warning labels received a mean effectiveness rating of 4.14 for reducing alcohol consumption, which is the most likely dimension of alcohol-related harm on which it would act.

2.5.1. Reducing Alcohol-related Assaults

In round three, the three interventions with the highest mean effectiveness ratings for reducing alcohol-related assaults were: people management by pedestrianising (50; M=5.77), energy drink restrictions (26; M=4.75), and preparing youth and parents for night-life (53; M=4.46). These three very different interventions may be seen as complimentary (dealing with different predictors of harm, from different angles). Pedestrianising selected roads at night is also the easiest of the interventions to implement, whereas industry will strongly resist placing restrictions on the use of energy drinks.

2.5.2. Reducing Intoxication

Only three interventions were rated in the moderate range for reducing intoxication: energy drink restrictions (26; M=4.75), preparing youth and parents for night-life (53; M=4.38), and secondary supply restrictions (65; M=4.08).

2.5.3. Solving Crime

The panel reported that only drug detection dogs were moderately effective for solving crime (21; M=5.33).

2.5.4. Preventing Crime

Two interventions received moderate ratings for effectiveness in preventing crime. These were: people management by pedestrianising (50; M=5.23), and drug detection dogs (21; M=5.17).

2.5.5. Reducing Alcohol-related Harm

The three interventions that scored the highest mean effectiveness ratings for reducing alcohol-related harm were: preparing youth and parents for night-life (53; M=4.77), people management by pedestrianising (50; M=4.77), and energy drink restrictions (26; M=4.67).

2.5.6. Reducing Alcohol Consumption

The three interventions receiving the highest mean effectiveness ratings for reducing alcohol consumption were: secondary supply restrictions (65; M=4.50), energy drink restrictions (26; M=4.42), and preparing parents and youth for night-life (53; M=4.15).

Table 4 Delphi responses on harm reduction measures							
	Yes, has an impact (N)	Reducing alcohol related assaults	Reducing intoxication	Solving crime	Preventing crime	Reducing alcohol related harm	Reducing alcohol consumption
Reducing alcohol content (4)	20	5.15	6.45	n.a.	4.75	5.8	6.15
Restrictions based approach (81)	19	5.74	5.16	2	5.16	5.63	5
ACT <i>Liquor Act 2010</i> (27)	19	4.63	4.95	n.a.	4	5.39	4.78
Consequence policing (18)	19	5.57	4.21	3.78	5.47	5.37	4.21
Controlling alcohol at public events	19	5.11	5.63	n.a.	5.11	5.32	5.53
Holyoake (35)	19	4.21	4.26		3.42	5.05	4.79
User pays (72)	19	4.79	3.68	3.84	4.74	4.84	n.a.
Venue instigated sanctions (11)	19	4.74	3.32	2.53	4.58	4.79	n.a.
Alcohol diversion programs (5)	19	3.84	4.42	n.a.	3.47	4.74	4.79
Security plans (67)	19	4.16	n.a.	3.37	3.84	4.16	n.a.
s 175(1a) <i>Liquor Control Act 1988</i> (WA) (41)	18	6.06	6.67	n.a.	6.06	6.67	7.17
Liquor licence interventions/ objections (40)	18	5.61	5	3	4.94	5.67	4.67
No sale of shots etc (46)	18	4.89	6	n.a.	4.89	5.56	5.61
No shots	18	5.22	5.89	n.a.	4.67	5.44	5.44
QLD Drink Safe Precincts (20)	18	5.11	4.61	2.39	4.67	5.06	4.28
Development application process (7)	18	4.78	4.59	3.83	4.5	4.94	4.11
Operations alcohol-related violence (47)	18	5.44	3.61	3.11	5.44	4.89	3.5
RSA marshals (62)	17	4.94	5.53	n.a.	4.94	5.41	5.18
Drunk tanks (22)	17	4.12	3.29	n.a.	4	4.71	3.06
s 152(P) <i>Liquor Control Act 1988</i> (WA) (42)	17	4.65	4.24	n.a.	4.29	4.41	4.18
Radio communications precincts (58)	17	4.35	n.a.	4.29	4.59	4.18	n.a.
Long-term precinct-wide banning (11)	16	5.75	4.69	2.31	5.5	5.88	4.87
Test purchasing (70)	16	–	5.44	–	5.5	5.33	5.37
Banning volume discounts (12)	16	3.81	5.19	–	–	5.12	5.37
Banning multi buys (12)	16	4.19	4.81	–	–	4.75	4.81
High visibility clothing (33)	16	5.25	–	–	5.63	4.62	–

Table 4 Delphi responses on harm reduction measures cont.

	Yes, has an impact (N)	Reducing alcohol related assaults	Reducing intoxication	Solving crime	Preventing crime	Reducing alcohol related harm	Reducing alcohol consumption
Risk-based licensing (60)	16	4.69	4.75	–	4.19	4.5	3.73
Temporary banning orders (11)	15	5.2	4.47	2.27	4.87	4.93	4.33
Alcohol to finish 30 minutes before closing (8)	15	4.13	4.33	–	4.07	4.53	4.13
NT mandatory treatment (44)	15	4	4.67	–	3.67	4.4	4.47
Supervisor (62)	15	4	5.2	2.53	4.33	4.4	4
Radio communication inside (58)	15	4.33	–	3.67	4.67	3.87	
No RTD beverages more than 6% (4)	14	4.86	5.23	–	4.29	5.14	4.71
Refusal of entry (67)	14	4.5	5.07	–	4.36	4.64	4.71
Random breath testing in venues (59)	14	4.5	4.79	–	4.43	4.57	4.86
Liquor accords—Indigenous (38)	14	4.21	4.29	–	3.79	4.57	4.07
Multi Agency Liquor Taskforce (45)	14	3.5	–	–	–	3.43	–
Precinct ambassadors (56)	13	4.08	–	3.54	4.45	4.62	–
Designate venues as high risk—NSW (34)	12	6	5.08		5.33	5.5	4.83
Availability of free water (29)	12	–	5.31	–	4.23	4.54	5.15
Liquor advisory board (39)	8	3.25	–	–	–	3.13	–

3. Interventions

This report covers a very large number of interventions, many of which are similar. To make it easier to cross-reference different information, this section lists the interventions alphabetically. Each intervention is given a specific code number for future reference. As well as a description of each intervention, this section also provides information about the aspect of alcohol consumption it addresses (supply, demand or harm reduction), the societal level at which it acts (ie social or family), the type of evidence available on the intervention and its how its effectiveness rates.

The Australian National Preventive Health Agency (ANPHA) has funded research associated with community level health promotion and risk reduction strategies around harmful alcohol consumption, among other things. Though it has funded many research projects focused on education and prevention concerning binge drinking, no evaluation data could be obtained from these projects and therefore effectiveness could not be included in this report. A list of these projects is in Appendix A.

Further, a list of projects funded by the National Binge Drinking Strategy are at: <http://www.alcohol.gov.au/internet/alcohol/publishing.nsf/Content/cli#cli>

Once again, very few final reports were available through the website. As a result, this review includes only those projects from which effectiveness could be gauged. What this list makes clear, is that a substantial number of projects into alcohol use is being funded, but that none of the findings regarding effectiveness or usefulness of such interventions are readily available to community members.

1. Accords (*Voluntary Liquor Licensing Forums*)

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Literature
Effectiveness rating:	with enforcement ? without enforcement x

In the current regulatory environment, most voluntary alcohol programs for licensed premises centre on RSA training—an approach with varying levels of success. Such interventions typically involve education about minimum legal purchase age and public drunkenness, the physiological effects of alcohol, identifying overt signs of patron intoxication, and general management of problem customers (Graham & Homel, 2008). While effects have been significant, its size has generally been small and often short-lived (Johnsson & Berglund, 2003; Wagenaar et al., 2005b). For example, Lang and Rumbold (1997b) demonstrated a decrease in patrons rated as 'extremely drunk' ($p < 0.017$), a decline in blood alcohol content (BAC) levels ($p < 0.03$), and a small but statistically significant increase in staff knowledge of RSA laws ($p < 0.05$). Similarly, Johnson and Berglund (2003) reported reductions in average BAC-levels of bar patrons (-0.011 , 95% CI = $0.022-0$) as well as in 'rowdy' atmospheres (-6 pts, 95% CI = -11 to -1). A third study, which focused on alcohol sales to minors (Wagenaar et al., 2005) generated a post-intervention 17 percent decline in underage alcohol purchases. Thus, RSA programs have demonstrated positive, albeit moderate, effects on variables such as BAC-levels, extreme intoxication, and raucous on-premise behaviour.

Community alcohol accords are voluntary initiatives based on active cooperation between licensees and various government groups, including the police and local councils (Graham & Homel, 2008). Participating licensees agree to uphold certain guidelines and rules—for example, RSA, informing partners of potentially troublesome patrons, minimum alcohol pricing, lockouts, etc—to maintain a level of order and security in the night-time economy (NTE), and are, in return, accredited with a label of approval indicating an acceptable standard of operation. The police role centres on enforcing these regulations (Graham & Homel, 2008). Many

such approaches are currently active targeting alcohol-related violence in the NTE, and many specifically aim to reduce bar-hopping as well as disorder inside licensed venues (City of Greater Geelong, 2007). Strategies focusing on voluntary participation have been attempted in Geelong, Victoria (City of Greater Geelong, 2007); Fremantle, Western Australia (Hawks, 1999); Queensland (Queensland Government, 2011); Sydney, New South Wales (Graham & Homel, 2008) as well as in the UK with Pubwatch (Pratten, 2005a) and Best Bar None schemes (Burrell & Erol, 2009).

The Geelong Local Industry Accord

The Geelong Local Industry Accord in Victoria was the first of this type of intervention, and focused on reducing excessive alcohol consumption and alcohol-related problems in and around licensed premises in the city centre (Graham & Homel, 2008). Central to the intervention was the cooperation between police and licensees in ensuring RSA and responsible management of licensed venues, including cover charges after 11 pm (ie charging patrons an entrance fee after a designated time), lockout policies, limitations on alcohol promotions and happy hours, as well as a minimum pricing on drinks (Lang & Rumbold, 1997a). Further, city bylaws targeting public drinking and fake identification use were enforced to full extent (Felson et al., 1997).

Although, the evaluation of the project initially revealed a 52 percent reduction in assaults (Felson et al., 1997), several serious caveats complicated how the results were interpreted. For example, no comparison site was examined to help eliminate extraneous variables. The assault data used for the evaluation was not detailed enough to determine the location or time of an offence. Specifically, as the data covered Geelong as well as the suburbs within a 90 km radius of Geelong, it was virtually impossible to determine how much of the observed decline in assault occurred in Geelong, let alone the Geelong NTE (Felson et al., 1997; Graham & Homel, 2008). Thus, while generating promising initial results, the findings in Geelong are difficult, if not impossible, to properly interpret, as the evaluation design was generally inadequate.

The Fremantle Police-Licensee Accord

The Fremantle Police-Licensee Accord in Western Australia is similar to Victoria's Geelong accord in terms of the policies included such as cover charges, RSA, and prohibition of drink discounts and promotions (Hawks, 1999). Apart from these strategies the Fremantle accord also incorporates a Better Practices Committee where an RSA training program is tailored to participating managers and bar staff (Graham & Homel, 2008). A control site was included, and extensive data collected in the year before and after the intervention to measure impacts on a wide range of variables (Hawks, 1999). The Fremantle accord evaluation was more rigorous in terms of design and method.

The Fremantle accord evaluation used a range of outcome measures, including: patron, resident, business and taxi driver surveys regarding perceived changes; risk assessment; and the use of pseudo-patrons for measuring service to intoxicated and under-aged persons. Officially recorded data that identified road crashes, drink-driving charges and assaults specifically associated with individual premises were used to evaluate server practices. Indicators of pre- and post-intervention levels of harm were examined among a selection of 10 particularly high-risk premises. The indicators were also matched to control premises in a similar entertainment area (Northbridge in the city of Perth) that did not have an accord at the time (Chikritzhs et al., 2007b). The evaluations concluded no significant improvement in outcomes on any of the measured variables. They showed a near-significant increase in assaults, but this was likely due to the augmented police presence dictated by the accord during the intervention period (Hawks, 1999). The fact that the control site implemented their own alcohol accord nearly simultaneously with the start of the Fremantle accord represents another confounding variable crippling the empirical reliability of the study (Hawks, 1999). Nonetheless, considering that none of the outcome variables were affected in any meaningful way by the intervention indicates either a lack of effectiveness of the measures adopted, inadequate experimental design and evaluation strategy, or a deficiency in motivated and genuine participation of the stakeholders.

The Kings Cross Accord

Kings Cross in Sydney, New South Wales, is renowned for its high density of pubs, skid-row bars, gambling establishments, brothels and strip clubs operating 24 hours a day. The Kings Cross Accord focused on alcohol-related incidents within this entertainment area, using both police and local emergency department data (Graham & Homel, 2008). Accord stakeholders included police, liquor licensing, local and state governments, as well as industry and business associations. The main objective of the initiative centred on safety and security in the night-life focusing particularly on police enforcing licensee legal obligations. Evaluation found that the project generated no significant improvement on any of the outcome variables (Graham & Homel, 2008). Similar to the results obtained for the Fremantle intervention, the lack of meaningful effects of the Kings Cross Accord appear to indicate problems with either the actions implemented or the vigilance with which they were carried out. Also, being a city neighbourhood, it would conceivably be difficult to avoid any spillover effects from other areas of Sydney into Kings Cross. In a study investigating the attitudes of key informants towards the Kings Cross Accord, police informants had mixed opinions. None were overly optimistic, stating 'They're just feel-good things that formalise the Liquor Act' (Spooner & McPherson, 2001). Unfortunately, no comprehensive evaluation of outcomes has been published.

Norseman Voluntary Liquor Agreement

In 2005 the members of the Norseman Aboriginal community in Western Australia noted that alcohol was a primary contributing factor to causing chronic disease. The community developed strategies to try to change drinking behaviour such as male and female drying out houses, a resolution to eat before drinking and supporting members to seek early medical assistance. In collaboration with Population Health (Goldfields) and local police, the community negotiated with the local licensee to voluntarily restrict the sale of packaged liquor products to the general public. The voluntary agreement reads:

Between 12 midday and 6pm, Monday to Sunday, red and white Lambrusco wine was limited to one 5 litre cask per person per day, port wine was limited to one 2 litre cask per person per day and non-fortified wine was limited to one 4 litre cask per person per day. No sales of the above mentioned products were permitted at any other time.

An evaluation of the effectiveness of this agreement found a 10.3 percent reduction in total police task attendance in the 12 months after restrictions, a 17.5 percent reduction in assaults, a 15.3 percent decrease in domestic violence incidents, a 60.5 percent decrease in the number of alcohol-related hospital admissions and a 9.84 percent decrease in per capita consumption of alcohol (Schineanu et al., 2010).

Other accords—Pubwatch & Best Bar None

Other community alcohol accords include the British 'Pubwatch' scheme and 'Best Bar None' (BBN) accreditation strategy. Pubwatch relies on local police cooperation and licensee endorsement. It focuses on banning troublesome patrons from all venues participating in the scheme (Metropolitan Police, 2011; Pratten, 2005b). Licensees work together with police to create a linking system by which problem patrons in one venue can be reported to police and other participating licensees immediately after their offence. Subsequently, police will give the individual a banning notice and if necessary a fine (Metropolitan Police, 2011). Targeted offences typically include any form of violence, assault, drug-dealing or consumption, as well as damaging venue property (Pratten, 2005a). Awareness of Pubwatch is created through the local media as well as venue advertisements and window-stickers outlining what the scheme entails and how it works (Metropolitan Police, 2011). While at face value it has strong objectives and strategies as well as community organisation and mobilisation, empirical evaluations of Pubwatch are lacking. This is due mainly to its failure to include an assessment strategy in the overall intervention plan. It is virtually impossible to tell if Pubwatch schemes have any effect at all (Pratten, 2005a). Nonetheless, Metropolitan Police statements do indicate decreases in alcohol-related violence in areas operating Pubwatch schemes (Metropolitan Police, 2011; Pratten, 2005a).

The BBN strategy focuses on promoting good practice among licensees rather than on punitive enforcement of regulation. It is presented as an inclusive community initiative and accreditation strategy designed to encourage improved conditions in the NTE (Ackerman & Rogers, 2007; Graham & Homel, 2008; UK Home Office, 2011). Best practice is promoted when licensees cooperate by upholding a certain standard of operation. Participating establishments receive an official stamp of approval, or plaque to display inside the bar. The strategy guiding BBN, however, is largely arbitrary, as it does not provide any concrete advice to licensees on best practice. Nor does the project allow for any form of evaluation other than anecdotal impressions (UK Home Office, 2011).

While Pubwatch and BBN type initiatives may have some face value, there is a dearth of research assessing their effectiveness in reducing alcohol-related violence and disorder. Those evaluations that do exist show only short-term minimal effects at best. More empirical assessment is needed before any conclusive statements can be made regarding their effectiveness.

A recent approach in the United Kingdom uses Alcohol Disorder Zones (ADZs) to levy extra fees for venues within specific NTE areas. Section 16 of the country's *Violent Crime Reduction Act 2006* permits local authorities (with the consent of the police) to designate areas as ADZs if they have problems with alcohol-related nuisance, crime and disorder. In order to pay for additional policing and other enforcement activities they can then impose charges on premises and clubs within the ADZ that sell or supply alcohol (National Archives, 2008). Under the *Licensing Act 2003*, licensing authorities can modify, suspend or revoke individual licenses.

Alcohol banning orders are another approach taken in the UK. Licensees can apply for a banning order to be applied to troublesome patrons so that they cannot enter the premises by law for a designated period of time. This approach is hampered by the time it takes to apply, process, and serve such an order, as well as by other factors such as identifying the given patron, and effectively enforcing the banning order (Home Office, 2006). At present, there are no evaluations of these type of interventions in terms of alcohol-related crime, or crime in the NTE.

Liquor accords are operationally distinct from the evidence-based community programs used in the United States, Queensland and Scandinavia. Apart from the differences in relation to scope, magnitude, level of community involvement and evaluation between the two approaches, accords attempt to encourage discourse between police and licensees. As a part of their de-emphasis on legal obligations, accords typically have limited, or no focus on enforcement and usually allow significant latitude for addressing the concerns and wishes of licensees. Despite the growing popularity of accords and other types of voluntary 'codes of conduct', few have been formally evaluated and, among those that have, most evaluations have been unable to demonstrate effectiveness in reducing alcohol-related harms in either the short- or (particularly) long-term. In addition, a fundamental weakness of accords is their reliance on voluntary commitments from individuals who operate in a highly competitive profit-orientated industry. Such a conflict of interest is likely to undermine any genuine attempt to bring about effective and lasting change (Hawks, 1999). Evaluations have shown an inability for any reductions in alcohol-related harm to be sustained for more than a few months (Homel, 2001). Similarly, other reviewers have concluded that in the absence of adequate enforcement, accords can be a 'look good' only measure (Stockwell, 2006). It appears that overall, the value of accords rests more on developing local communication networks, enabling local input or a sense of local 'control', and improving public relations through open negotiations, than in actually reducing harm. Nonetheless, improved communication and participation may also be seen as desirable and worthwhile outcomes.

2. Advertisement of Alcohol-related harms

Intervention type:	Reduce demand
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

For every alcohol advertisement, a government-produced public health advertisement should immediately follow (funded via a levy on all sales by alcohol producers) informing the public of the harms associated with drinking and addressing social norms around intoxication. On television and in cinemas these health

messages can be shown on a thin horizontal band (its height corresponding to 7% of the height of the screen), or as a screened notice displayed just after the advertisement. On radio, the message can be broadcast immediately after the advertisement. Printed materials include a horizontal message strip also corresponding to seven percent of the total height of the advertisement. Companies that do not add public health warnings to all television advertisements can be required to pay a government levy of 1.5 percent of their advertising budget, which can then be used to help the government to reduce alcohol-related harm.

3. Advertising and Promotion Restrictions

Intervention type:	Reduce demand
Societal level:	Societal
Available evidence:	Literature
Effectiveness rating:	✓

Alcohol beverages are typically marketed through nearly uninhibited advertisements in the media, films and television shows, as well as through brand merchandise and a variety of sponsored events (Babor & Caetano, 2005; McClure et al., 2009). Online marketing has added further dimensions, the impact of which is poorly understood. Exposure to such alcohol promotion has been associated with the development of positive and care-free attitudes to drinking in the general public (Ellickson et al., 2005; Smith & Foxcroft, 2009), as well as increased consumption (Engels et al., 2009), earlier initiation to alcohol use (McClure et al., 2009), increased under aged drinking (Anderson et al., 2009; Hastings et al., 2005; Snyder, 2006) and alcohol-related violence (Casswell & Zhang, 1998). In spite of these findings alcohol advertising is self-regulated by the liquor industry in many countries, including Australia. This clear conflict of interest juxtaposed with the empirical evidence of the harmful effects of alcohol promotion, has led to much debate about the detrimental nature of the alcohol industry's advertising programs, and in particular about their sponsorship of sport clubs, teams, and events. Given that recent evidence indicates higher levels of alcohol consumption among athletes connected to industry subsidised sport clubs or teams, Kypri et al. (2009) argues for a ban on this type of funding and advertising, and instead suggests channelling revenue accrued from increased taxation on alcohol products into community initiatives, such as sport clubs.

Apart from total bans, restrictions and regulations on advertising have shown significant, but limited effects on consumption with weak to average effect sizes at best (Saffer, 1991; Young, 1993). Saffer and Dave (2002) found that total and sustained prohibition of alcohol-advertising decreased overall alcohol use by up to eight percent, while Agostinelli and Grube (2002) concluded that counter-advertising and warning labels had the potential to dilute the effect of alcohol promotion at a statistically significant level. The evidence base for the latter approach is qualified by intricate interactions between audience cognitive/affective processes and message factors, such as design, content, and source (Agostinelli & Grube, 2002; Austin, 2000). Anderson and colleagues (2009) conducted a systematic review on longitudinal studies of the impact of alcohol advertising and media exposure on future adolescent alcohol use. They discovered that the studies consistently suggested that exposing alcohol advertising to adolescents is associated with the likelihood that they will start to drink alcohol, with increased drinking among baseline drinkers. Overall, the literature on the effects of alcohol counter-advertising and regulated advertising, rests on a small evidence base which is plagued by a vast number of confounding factors (eg Donovan et al., 2002; Hastings et al., 2005; Jones & Lynch, 2007). One such example includes consumption and promotional clothing and paraphernalia (McClure et al., 2009) as well as the alcohol industry's sponsorship of sport. A further concern with the current evidence base around alcohol advertising is that the impacts are measured at a population level, and do not distinguish between those who may be particularly sensitive to this advertising. For example, young adolescents may be more likely to respond to alcohol advertising, as it may be a new and exciting experience for them. Adults, who have been consuming alcohol for years, may be unmoved by the advertisements. Future research should distinguish between the impacts on differing populations, such as adults versus children.

4. Alcohol content of drinks—limits after midnight

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

The owners/stakeholders of this intervention are the Gunnedah Council liquor accord in New South Wales. In 2011 the Gunnedah liquor accord entered an agreement to reduce the alcohol content of drinks sold by the licensed premises to 3.3 percent after midnight. This intervention addresses the intoxication level of patrons remaining in the licensed premises after midnight. An evaluation by Oxley Local Area Command found that assaults for the period reduced by 35 percent from the previous year. It also found that the level of intoxication of patrons leaving at closing time was reduced to a level where they were aware of what they were doing. Council and police wished to continue with this intervention, but the Australian Hotels Association advised the liquor accord not to continue. Gunnedah Council has said it would like to try this intervention again.

5. Alcohol Diversion Programs

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

These programs provide adult defendants with a history of problematic alcohol use with case management and treatment during their bail period. Willing clients who meet eligibility criteria are treated to address their problematic alcohol use, including residential detoxification and rehabilitation services, pharmacotherapy, case management, as well as counselling and community outpatient services as necessary. When a defendant completes the program a report is submitted to the presiding magistrate who may consider the defendant's treatment progress at sentencing.

6. Alcohol Management Plans

Intervention type:	Reduce harm
Societal level:	Societal/Community
Available evidence:	Literature/Delphi
Effectiveness rating:	Literature: ✓ Delphi: ***

Alcohol management plans were developed in 2004 as part of the Northern Territory Alcohol Framework. These plans are located and implemented within the local community. They are driven by the community and are a negotiation between the local community, community organisations, local governments, government agencies, licensees and other key stakeholders. They are not a set of rules imposed on the community; rather they are locally appropriate and consider resources within the community that are already available to them to help reduce alcohol supply. Although this intervention addresses supply, demand and harm reduction, thus far it has mainly focused on reducing supply through a set of alcohol restrictions (Senior et al., 2009).

Margolis et al. (2008) evaluated Alcohol Management Plans in four remote communities in the Northern Territory. They found these plans were effective in reducing serious injury in the assessed communities. The authors concluded that alcohol management plans are preferable when they are strategically planned and include formal regulator enforcement and evaluation for outcomes.

7. Alcohol-Related Harm/Risk Reduction via the Development Application Process

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

The owners/stakeholders of this intervention are the Wagga Wagga police local area command (LAC) and the Wagga Wagga City Council. This intervention takes a proactive 'prevention is better than cure' approach to alcohol-related harm and anti-social violence. When new alcohol-related development applications are lodged with Wagga Wagga City Council, the Licensed Premises Reference Group meets to discuss the potential impact of the development on the surrounding area. The group identifies the risks associated with the development and discusses conditions that can be included in the development consent to reduce the risk of any associated alcohol-related harms. Approval of these types of developments can potentially increase the risk of alcohol-related violence and anti-social behaviour due to increased patronage, sales, and persons remaining after closing time in locations that are historically linked to alcohol-related violence and anti-social behaviour.

The process has been used to develop venue and security management plans that are negotiated with consent holders as an imposed condition on their development consent. These have been used for development applications including licensed premises and late night food outlets in the Wagga Wagga CBD and outlying suburbs. Many of the requirements placed into these plans are already being implemented in some premises. This process seeks to formalise those procedures to ensure that they are actually being carried out.

This intervention, particularly the venue and security management plans, aims to ensure that consent holders are monitoring the behaviour of patrons in their premises before problems arise. It also encourages early intervention, ensuring that appropriate deterrents are in place such as CCTV, security, and possibly restrictions in relation to the sale and supply of alcohol. It includes more functional reporting measures for incidents in all licensed premises, not just late night trading venues. It places crime scene preservation requirements on consent holders associated with licensed premises and late night food outlets, as well as providing relevant training for staff.

The aim of the strategy/intervention is to work harmoniously with other relevant strategies to address alcohol-related issues, reduce the risk of same and provide a safe environment for all persons including staff of premises, patrons, police and emergency service staff. The plans are also designed to assist police in investigating any incidents of violence that occur in and around these developments. This initiative is still very much in its infancy, however consent conditions have been successfully imposed by council in respect to all alcohol-related development applications, and several venue and/or security management plans have been negotiated with consent holders. Although the initiative has not been formally assessed at jurisdictional or departmental level, it has recently been reported that the Wagga Wagga CBD area has had a 26 percent reduction in violence over the past 12 months. In addition, since July 2010 the Wagga Wagga LAC has experienced reductions in alcohol-related assaults across 31 of the 35 reporting periods during that time.

8. Alcohol service to finish 30 minutes before closing

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

This intervention involves venues being required to stop serving patrons at least 30 minutes before closing time to ensure that patrons finish their drinks.

9. Alcohol Warning Labels

Intervention type:	Reduce demand
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

In Australia, mandatory labelling requirements for alcoholic beverages and food containing alcohol are specified under Standard 2.7.1 of the Australia New Zealand Food Standards Code.

The code requires beverages, or foods capable of being consumed as beverages, which contain more than 0.5 percent alcohol by volume, measured at 20 °C, to be labelled with a statement of the approximate number of standard drinks in the package.

10. Application liquor restriction s 64 Liquor Control Act 1988

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

The owners/stakeholders are the Western Australia Police and the community where the application is made. Under the provisions of s 64 of the *Liquor Control Act 1988*, police apply to the Director of Liquor Licensing to obtain liquor restrictions for a town, adjoining towns, or even a region. The restrictions relate to reduced trading hours in particular for packaged liquor and reducing the types and size of liquor that can be sold. It can also be for a particular licensed venue requesting conditions to be placed on the licence. It addresses both harm and supply reduction. Restrictions for Halls Creek were assessed by Notre University Fremantle and found to be successful.

11. Banning (Venue-instigated sanctions imposed on repeat offenders)

Intervention type:	Reduce harm
Societal level:	Societal/ Community
Available evidence:	Delphi
Effectiveness rating:	**

Sanctions excluding patrons for bad behaviour ('banning notices' or Drinking Banning Orders; DBOs) work under several different models and are intended to tackle alcohol-related criminal or disorderly behaviour and to protect others from such behaviour. The DBOs can be instigated by licensee, police or liquor accord instigated or imposed by a court. Some precincts (such as Victoria, Australia) can have all three systems operating at once. The orders are not seen as suitable for criminal or disorderly behaviour that is not alcohol-related.

These civil orders can last from months through to being lifetime bans, depending on the jurisdiction. They have been available on application throughout England and Wales since 31 August 2009, but have operated less formally for many years. From February 2008, Victoria Police have powers to ban people from licensed premises and designated areas for up to 24 hours for offences such as:

- drunkenness;
- physical assault;
- threats to kill;
- destroying or damaging property;
- offensive or obscene behaviour;

- sexual offences;
- weapons offences; and
- failure to leave licensed premises.

The maximum penalty for re-entering the area after a notice has been given is more than \$2,000. Court ordered notices are used for longer periods, but take time to put in place. Normally, licensee or accord-based bans are used in the interim.

DBOs are enforced through several different mechanisms, depending on the technology available. Most commonly in the past, police or the licensee association or accord would circulate the photos and names of banned patrons. More recently, the use of ID scanners, particularly those that are networked with police and other licensees, has meant that the banned patrons list can be uploaded onto the scanner and that a banned individual would be identified immediately upon presenting their ID at the venue. This has obvious benefits in terms of not relying on human memory, although it is worth considering that all technologies can be circumvented if the offender is motivated enough. In addition, police patrols can also identify banned patrons and remove them from the area.

Another notable difference between systems is the ability to restrict alcohol consumption. For example, in the United Kingdom, a DBO may impose any prohibition on a person that the court considers necessary to protect others from alcohol-related crime or disorderly conduct committed while they were under the influence of alcohol. The prohibitions must include whatever the court thinks is necessary with regard to that person entering premises that sell alcohol. This could include exclusion from:

- purchasing alcohol;
- consuming alcohol or being in possession of alcohol in public;
- individual or sets of licensed premises; and
- all licensed premises in a geographically defined area.

Current Australian systems do not allow for this degree of intervention, however the ability to restrict an individual from purchasing alcohol may serve as a powerful behaviour change agent and possibly a deterrent.

The banning notice/DBO intervention has the potential to remove some troublesome individuals from specific venues or areas. They are a technological and legislative extension of what has been common practice for many years (Graham & Chandler-Coutts, 2000). Such a system undoubtedly works in favour of those venues that have a system in place. The orders also most likely assist law enforcement personnel in managing problematic individuals. However, it is unclear whether such systems will realistically prevent alcohol-related violence and harm or simply shift them to other entertainment districts or to domestic settings (Miller et al., 2011b).

An especially promising application of the banning order is in relation to family violence in South Australia. The ability to stop an offender drinking or purchasing alcohol has very substantial potential for reducing some of the family violence that affects women and children in our community. However, evidence of its impact needs to be developed.

Other elements that should be included or considered:

- appeal mechanisms need to be codified and equitable;
- patron privacy should be assured;
- systems are unlikely to be effective unless all entrances and exits are monitored; and
- best used in a mandatory regulatory environment where all alcohol outlets were obliged to conform.

Issues needing careful consideration when implementing such a project include:

- Could the system end up discriminating against certain individuals or groups in society?
- Could these systems move troublemakers to other settings?
- How widely do bans apply (anecdotal evidence suggests that some ID scanner companies have Australia-wide banning notices)?
- Who should be responsible for managing the overall process?

Banning notices are popular with licensees and police, allowing them to target individuals who have already demonstrated themselves as problem patrons. No evidence suggests that banning notices either prevent crime or help in solving crime. Banning notices essentially act as punishment for bad behaviour and are often reliant on little evidentiary proof, depending on whether they are licensee, police or court ordered. It may be that over time a preventative effect becomes apparent as more problem patrons are banned. It may also be that the possibility of being banned would act as a deterrent to some people, although this runs counter to the evidence around the behaviour of intoxicated people and their ability to think through the consequences of their behaviour. In light of this, banning orders cannot be considered best practice until substantially more is known about how they are used, the effect they have on people and possible abuses of the system.

12. Banning Volume Discounts

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

This involves placing a ban on packaged liquor outlets that means they cannot place discounts on bulk purchases of alcohol. For example, packaged liquor outlets would no longer be able to provide discounts such as saving 10 percent when you buy six bottles of wine, 15 percent when you buy 12 bottles etc.

13. Beat da Binge

Intervention type:	Reduce demand
Societal level:	Societal
Available evidence:	Literature
Effectiveness rating:	?

Beat da Binge is a community-initiated binge drinking awareness campaign in Indigenous communities. The intervention began in 2011, and focuses on preventing and raising awareness of binge drinking in the North Queensland Indigenous community of Yarrabah. An evaluation in 2013 found 16 percent fewer young binge drinkers in Yarrabah, a 27 percent increase in awareness of binge drinking, and a 16 percent increase in awareness of what constitutes a standard drink. The evaluation is still being peer reviewed.

14. Beverage Types Sales Restriction

Intervention type:	Reduce supply
Societal level:	Societal
Available evidence:	Literature/Delphi
Effectiveness rating:	Literature: ✓ Delphi: **

The consumption of cask wine and full-strength beer has been linked to various social harms. Caldeira and Woodin (2012) notes a strong link between consumption of beer and drink driving. Stockwell et al. (1998) found that the consumption of cask wine and full strength beer was associated with higher rates of assaults in the NTE, and reported that sale of low strength beer was associated with lower assault rates. In Western Australia full-strength beer sales were the most important single predictor of police reported assaults, positive drink driving tests, alcohol-attributable hospitalisations and alcohol-attributable deaths (Chikritzhs et al., 2007a). Nicholas (2008) notes that those interventions focusing on reducing sales, and therefore consumption, of full-strength beer and cask wine may reduce the associated social harms. Unfortunately, this has not been implemented as a policy response and it is not known what impact restricting type of alcohol sold might have on subsequent harms in the community.

15. Closed-circuit television

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Literature/Delphi
Effectiveness rating:	Literature: ? Delphi: **

Closed-circuit television (CCTV) cameras are commonly employed in the NTE in some countries. While no research has specifically assessed the impact of CCTV on alcohol-related violence, relatively robust evidence demonstrates significant associations between overall crime deterrence and CCTV (Welsh et al., 2002). However, these results are nearly exclusive to vehicle theft and car park settings (41% decline: Welsh et al., 2002). Crime rates, including violent crime, in city centres, public housing communities, and on public transport were largely unaffected by CCTV. At best the results were ambiguous with small effect sizes (Welsh & Farrington, 2004a; Welsh et al., 2002; Welsh & Farrington, 2008). Similarly, a systematic review of 32 international (UK, US, Canada) studies examining the effects of CCTV and street lighting on crime, demonstrated that both CCTV and street lighting were effective in decreasing total crime (CCTV: 21% decrease, weighted mean OR=1.27, CI 95% = 1.11–1.46, $p=0.0004$; street lighting: 22% decrease, weighted mean OR=1.28, CI 95% = 1.11–1.48, $p=0.0008$) (Welsh & Farrington, 2004a). However, CCTV was only significantly effective in car parks, while not making any difference on city centre crime rates. While both street lighting and CCTV were significant predictors of reductions in property crime (CCTV: OR=1.54, $p=0.0001$; street lighting: OR=1.27, $p=0.019$), neither had any impact on violent crime (robbery, assaults) (Welsh & Farrington, 2004b). Finally, research has also established significant displacement effects of CCTV rather than deterrence or prevention—that is, rather than ceasing criminal activity due to CCTV, crime will simply move elsewhere (Sutton & Wilson, 2002; Welsh & Farrington, 2009; Wilson & Sutton, 2003).

In contrast, other studies conclude that CCTV *does* have a significant positive impact on interpersonal violence (Armitage et al., 1999; Squires, 1998). In a study on the relationship between CCTV and assault injury and detection, for example, emergency department assault presentations decreased by three percent (ratio 0.96; 95% confidence interval (CI) 0.93–0.99) in CCTV areas while they increased by 11 percent (ratio 1.11; 95% CI 1.08–1.14) at control sites (t -test, $p<0.05$) (Sivarajasingam et al., 2003). Similarly, police recorded that violence increased by 11 percent (ratio 1.16; 95% CI 1.08–1.24) at the CCTV-site compared to five percent (ratio 1.06; 95% CI 0.99–1.13) in the control area. While this finding was non-significant (t -test, $p>0.05$), the increase possibly indicates higher level of detection using CCTV (Sivarajasingam et al., 2003). It seems that while there may be no discernible effect of CCTV on deterring violent crime, there does seem to be an effect for crime severity, perhaps mostly due to the increased surveillance of crime and resulting possibility for early intervention afforded by CCTV (Sivarajasingam et al., 2003).

Thus, given the evidence, it may be concluded that while CCTV does have a clear displacement effect and a possibly minor deterrence effect on premeditated crime such as car and property theft, the evidence indicates overwhelmingly that crimes of a more spontaneous nature, including violence and assault (and probably alcohol), are unaffected in terms of frequency. Some evidence indicates that the detection of violent crime by CCTV may result in early police intervention and in turn decreased injury severity (Sivarajasingam et al., 2003). More research is required to draw firm conclusions about the role that these common strategies may have in reducing violent crime in the NTE. What is needed in particular, are studies looking at the specific relationship between CCTV and alcohol-related crime.

CCTV can play a valuable role in monitoring and solving crime within licensed venues. Its role in preventing crime remains doubtful. Areas should be adequately covered, including all entrances and bar areas in nightclubs and major hotels, and the minimum technical requirements should be identified.

16. Community action projects

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Literature
Effectiveness rating:	with enforcement ✓✓ without enforcement x

Community action projects are comprehensive approaches to tackling alcohol-related violence on several levels and at the same time. This typically includes community mobilisation in terms of publicity campaigns, local task force activities, and community forums and discussion groups. Further emphasis is usually placed on RSA practice, security staff capabilities, environmental safety factors, and police enforcement of liquor laws (Graham & Homel, 2008). The most often cited community action initiative to date is probably the Swedish ‘Stockholm Prevents Alcohol and Drug Problems’ (STAD) project (see Box 1).

The Finnish Local Alcohol Policy project (PAKKA; Warpenius et al., 2010) is very similar to STAD in terms of goals and methods. Its main objectives are to reduce the number of heavy drinking occasions and related problems; counter under-aged alcohol consumption; and to create a community model of sustained prevention. The methodology employed entails community mobilisation and policy change; a focus on youth alcohol access and consumption; and RSA training. Supervision and implementation of the project was overseen by a central coordinator working closely with community and local government (police, educators, schools, licensees, liquor commission, etc.).

The Surfers Paradise Safety Action Project was a community-based initiative in 1993, designed to reduce violence in and around licensed venues in the central business district of the main tourist area on Queensland’s Gold Coast (Homel et al., 1997). Key features of the project included:

- channelling funding through local government;
- creating a representative steering committee and community forum;
- forming task groups to address safety of public spaces, management of venues, and security and policing;
- encouraging nightclub managers to introduce a Code of Practice that regulates serving and security staff, advertising, alcohol use and entertainment; and
- regulating managers through ‘risk assessments’ and a community-based monitoring committee.

The evaluation of the project (Homel et al., 1997) initially showed reductions in irresponsible drinks promotions and improvements in security practices, entertainment, handling of patrons, and transport policies. Physical and verbal aggression inside and outside venues declined substantially, based on structured observations pre- and post-implementation and on police and security data. Male and female drinking rates and drunkenness also declined markedly, even though there was no change in drinks prices or admission charges (Homel et al., 1997).

Another community project, the ‘Queensland Safety Action Projects’ (Hauritz & Homel, 1998) involved licensees, police, the liquor licensing authority, and local and state government. It focused on enforcement of RSA laws, improved crowd controller capabilities, better night-time community transport, and the creation of a general drinking environment less conducive to aggression and violence. The Queensland Safety Action Projects was trialled in four towns and the evaluation reported a decline in verbal abuse (82%), arguments (68%), and assault (82.1%) (Homel et al., 2004). However, there was almost a complete lack of effect-sustainability post-intervention; some of which might be attributed to a lack of dedicated resources and mediocre police intervention.

These and other community intervention projects such as the Sacramento Neighbourhood Alcohol Prevention Project (SNAPP) in the United States (Treno et al., 2007) and the Preventing Alcohol Trauma: A Community Trial project also in the United States (Holder et al., 1997) have consistently produced positive results. The evidence suggests future efforts should focus on adapting the best parts of these programs to other communities and countries. These best practice elements include:

- ensuring a long-term focus on interventions and results;
- having a coordinated approach, with dedicated resources and personnel;
- including monitoring and, where appropriate, enforcing measures such as responsible serving;
- ensuring blanket written responsible service of alcohol serving policies, preferably mandatory, which include staff training;
- having a model for community/scientist/government involvement; and
- devising an evaluative framework at the outset.

Box 1: Stockholm prevents alcohol and drug use (Wallin et al., 2005b).

The STAD project was launched by the Stockholm county council in 1995, and consists of a multi-component approach to reducing alcohol-related violence and intoxication in the night-time economy and the community as a whole. The project centres on RSA-training and, importantly, enforcement of RSA-practice, as well as community mobilisation and engagement with these preventive measures (Wallin et al., 2005a). The RSA-training included servers, security staff and owners, and covered Swedish alcohol law, the physiological and psychological effects of alcohol, and conflict management. At the end of 2000, more than 570 servers, doormen, and managers had completed the training program (Graham & Homel, 2008). Enforcing RSA practice involved giving official warnings to venues demonstrating problematic serving practices. The alcohol licensing board and police conducted joint audits of licensed premises. This fostered communication and cooperation between the two authorities as well as produced more effective venue assessments (Wallin et al., 2005a). The project measures were institutionalised in 2001, with its various components added to national legislation, and responsibilities of the project allocated to stakeholders. Results included a 29 percent reduction in violent crimes occurring between 10 pm and 6 am, compared to a slight increase in the control area. The refusal of service rates increased from five percent in 1996 to 70 percent in 2001 (Wallin et al., 2003).

Recently released data from a subsequent six city expansion of the STAD program has shown that while uptake was good in all cities with very high levels of fidelity in implementation, the serving practice or alcohol-related harm did not change (Andreasson, 2011). What might have been different about the original STAD trial? It started from an extremely low baseline where police only ever went to licensed venues when they were called, normally to break up fights that could not be handled by security. The concept of responsible service of alcohol was almost non-existent, with pseudo-patron studies showing that in the initial round of observations, 95 percent of bars would serve an actor portraying heavily intoxicated behaviour who had staggered to the bar, had problems sitting down or standing at the bar and had fallen asleep briefly before attempting to order the beer. The improvement to only 47 percent (Wallin et al., 2002) of bars still serving these intoxicated individuals still represents a basic failure of RSA (Wallin et al., 2002). Starting from such a baseline, virtually any intervention would be likely to see an improvement. This means that while the measures outlined in the STAD project may be highly effective given the low baseline RSA practice, they are unlikely to have as much impact on an environment where RSA, enforcement of alcohol laws, and decreased alcohol-related problems due to community pressure have been in place for some time.

17. Community-led sales restrictions

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Literature
Effectiveness rating:	✓

In a very different version of a community led measure, community leaders in Western Australia's Fitzroy Valley identified in 2007 problems with violence and dysfunction in their communities, particularly relating to alcohol abuse and suicide. They decided to take action. The senior women in the community held a meeting to discuss the alcohol issue, and launched a campaign to restrict the sale of alcohol from the takeaway outlet in the Fitzroy Valley (Australian Human Rights Commission, 2007). By the end of 2007, the Director of Liquor Licensing released his decision, which involved restrictions on the sale of packaged liquor. The restriction read:

The sale of packaged liquor, exceeding a concentration of ethanol in liquor of 2.7 percent at 20 degrees Celsius, is prohibited to any person, other than a lodger (as defined in s 3 of the Liquor Control Act).

The effectiveness of the restriction was evaluated with police identifying a 23 percent increase in reports of domestic violence after the first 12 months of restriction although the level of harm had decreased (Kinnane

et al., 2009). The women's refuge reported a 25 percent decrease in the number of women seeking support. Police reported a 28 percent reduction in the average number of monthly alcohol-related tasks attended to by police. The average number of alcohol-related emergency department presentations decreased by 36 percent and the number of unconscious persons being brought in for treatment decreased substantially.

Further, in 2009 the Director of Liquor Licensing announced that the same alcohol restrictions would be applied to Halls Creek. In addition to the restriction on alcohol-strength, the licensee of the Kimberly Hotel in Halls Creek was prohibited from selling and supplying liquor for consumption on the premises before midday on any day except when it is sold with a meal or to a lodger. Following the restrictions, it was found that there was a significantly lower number of alcohol-related incidents between June 2009 and May 2010 reported to police (Kinnane et al., 2010). The number of drink driving charges significantly dropped, and reports of violence to police fell by 16.5 percent in the 12 months after the restriction was imposed. Since the introduction of the restriction, the total number of reported assaults in the town has decreased by 32 percent and the number of alcohol-related assaults fell by 36 percent. Domestic violence reports decreased by 25.9 percent and alcohol-related sexual assault reports fell by 46 percent. Alcohol-related presentations to the Halls Creek hospital dropped by 40 percent after the restriction.

Comprehensive community-led interventions addressing alcohol have shown some promise, although those resulting in mandatory restrictions appear to have more meaningful effects. While those projects exhibited impressive achievements they were often motivated by a very poor situation and had a bottom line of no interventions. This makes it difficult to extrapolate those findings to the current situation where all Australian states have substantial measures in place governing alcohol consumption and licensing. Finally, it is important to note the role of enforcement within all of these models and the priority given to ensuring appropriate statutory and law enforcement support.

18. Consequence Policing

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Literature/Delphi
Effectiveness rating:	Literature: ✓✓
	Delphi: **

The owner/stakeholder of this intervention is the New South Wales Police Force (Newcastle City LAC). The consequence policing strategy is all about changing police behaviour to change offender behaviour. It uses legislative options to provide consequence for poor behaviour. The intervention involves taking immediate action for anti-social offences. It suggests that rather than using cautions when a person engages in behaviour that requires police attention, the person has already committed the offence for which they need to receive their consequence. The intervention aims to make the message clear that if you play up in Newcastle City, you will face consequences. It addresses alcohol-related harm, alcohol-related violence and damage.

Consequence policing in Newcastle is similar to the policing methods adopted in Geelong, Victoria and recently evaluated (Miller et al., in press; Miller et al., 2012b; Miller et al., 2012c). Although not a part of the original *Dealing with alcohol-related harm and the night-time economy* (DANTE) study, towards the end of the data collection period, local Geelong police officers undertook a new campaign (Nightlife 2) which focused on intense policing, and more importantly, using existing fine structures to aggressively hand out fines to individuals who were intoxicated, fighting or engaging in other forms of antisocial behaviour on the street. The increased use of these fines by police, and a subsequent increase in their monetary value, has been associated with a decrease in emergency-department attendances and assaults recorded by police. Although the intervention focuses on a small part of the sources of alcohol-related harm, this intervention has impact. Further, no stakeholders objected to the measure, compared to other interventions, suggesting they may be easier to implement.

19. Developmental prevention interventions

Intervention type:	Reduce demand
Societal level:	Individual
Available evidence:	Literature
Effectiveness rating:	✓

Developmental prevention interventions aim to reduce pathways to alcohol and other drug (AOD) related harm by improving conditions for healthy development in a person's earliest years through to adolescence. The interventions, beginning before birth, aim to reduce drug use motivated by escape from distress, by reducing risk factors such as use of tobacco, alcohol, or other drugs in pregnancy and exposure of children to environmental tobacco smoke. Evidence from small, well-controlled trials indicates that visiting family homes is a feasible approach with disadvantaged families and can reduce risk factors for early developmental deficits, thereby improving childhood development outcomes.

In the United States, savings and returns to government have been estimated across a range of areas at around US\$5 for every \$1 spent on the program over the first 15 years of the child's life. Many interventions targeting the high school age period focus on reducing motivations for drug use related to conformity, becoming an individual, and self-management. Universal interventions, such as the Communities That Care (CTC) prevention program, have shown reduced adolescent alcohol, tobacco and other drug use and delinquent behaviour in the community (Hawkins et al., 2009). More recent schemes have incorporated harm-reduction information. Evidence from an Australian trial shows reductions in alcohol use and misuse after two years (McBride et al., 2004).

In general, prevention programs seem more successful when they maintain intervention activities over several years and incorporate more than one strategy. Developmental prevention programs are unlikely to be adequate as a stand-alone policy to reduce population harm related to substance use, particularly for substances such as tobacco where the burden of harm falls late in life.

20. Drink Safe Precincts

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Literature/Delphi
Effectiveness rating:	Literature: x Delphi: **

Drink safe precincts combine local, state, industry and community resources to reduce alcohol-related violence. Their approach is to deliver coordinated plans that have been adapted to local contexts. A trial of this was undertaken across three Queensland sites from 2010–12. The key components were:

- increased and high-visibility policing;
- enforcement of liquor licensing laws;
- providing support, rest and recovery services; and
- coordinating venues, police, ambulance, community support services and transport providers.

Some additional strategies in some trial sites and not others were:

- improved taxi zones and supervision;
- improved transport information;
- improved lighting and other crime prevention initiatives, such as measures to reduce crowding and footpath queuing; and
- efforts to increase access to public toilets.

The Queensland trial was evaluated after 14 months and again at 18 months. Both evaluations concluded that there were some aspects of improved community safety and reduced alcohol-related violence. This was not evident in the data. In other words, positive conclusions were not based on the data supplied. Further, as noted by the Queensland Audit Office (Queensland Audit Office, 2013) in their report on Drink Safe Precincts, the evaluation of the trial was designed in a way that did not allow for changes in alcohol-related violence and community safety to be attributed to the trial itself. Specifically, the report concluded that the trial was poorly planned, implemented and evaluated, rendering the efficacy of this intervention unknown.

21. Drug Detection Dogs

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

Drug detection dogs are trained to actively seek out drugs in all environments. The dogs are trained to indicate the presence of drugs no matter the quantity. The dog's proficiency is maintained through continued regular training in workplace environments.

22. Drunk Tanks

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

This intervention is owned by the police. Individuals who are intoxicated and unruly are sent to a sobering up centre for the night and are fined. Implementing this intervention has been ad hoc in many cities, and it has not been systematically or independently evaluated.

23. Dry or Alcohol free zones

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Literature
Effectiveness rating:	✓

Several different models exist of 'alcohol-free zones'. This report refers to those surrounding entertainment districts, rather than 'dry area alcohol bans' used in communities with more endemic social problems. Alcohol-free zones have been in place in most cities in Australia around entertainment districts. They allow greater control of the streets by law enforcement personnel and venue security. In particular, they allow security personnel to move-on anyone drinking in front of establishments and allow police to identify and (in some cases) fine those who break the law. They have also resulted in less glass on the streets, most probably decreasing the amount of available weaponry in the case of altercations. Alcohol free zones, or 'dry' zones, are designated public areas within which it is illegal to consume or carry alcohol (Babor et al., 2010). Such bans are typically installed in areas with high rates of alcohol-related antisocial behaviour, such as city parks (Babor et al., 2010) or sports stadiums (Bormann & Stone, 2001). Although this type of intervention is relatively widespread, little empirical research assesses the effectiveness of alcohol free zones. Bormann and Stone (2001) studied the effect of banning beer at a college football stadium in Colorado in the United States, and recorded reductions in stadium ejections (50%) and arrests (45%). Similarly, Gliksman et al. (1995) found significant reductions in underage drinking, violence, and vandalism following the implementation of dry zones in public facilities such as stadiums, malls, parks and beaches. This study, however, also found that dry-zone

policies take time to yield an effect, and that a minimum period of six months is typically required before any meaningful reductions are observed (Gliksman et al., 1995).

Dry zones are also used in New Zealand, where most of the country's 72 districts or city councils either have permanent alcohol-free zones, or time-restricted alcohol bans (Webb et al., 2004). Results from Auckland, for example, indicate a 12 percent decline in assaults and a 21 percent decline in disorderly conduct over two years (Webb et al., 2004). The free alcohol zone approach was implemented in conjunction with other interventions targeting alcohol-related violence and disorder, and a direct effect is therefore difficult to establish. Finally, other studies have found no effect associated with implementing alcohol free zones. For example, Spaite et al. (1990) reviewed four years (1983–86) of medical incident reports from a major collegiate football stadium in the US. At no time had alcoholic beverages been sold inside the stadium, but before 1985, fans were allowed to bring alcohol into the venue. In 1985, this practice was banned. They found no significant decrease in injury following the implementation of an alcohol ban within a college football stadium during games (Spaite et al., 1990). While some evidence suggests the effectiveness of alcohol dry zones, more research is needed to establish conclusively the usefulness of this type of intervention.

24. Early Intervention Pilot Program

Intervention type:	Reduce demand
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

ACT Policing owns this program in collaboration with ACT Health. It targets the Australian Capital Territory's youth (under 18 years) involved in alcohol possession/consumption. The Early Intervention Pilot Program, launched on 1 July 2010, was developed to raise awareness of the short and long-term impacts of 'risky' drinking among young people, specifically targeting those young people who are apprehended for consuming, supplying or possessing alcohol. These young people are diverted away from the criminal justice system and offered education on the effects and consequences of underage drinking. Young people who are detected as being significantly intoxicated or where an offence has a significant alcohol-related factor are also offered the diversion service. This is provided by health clinicians from the ACT Health Directorate.

When a case officer identifies a young person who is consuming, supplying, or possessing alcohol or showing signs of intoxication or where an offence that has a significant alcohol-related factor has been committed, the case officer takes appropriate duty of care actions and contacts the parents and/or guardians of the young person. The officer informs the ACT Policing Drug and Alcohol Diversion Team (DADT) and the ACT Health Directorate clinicians of the offence or interaction using the Supportlink Referral Management System. The DADT and the clinicians will notify the child/young person and their parents and/or guardians, in writing, of the:

- details of the offence or interaction the young person had with ACT Policing;
- options provided to the young person on how to deal with the offence or interaction (a choice between a diversion and a caution); and the
- process of diversion and how to comply with the program.

ACT Health clinicians make an initial assessment of the young person at the diversion session to determine if assistance from other services may be indicated, such as counselling, housing, schooling etc. The initial assessment is followed by an education session on the adverse effects of alcohol abuse on a developing body and brain. The clinicians notify the DADT and the case officer of the compliance of the young person with the program. If the young person does not comply with the diversion, the case officer will clear the offence by issuing a caution or proceeding with a relevant charge. Despite the end of funding for the pilot program in 2012, the pilot program was extended by agreement between ACT Policing and the ACT Health Directorate. Police officers will still be able to clear underage drinking offences by alcohol diversion, and ACT Health clinicians will provide the education and information to those young people who are apprehended for underage drinking.

25. Education

Intervention type:	Reduce demand
Societal level:	Societal
Available evidence:	Literature
Effectiveness rating:	✓

Educational programs aim to prevent and/or reduce problematic alcohol-related behaviour by increasing knowledge and understanding of the risks associated with alcohol consumption, and to help develop sensible attitudes regarding alcohol consumption.

One educational program, known as the School Health and Alcohol Harm Reduction Project, was evaluated by McBride et al. (2004) using more than 2,300 students from metropolitan government secondary schools in Perth, Western Australia. The program aimed to reduce alcohol-related harm in secondary school students, and was conducted in two phases over two years. At the end of the program (Lang & Rumbold, 1997b) the intervention students were more likely to be non-drinkers or only drink under supervision than the comparison students. Seventeen months after the program, the students from the intervention group were far less likely to drink risky amounts of alcohol than were the comparison group.

Many reviews have been conducted to determine the effectiveness of education initiatives, with each noting a lack of positive outcomes (e.g. Foxcroft et al., 2003). However, the systematic review by the authors indicates that some educational programs show promise including the Strengthening Families Program (Spath et al., 2001a; Spoth et al., 2001b). They note that culturally focused programs, require further investigation to establish their effectiveness on a larger scale. Within the same review (Foxcroft et al., 2003), the authors note that much of the research into educational programs uses poor methodology, and this needs to be improved by using large-scale randomised control trials or comparative interrupted time series designs.

DrinkWise is an organisation that implements national information and educational programs. Although it implements these programs, adequate descriptions of what is being done and any evaluation of these could not be located, even after communicating with the organisation. Some initial evaluation results were located for some of the programs, however these were only presented in a summarised form, and no methodology or link to a final evaluation report were located. As a result it is difficult to determine whether findings were significant, or the extent of their effects. In addition, the evaluations were conducted by a marketing research company, which is not a peer-reviewed form of evaluation. As a result, the effectiveness of such programs could not be evaluated in this report, however a list of those able to be located is provided in Appendix B. Any intention to evaluate these interventions could not be found.

The goal of education is to inform the public, which means it may not result in behaviour change but may help to build support for policy initiatives that do work. Future evaluations of education programs should keep this in mind when discussing behaviour change of participants.

School Based Prevention—Computer or Internet Based

Many prevention programs for alcohol and drug use have been developed for delivery in schools. Resource limitations as well as the adaptation necessary to deliver in particular school/classroom environments means these programs are often not delivered as intended (Tobler, 2000). Delivery of these programs by computer, or via the internet overcomes these problems, and ensures consistent delivery of programs. A systematic review of the effectiveness of programs delivered in this way discovered that all four of the programs targeting alcohol consumption and delivered in a computer or internet-based format, were associated with reduced alcohol use after intervention (Champion et al., 2013). They also reduced the frequency of binge drinking. However, effect sizes were small to moderate (0.09–0.38). One intervention was found to reduce alcohol-related harms, but only for females at a one-year follow up. Research into education programs delivered in this way is still in its infancy, with only four studies identified in the Champion et al. (2013) systematic review.

Social norms Campaigns

Intervention type:	Reduce demand
Societal level:	Societal
Available evidence:	Literature
Effectiveness rating:	?

The Social Norms approach is an American model of health promotion that focuses on the way that peer attitudes and behaviour influence young people's own drinking behaviours. The idea is that misperceptions among the social group can be corrected, in turn making the peer environment supportive and safe for the consumption of, or lack of consumption of alcohol (Cook, 2005). In 1999, 20 percent of colleges in the United States reported using Social Norm marketing campaigns. This increased to 50 percent just two years later (Weschler et al., 2004).

The Social Norms approach has recently been evaluated in Australia. The program, known as the Social Norms Analysis Project, was trialled and evaluated in Tasmania, and was funded by the Alcohol Education and Rehabilitation Foundation. Hughes (2008) assesses some initial data from the evaluation. Participants were students from years seven to 10 at four of Tasmania's rural high schools. The students were asked to complete a 51-item survey, which asked about their own alcohol-related behaviours, experience of alcohol-related harms, parental rules, perception of others' alcohol-related behaviours and attitudes, and question about the last time they consumed alcohol. The data collected from this survey is then used to create key messages that are positive and reaffirming. Hughes et al. (2008) reports that misperceptions were present at all four trial sites. Firstly, students significantly overestimated how many people drink alcohol to excess, and secondly, there was a strong positive relationship between students' self-reported rates of alcohol consumption and drunkenness, and their perception of their friends' level of alcohol consumption and drunkenness.

Hughes et al. (2008) reports on the final results of the trial project. Data was collected at three points: time one (mid-2006), time two (first term in 2007) and time three (third term in 2007). Hughes et al. states that at the conclusion of the trial (time two), there were significant decreases in perceived peer drinking rates. This was followed by an increase in perceived peer drinking rates when tested at time three. There were also significant reductions in perceived peer drunkenness at time two, but again this increased at time three. Self-reported drunkenness initially declined from time one to time two, but at time three the proportions reported were similar to baseline. None of the changes were observed at the control school. Thus, although there were many changes observed, particularly from time one to time two, these tended to be short lived and returned to baseline levels at time three.

Alcohol Prevention based on Social Marketing

The principles of social marketing can be applied to alcohol prevention in order to influence alcohol-related attitudes and behaviour. These principles include: customer orientation, insight, segmentation, behavioural goals, exchange, competition, and methods mix. As education has demonstrated little behavioural change, the question arose as to whether using social marketing principles might assist in creating long-term attitudinal and behavioural change (Janssen et al., 2013). A systematic review found six studies that assessed the effect of using principles of social marketing in alcohol prevention programs (Janssen et al., 2013). The authors found that there was a relationship between these interventions and changes in attitudes and behaviours related to alcohol. Due to methodological limitations and variations among the studies, the authors could not assess the overall effectiveness of these programs. Further research is needed to determine whether the effect of programs is due to the incorporation of social marketing principles, or whether the program was having an effect before their inclusion.

26. Energy Drink restrictions

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

This involves reducing the availability of energy drinks at venues, for example through sales, reducing the hours available, or through negative advertising.

27. Enforcement of Liquor Act 2010

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

ACT Policing and the ACT Office of Regulatory Services own this intervention in the Australian Capital Territory. The stakeholders are licensees, community, ACT Government regulatory bodies, the Australian Hotels Association (AHA) and Clubs ACT. On 1 December 2010 the *Liquor Act 2010* came into effect, introducing offences for patrons, licensees and employees in relation to children/young people. New criminal offences against licensees and employees included offences for supplying liquor to intoxicated people; promoting liquor which encourages excessive and rapid consumption of alcohol; failing to keep an incident register, and supplying alcohol without an RSA certificate. The Liquor Act also introduced new public order offences to protect employees who refuse service under RSA principles, namely: offences for abusing or threatening staff; failing to leave premises when directed, and consuming liquor in certain public places. Other significant changes from the old Act include:

- introducing a new risk-based liquor licensing framework;
- mandatory RSA training for licensees and their employees;
- crowd controllers working at a licensed premise;
- a new licensee risk assessment management plan to be approved by the Commissioner for Fair Trading which will inform the government about how risks associated with the supply of liquor will be mitigated;
- power for the Commissioner for Fair Trading to impose and vary conditions on a licence at any time;
- emergency power for ACT Policing to close a premises for up to 24 hours; and
- power for the Minister to declare a lockout by regulation.

A review of the *Liquor Act 2010* found non-significant declines in offending patterns in the first year of implementation. Further assessment is required (Mathews & Legrand, 2013).

28. Family-Based Alcohol use Prevention

Intervention type:	Reduce demand
Societal level:	Family
Available evidence:	Literature
Effectiveness rating:	✓

Recently, a Cochrane review (<http://www.cochrane.org/>) found that alcohol misuse prevention for young people, which is universal and family-based, is effective (Foxcroft & Tsertsvadze, 2011). Such prevention typically takes the form of supporting the development of parenting skills including parental support, nurturing behaviours, establishing clear boundaries or rules, and parental monitoring. Social and peer resistance skills,

and the development of behavioural norms and positive peer affiliations can also be addressed within a family-based preventive program. Most of the studies included in the review reported positive effects of family-based prevention programs on alcohol misuse. However, the evaluations generally had small sample sizes with more than 30 studies failing to find significant effects (Foxcroft & Tsertsvadze, 2011). The authors concluded that the current evidence suggests certain generic psychosocial and developmental prevention programs (the Life Skills Training Program, the Unplugged program, and the Good Behaviour Game) can be effective and could be considered as policy and practice options.

Box 2: The Strengthening Families Program for young adolescents (Bowes et al., 2012)

In the United States, the Strengthening Families Program for Parents and Youth 10–14 was created by Project Family. It consists of a series of research investigations focused on youth and family intervention needs assessments. It is based on the bio-psychosocial vulnerability model (Kumpfer et al., 1990) which proposes that there are key psychosocial risk factors associated with the family, including attitudes and values, that interact with stressors such as financial stress. These family factors are viewed as influencing adolescent adjustment outcomes such as substance abuse.

Several studies have supported the program for its effectiveness (Bowes et al., 2012; Havard et al., 2012). Issues have been noted with the large amount of time and resources required to implement this program, along with its suitability for families 'at risk' rather than 'mainstream families' (Babor et al., 2010). This program was adapted for families in the United Kingdom and has produced some positive initial results (Navarro et al., 2011).

29. Free Water

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

This involves venues having free water available to all patrons, ideally on separate stations on the bar. This avoids the need for people to queue with those ordering other drinks and reduces any disincentive to patrons such as feeling that they are asking bar staff for something 'free'. This encourages patrons to drink more water, which has been found beneficial in terms of reducing intoxication and ensuring adequate hydration.

30. Glassware and violence

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Literature
Effectiveness rating:	✓✓

The presence of glassware in licensed venues has been associated with the severity of assaults, but not with the frequency of violence (Cassemetis & Mazerolle, 2009; Forsyth et al., 2010). Past research has also shown that 'glassings' (use of a glass as a weapon) are relatively common in alcohol-related assault cases, with frequency rates of victim injuries due to on-premise attacks with bottles or glasses ranging between 10 percent and 19 percent (Luke et al., 2002; Shepherd et al., 1990). Beer glasses have also been identified as the most frequently used weapon in alcohol-related assaults (Shepherd, 1994) and appear to be the weapon causing the most severe injuries, with glass bottles a close second (Coomaraswamy & Shepherd, 2003; Shepherd, 1998). The evidence relating glassware to alcohol-violence severity is relatively strong and clear.

Forsyth (2008) assessed the impact of banning glassware using observational methods in nightclubs in Glasgow, Scotland. Forsyth found that there was less risk of injury in venues, and that patrons also felt safer.

Specifically, 59 glassings occurred in the year before the ban compared to only five in the six months following the ban. Findings such as Forsyth's have led to some venues replacing glassware with 'toughened' glass (which is harder to break and mostly shatters into thumb-sized pieces when it does) in a bid to counter the severity of glassing and bottle assaults. Research has shown that while glass with higher impact resistance decreased the frequency of unintentional injury (eg bar staff cutting themselves on broken glass), there was no difference in terms of unintentional injury severity between toughened and ordinary glassware (Warburton & Shepherd, 2000). Although these findings only relate to unintentional injury, they still provide an indication of similar effects of toughened glass on the severity of intentional injuries.

In a qualitative study on glassing behaviour and prevention conducted in Queensland, key-informant interviews revealed an emphasis on the efficiency of buss boys ('glassies') in removing empty glasses as a counter-measure to glassing incidents (Cassebatis & Mazerolle, 2009). Other suggestions were a changeover from glass to plastic drinking vessels after a designated time (eg 9 pm), using toughened glass, proactive security, or a combination of the four (Cassebatis & Mazerolle, 2009).

Some have argued that all glass should be replaced with plastic containers as these do not break as easily, are lighter, and ultimately comprise a less likely weapon to be used in a fight (BBC News, 2003; Cassebatis & Mazerolle, 2009), a measure supported by Forsyth's (2008) findings.

Using polycarbonate glassware is a pragmatic and easily-adopted strategy that has been shown to prevent a number of serious injuries in licensed venues. It can be adopted by replacing glassware over time, for example, relevant licensed venues could be required to replace glass within two years of legislation being introduced. New venues could be required to adopt the measure prior to start of business.

31. Good sports

Intervention type:	Reduce demand
Societal level:	Community
Available evidence:	Literature
Effectiveness rating:	?

The Good Sports program was developed in Australian community sport clubs and is free. It aims to reduce alcohol-related harm by encouraging a culture of responsible drinking among players, members and spectators. It is a three-stage accreditation program for the clubs. Stage one focuses on ensuring the club follows liquor licensing laws and that its bar staff are RSA trained, as well as providing smoke-free facilities. Stage two focuses on the availability of alternative food and drink, safe transport and a lack of discounted drink promotions. Stage three involves policy development, review and enforcement. Clubs commit to progressing through the stages in a set time, increasing their commitment to changing practices and policies as they advance (Duff & Munro, 2007).

An evaluation of the program by Rowland and colleagues found that although community sports club patrons are drinking at riskier levels than the general Australian population, less alcohol was consumed in stage two clubs than in stage one clubs (Rowland et al., 2012b). The longer the club has been in the Good Sports program, the less likely that short-term risky alcohol consumption will occur. A further evaluation conducted by the same authors discovered that the level of Good Sports accreditation is strongly associated with lower levels of long and short-term risky alcohol consumption (Rowland et al., 2012a). However, while effects appear positive, it has proved difficult to get widespread uptake across sporting clubs. Without statutory backup, the intervention relies on voluntary uptake and reporting, which presents necessary problems for intervention fidelity and real world impact. Further evaluation of this program is required, especially comparing it to the adequate enforcement of liquor licensing laws.

32. Healthy Sporting Environments Demonstration Project

Intervention type:	Reduce harm
Societal Level:	Community
Available evidence:	Literature
Effectiveness rating:	?

In 2010 VicHealth funded the Healthy Sporting Environments Demonstration Project. One of its key objectives was for sporting clubs to achieve some minimum standards regarding the responsible use of alcohol, together with other health related behaviours.

The project was implemented over two years across 73 sporting clubs from the Barwon region in Victoria. The minimum standards that the intervention aimed to meet in regard to alcohol were:

- Good Sports stage two accreditation;
- not selling or providing alcohol before midday on match days;
- displaying health promotion messaging of equal weighting or branding as messaging provided by alcohol industry sponsors; and
- offering a choice of:
 - spirits to be sold at an additional 20 percent premium on 2010 prices and full-strength beer to be sold at an additional 10 percent premium on 2010 prices; or
 - only serving beer and spirits with alcohol content of not more than 3.5 percent, and wine in 100ml glasses.

The evaluation of the project (Nicholson et al., 2013) found that the price increase of alcohol did not tend to reduce alcohol consumption or attitudes to consumption, and acted as more of a revenue raising intervention than one to reduce alcohol consumption. The evaluation also found that reaching the minimum standards did not produce any statistically significant change in health and social impacts.

33. High Visibility Security Clothing

Intervention type:	Reduce harm
Societal level:	Societal/ Community
Available evidence:	Delphi
Effectiveness rating:	**

Very little information is available on the use of high visibility clothing for security personnel. However, a substantive literature does document problems associated with wearing black in different situations (Frank & Gilovich, 1988). People usually associate the colour black with evil, aggression and badness. For example, Vrij (1997) found that people expected that offenders and suspects who wore black clothes were more aggressive than those who wore light-coloured clothes. Most licensed venues are dimly lit and if security personnel are to play a preventative role, or patrons are to be able to find them in a time of need, they must be identifiable within a crowd. Furthermore, there is no reason why security personnel should wear dark clothing. This clothing should be worn with identity badges so that patrons can identify security officers in the case of an incident. Australian best practice systems use a numbered badge, where the incident register records which individual is wearing the badge each night.

Other elements that should be included or considered:

- Clothing need not be entirely high visibility and standards can be built into either security plans or set at minimum levels. For example, it could be stipulated that no less than 30 percent of a staff uniform meets Australian AS/NZS 4602 High Visibility Safety Garments Standards.
- Different personnel (eg door staff, RSA marshals and internal security) could wear different coloured high visibility clothing. Ideally, this colour scheme would be regulated to ensure it did not clash with police high visibility clothing.

Issues needing careful consideration when implementing such a project include:

- Employers should provide any high visibility clothing needed for the job free to employees.
- Who is responsible for keeping high visibility clothing clean and in good working order?
- How will these standards be enforced?
- Is there adequate provision for evaluating and reviewing the program at appropriate intervals?

While there is no clear evidence specifically regarding the implementation of mandatory high visibility clothing for security personnel, strong evidence does exist from other areas of policing and social research to suggest this would represent best practice.

34. High Risk Venue designation

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

The Director General with the agreement of the Police Commissioner can designate venues in New South Wales as high-risk if satisfied that significant alcohol-related violence or antisocial behaviour exists at the premises. Designated high-risk venues have a series of restrictions placed on them including: no glass; no shots; no ready-to-drinks with more than five percent alcohol; no doubles; only four drinks per customer; 10-minute alcohol time-outs every hour; and no alcohol service 30 minutes before closing time.

35. Holyoake family Alcohol and Drug Programs

Intervention type:	Reduce harm
Societal level:	Family
Available evidence:	Delphi
Effectiveness rating:	**

The owners are Holyoake/Catholic Care in Tasmania and the stakeholders are parents, partners, children all families effected by alcohol and other drug (AOD) problems. Holyoake offers help to all family members, regardless of whether or not the person with the dependency problem seeks help. It recognises the huge impact of alcohol, drugs, gambling and related problems on individual family members and the family as a system. Consequently Holyoake offers a range of programs targeted at all family members. By working with children aged from five years Holyoake aim to reduce the intergenerational transmission of patterns of addiction in families. Parents of adolescents learn skills that help reduce their children's AOD use and potential anti-social behaviour. Internal and external research has been conducted on Holyoake programs. Holyoake's own research shows that in more than 50 percent of cases the user has either stopped using, reduced their use or sought help within the 12 weeks of the family member attending Holyoake group therapy.

36. ID-scanner technology

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Literature
Effectiveness rating:	with enforcement ? without enforcement x

Using ID-scanners as a security measure at licensed venues is relatively new and untested. Scanner technology can vary from simply recording an image of a patron's ID, through to sophisticated systems. Some can analyse images for their properties and how they compare to legitimate forms of ID, as well as comparing

the image on the ID to a photograph taken of the patron at the same time. The most commonly proposed model is where the scanner records the IDs of all patrons entering a venue and compiles the information in a database that can then be linked to other venues and police using ID-scanners. If a patron presents a fake ID, or is ejected from a venue for disruptive behaviour, his or her name will be flagged in the common database, preventing subsequent access to other venues using ID-scanners (Palmer et al., 2010). Banning orders can be instigated through regulatory frameworks, such as by mutual agreement between venue operators through a liquor accord for example, or can be mandated by a magistrate. Such 'banning orders' are increasingly popular and have become strongly linked to the ID scanner technology. No sites have yet fully implemented the complete system with similar levels of technology across all venues.

Also almost no research exists on the effectiveness of this initiative. In the single study known to the authors on this topic, Palmer, Warren and Miller (2010) examined emergency department records for instances of alcohol-related injuries sustained in the night-life to assess the impact of ID-scanners being implemented in Geelong, Victoria. The article concluded that while many embrace ID-scanners as a powerful countermeasure to alcohol-related violence in the NTE, no evidence could be found in emergency department frequencies to back up this claim. In fact, instances of alcohol-related injuries have steadily increased in the timeframe studied. While it could reasonably be expected that ID-scanners might deter potential offenders inside licensed venues, it is unlikely—due to the spontaneous nature of alcohol-related interpersonal violence—that the frequency of altercations involving intoxicated patrons would be affected. More research is required to make any firm conclusions. Specifically, other data-sources—such as police data and ambulance data indicating location of offence and whether alcohol was involved—should be examined to properly assess the impact, if any, of ID-scanners on violence in the NTE.

Securely storing and protecting patron information is also a serious issue in terms of privacy and confidentiality and should rank among the highest priorities to consider in ID-scanner implementation (Palmer et al., 2010). While many widely believe in the effectiveness of this tool as a security measure, currently no empirical data underpins this belief, and further research and consideration of ID-scanner implementation is needed.

A major positive associated with ID scanners is the increased ability to solve crime in and around licensed venues. Substantial anecdotal evidence shows that ID scanners have been useful in solving criminal acts on the street (in combination with CCTV) and inside licensed venues. It may be that the identification and incarceration of violent criminals will lead to longer-term reductions in offences committed, although this is dependent on effective follow-up mechanisms that remove offenders from the street. It is likely different law enforcement regimes and resourcing levels will impact heavily on the effectiveness of ID scanners. In this context, however, the benefit of using ID scanners to solve crime is worth considering in any policy frameworks.

Without proper regulations in place to protect consumers, there is a very real chance that ID scanners can be used inappropriately. Until that regulation is in place, they do not constitute best practice. Given appropriate controls around privacy and assuring informed consent of patrons, ID scanners have the potential to help with solving alcohol-related crime and reducing underage people entering licensed venues. The potential to prevent alcohol-related harm remains unclear, although there is clear benefit for licensed venues in being able to accurately identify known troublemakers.

37. Individualised Control of Drinkers

Intervention type:	Reduce harm
Societal level:	Individual
Available evidence:	Literature
Effectiveness rating:	?

Placing bans on specific individuals to prevent them from purchasing alcohol or drinking in specific places is known as individualised control of drinkers (Laslett et al., 2011). Such bans can be imposed by the courts, police or by alcohol sellers. This strategy to reduce harm has a long history with minimal evaluations to

determine its effectiveness. Sweden, Finland and Ontario all had individual controls in place from the early to mid 1990s. In each case, specific controls were included, such as requiring a type of tracking book or permit to monitor the purchase of alcohol. Although no specific evaluation of this particular measure was undertaken, Norström (1999) notes that after the abolition of the Swedish controls, total alcohol consumption rose, and indicators of heavy drinking, such as number of liver cirrhosis cases, also increased. In recent times, individualised control systems have started gaining strength, particularly in Australia and the United Kingdom (Laslett et al., 2011). In 2011, Western Australia developed a 'barring notice' which allowed senior police officers to ban disorderly drinkers from particular pubs and nightclubs for up to one year. Alice Springs and Katherine in the Northern Territory, require that anyone who purchases takeaway alcohol show their electronic photo identification so the seller can check whether the person is on a prohibition notice or has had restrictions placed on their purchase of alcohol as part of criminal proceedings (Shakeshaft et al., 2012).

It is not known whether the re-introduction of individualised control of drinkers would result in a reduction of alcohol-related harm, as minimal evidence exists for the effectiveness of such controls. As Room (2012) points out, introducing these controls may result in people feeling as though their privacy is being invaded, and that they are being stigmatised and marginalised for their alcohol purchases.

38. Liquor accords in indigenous communities

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Delphi
Effectiveness rating:	**

The owners/stakeholders of this intervention are the licensees. Liquor accords are developed in catchment areas of discrete Indigenous communities to help avoid undermining alcohol management plans. Strategies are voluntary and include licensees making individual decisions to ban patrons from geographical areas for various reasons including sly grogging in discrete Indigenous communities; notifying police in those communities of large sales suspected to be intended for sly grogging; bulk sales; and restricted area sales registers. Within a catchment licensees also contribute to harm minimisation strategies and cooperate with the Queensland Police Service, the Office of Liquor and Gaming Regulation (OLGR) and other stakeholders.

39. Liquor Advisory Board

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	*

Owners/stakeholders are the Australian Capital Territory's Commissioner for Fair Trading, ACT Policing, the Australian Hotels Association (AHA), business and community sectors and Aboriginal and Torres Strait Islander representatives.

Established under part 15 of the *Liquor Act 2010*, the liquor advisory board advises government about matters associated with the Act's operation. One board member is appointed to represent each of the following groups: the Australian Federal Police; liquor consumers; small business; Clubs ACT; Aboriginal and Torres Strait Islander people; and the AHA (ACT Branch). The Commissioner for Fair Trading chairs the board.

40. *Liquor licence application Interventions/Objections*

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

The owners/stakeholders of this intervention are the Western Australia Police Liquor Enforcement Unit (LEU)/ general public of Western Australia. The unit has responsibility from the police commissioner to assess all liquor licensing applications under the provisions of the *Liquor Control Act 1988*. On assessing the application it may either intervene or object to the application. With an intervention only, the LEU will request that conditions are placed on the licence to reduce harm. These can relate, but are not limited to, drink restrictions, serving practices, security including CCTV, and trading hours. In an intervention/objection, the unit will claim that the licence should not be granted but that if it is, then conditions should apply. These would be similar to what is asked for in interventions only, but could include more specific conditions tailored to that particular application. This intervention aims to reduce harm caused by alcohol. No evaluations of effectiveness have taken place, but the intervention process is very successful in having conditions placed on licences.

41. *Liquor restricted area s 175(1a) Liquor Control Act 1988*

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

The owners/stakeholders are the Indigenous group that owns the community as well as government agencies including the Western Australian Drug and Alcohol Office and Department of Racing Gaming and Liquor. An Indigenous community can apply to the Minister for Racing Gaming and Liquor for their community to be declared a restricted area. Once declared, it is unlawful to take liquor into the community and or to consume it in the community.

42. *Liquor restricted premises s 152P Liquor Control Act 1988*

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

The owners of the intervention are the owner/occupier of the specific premises, as well as local police and other government agencies in Western Australia. Under the provisions of s 152P, the owner/occupier of premises may apply to the Director of Liquor Licensing to have the premises declared as liquor restricted. Once declared, it is unlawful for anyone to take liquor onto the premises until the declaration expires or is revoked. Local police and/or government agencies usually support applicants with submitting their application.

43. Lockouts

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Literature
Effectiveness rating:	x?

Lockouts, curfews or ‘one-way doors’ involve venues having a designated time of night after which no more patrons can enter licensed venues. The venue may still operate until close, and serve drinks to those patrons already in the establishment, but no new customers are allowed in after the lockout time (eg 2 am or 3 am). This approach is based on the rationale that much of the alcohol-related violence in the night-life is due to the movement of people between venues during early morning hours (Graham & Homel, 2008). Lockouts are mostly aimed at reducing the number of people engaging in the relatively popular practices of ‘pub-crawls’ and ‘club-hopping’ (Graham & Homel, 2008), although recent justifications have also focused on simply reducing foot traffic late at night. Lockouts have traditionally been applied to whole cities or entertainment districts, but they may be applied to single venues. This has been found effective as a part of a suite of measures particularly relating to venues with consistently high rates of alcohol-related harm in New South Wales (See intervention 81).

Lockouts have mostly been used within Australia (Palk et al., 2010), but the initiative has also been implemented in New Zealand and Scotland (Bleetman et al., 1997). Research examining this type of intervention is limited, generating ambiguous results at best. Trials have been conducted without evaluation, and data is normally extremely limited.

The most recent evaluations of lockouts have both come from Newcastle in New South Wales. Kypri et al. (2014) compares Newcastle and the neighbouring suburb of Hamilton. Both entertainment districts had lockouts, but only Newcastle had restricted trading hours. No evidence indicated that lockouts had any impact on alcohol-related assaults. Using qualitative data, Miller et al. (2014b) found that lockouts can impact negatively on smaller bars and those that trade earlier, because patrons chose to go to venues offering the most options for entertainment and socialising. While both studies were part of a multi-pronged intervention, they each reported potential negative consequences associated with lockouts and found no evidence of them having any positive impact.

Another study on lockout interventions within Queensland in 2004 (Palk et al., 2010) examined the effectiveness of a five-week trial lockout at 3 am using first response (general police) data. During the lockout trial period, the number of street disturbances reduced significantly (12.3% reduction) as well as sexual assaults (33.7% reduction). No significant declines were found for general assaults, property damages, or stealing. While these results initially seem promising, a major limitation is the extremely short evaluation period of only five weeks, making conclusions speculative at best. A particular problem of this study, and most studies published thus far, is the inability to control for levels of police activity. It has been demonstrated several times that high levels of street policing, especially when it adopts a zero-tolerance approach to anti-social behaviour, is effective in reducing alcohol-related assaults and injuries (Miller et al., 2014a; Miller et al., 2012c).

In another example, a temporary 2 am lockout was set in Melbourne for three months during 2008, affecting 487 licensed venues (KPMG, 2008). The main aim was to reduce alcohol-related violence and disorder. Results indicated decreases in assaults in the affected areas ranging from five percent to 36 percent when compared to the three months immediately preceding implementation. Within these results, however, increases in assaults were noted between 12 and 2 am, and 2 and 4 am (KPMG, 2008). Limitations to this study largely revolve around data specificity and research design. For example, a major concern involves the fact that a large part of the data used for evaluation (emergency department data) comprised all alcohol-related incidents (assault, DUI, intoxication, etc) across all metropolitan areas in Melbourne without specifying which cases were assaults, and which cases were linked to venues included in the lockout intervention. Adding further complication, a third of the venues within the entertainment district were excluded from the study and allowed to maintain their original mode of operation with patron re-entry permitted throughout business hours. This compromised the ability of the trial to assess the impact of the intervention. A clear

picture of intervention effects on the main outcome variable (alcohol-related violence in the NTE) is extremely difficult, if not impossible to ascertain (KPMG, 2008).

An evaluation of the lockout in Ballarat (Victoria) used police data for the 12 months before and 12 months after the lockout (Molloy et al., 2004). It found that the number of assaults within licensed premises decreased (47.5%) as did those in public places (33.3%). Overall property damage outside of licensed premises also decreased (17.3%) but property damage to licensed premises increased (25%). Again, these results seem promising, but the decreases in assault and property damage actually began six months before the implementation of the lockout. At the same time, Ballarat police increased its presence in the CBD on weekend nights as well as liaising regularly with venue operators, security personnel, and patrols in both marked and unmarked police vehicles (Molloy et al., 2004). Lastly, using police data is problematic as only 34 percent of alcohol-related assaults are typically reported (Laslett et al., 2010). In an attempt to counter these issues, Miller, Coomber, Sonderlund and McKenzie (2012a) evaluated the long-term effect of lockouts on alcohol-related attendances at Ballarat's emergency department using the frequency of alcohol-related injuries. They discovered there was no long-term impact as a result of the intervention, apart from shifting injury attendances at the emergency department to later at night.

Bleetman et al. (1997) evaluated Operation Blade in Glasgow, Scotland, which aimed at reducing knife crime. The intervention included a midnight lockout policy as well as a reduction in licensed venue trading hours from 3 to 2 am. The evaluation measured emergency department assault presentations. Results indicated a 19 percent reduction in assaults for 10-months following implementation, but this apparent success was ultimately attributed to the increased police presence in the NTE following implementation of Operation Blade. Further, the ten-month decrease precipitated an eventual increase in assaults which then surpassed pre-intervention rates, indicating a decay of intervention effects (Bleetman et al., 1997).

Based on the findings reported above, the balance of the evidence suggests that precinct-wide lockouts are ineffective in reducing alcohol-related harm in night-life districts, and are associated with some negative consequences. However, a more general need remains to evaluate the use of lockouts. For example, different lockouts have not been compared to each other and no work has been done on what time of night would be most effective. Based on the most recent evidence regarding intoxication levels in Australia across the night (Miller et al., 2014c), the strongest logic would be for lockouts which started at midnight. Further research is needed which focuses particularly on venue-level lockouts.

44. Mandatory Treatment

Intervention type:	Reduce harm
Societal level:	Individual
Available evidence:	Delphi
Effectiveness rating:	**

The Northern Territory government owns this intervention. The client group is predominately Indigenous. The police are stakeholders, as repeated episodes of protective custody are a trigger. Refer to NT Department of Health website and the territory's *Alcohol Mandatory Treatment Act 2013*.

45. Multi Agency Liquor Taskforce (MALT)

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	*

Owners/stakeholders in the Australian Capital Territory are ACT Policing, ACT Office of Regulatory Services (Liquor, Transport, Worksafe), ACT Fire Brigade, ACT Ambulance, ACT Health, ACT Gambling and Racing Commission, AHA, Clubs ACT and Canberra CBD Limited. ACT Policing established the monthly MALT

meetings in 2011 to bring together government agencies and internal portfolios with either a regulatory responsibility in the operation of licenced premises, or a vested interest in reducing the impact of alcohol-related harm to society. The goal is to provide a platform between government organisations that promotes information-sharing, stimulates problem-solving and drives the development of multiple strategies that will positively impact on the complex issue of alcohol-related harm within the community. As an extension to the original intent of the MALT, industry stakeholders now also attend every third meeting of the taskforce to inform and provide advice on issues and to help develop effective strategies.

46. No sale of shots or strong mixed drinks

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

No sale of shots, mixed drinks with more than 30 ml of alcohol, ready mixed drinks stronger than five percent alcohol, and more than four drinks to any patron at one time from 10 pm.

47. Operations alcohol-related violence

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

The owners are the NSW Police Force and the stakeholders are the New South Wales public. Police crews are rostered to proactively target, address and deter alcohol-fuelled violence. Police are also walking from licensed premises to licensed premises interacting with staff and patrons to stop the problems before they occur. To ensure RSA compliance police also enforce licence restrictions.

48. Outlet Density

Intervention type:	Reduce supply
Societal level:	Societal
Available evidence:	Literature
Effectiveness rating:	✓✓

The third major way to reduce alcohol availability in the community and its associated harms is by reducing the density of licensed premises where alcohol can be bought. Previous research has demonstrated positive correlations between alcohol outlet density and aggravated assault (Livingston, 2008), domestic violence (McKinney et al., 2009), and rape and homicide (Britt et al., 2005). Britt et al. (2005) reports that an addition of one alcohol establishment to a neighbourhood which has the average observed density of alcohol outlets, would result in an increase in the number of violent crimes in that neighbourhood by 5 per 1,000 capita per year. Despite the apparent robustness and clarity of these relationships, it is qualified by factors such as a community's socioeconomic status, as well as the particular prevalence of different types of alcohol outlets. For example, while Gruenewald et al. (2006) found a positive general relationship between alcohol outlet density and violence rates, this association was shown to be conditional on other factors such as high population density, low socioeconomic status, and type of alcohol business. The quantity of off-premise alcohol stores, for instance, was significantly and positively correlated with assault rates, whereas bars were not.

In a similar study of outlet quantity and violence rates across 581 area codes in California, positive correlations were established between violence and density of bars and off-premise alcohol retail shops. At the same time a negative association was found in relation to restaurants (Gruenewald & Remer, 2006). This association

between type of outlet and rates of violence, was uncovered in greater detail by Livingston (2008) who established a consistent positive correlation between the density of off-licences (off-premises) and violence in suburban areas, and on-premise licences and violence in inner-city and inner-suburban areas. Liang and Chikritzhs (2011) investigated the relationship between the number of on-site and off-site licensed outlets and number of assaults at both residential and licensed settings in Western Australia. On-site outlets referred to those outlets with set trading hours, or a requirement to sell alcohol as an accompaniment to food. Off-site referred to liquor stores that were restricted to selling packaged liquor. They found that, after accounting for the average amount of alcohol sold by those premises, the amount of alcohol sold per off-site outlet was associated with increased interpersonal violence in residential settings and on-site outlets. Numbers of on-site outlets was a significant predictor of assaults.

Other research again, adds further nuances to the relationship between violence and the density of alcohol outlets. It has been found that alcohol-fuelled domestic violence sometimes occurs at a higher rate in an area with fewer alcohol outlets, than in a district with more such businesses (Block & Block, 1995). In the latter case, it was discovered that certain licensed premises were hot-spots for violence—a conclusion that supports the idea that factors (clientele, establishment type and community characteristics) other than outlet density also have a potentially significant effect on violence related to alcohol outlets (Block & Block, 1995). This study is comparatively old and its methodologically lacking.

A review of studies investigating the relationship between the density of alcohol outlets and excessive alcohol consumption and alcohol-related harms, discovered that seven of nine studies found positive relationships between changes in alcohol outlet density and consumption and related harms, particularly interpersonal violence (Bellis & Hughes, 2011).

The type of alcohol outlet and various community features, including resident density and socioeconomic status, appears to interact to either facilitate or moderate the link between alcohol outlet density and violence. This reveals the complexity of the association between these factors, and shows that special attention should be given to specific environmental details when interpreting results related to this particular topic.

There appears to be no evidence on the impact of actually reducing the number of licensed venues selling alcohol, primarily because there have been few, if any, instances of this happening. A program of buying back liquor licences in the community, for example, might be one way to reduce outlet density. Such a program is currently under way in Alice Springs, but it is early in its implementation and the impacts are unlikely to be evident in the immediate future.

49. Patron dispersal

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Literature
Effectiveness rating:	?

Past research has found that the number of people lingering on premises at closing time was associated with increased risk of aggression. Very little research exists specifically on patron dispersal. Graham et al. (2006a) observed in Canada that people were more likely to leave peacefully if they had nothing left to drink. This would indicate the importance of bar closing guidelines, such as last calls at a designated time (eg 45 minutes) before closing, allowing patrons to finish beverages bought prior to a venue closing.

50. People Management by Pedestrianising

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

This involves manipulating the environment to reduce crowding. For example, pedestrianising areas around premises, placing food outlets on the outskirts of drinking areas, and encouraging a mixed night-time economy.

51. Pharmaceutical treatments

Intervention type:	Reduce demand
Societal level:	Individual
Available evidence:	Literature
Effectiveness rating:	Naltrexone: ? Acamprosate: ✓

Naltrexone

Naltrexone is a pharmacological product that acts to reduce alcohol consumption and craving, and is used for those with alcohol dependence. It can be taken orally, or inserted via an implant due to problems with those with alcohol dependence taking the medication orally.

A systematic review of the efficacy and safety of naltrexone found that short-term administration significantly reduced the relapse rate, however there was not enough data to determine its efficacy over longer periods (Carmen et al., 2004).

A systematic review of the effectiveness of Naltrexone implants for reducing alcohol dependence located two studies which investigated the use of Naltrexone in double-blind, placebo-controlled trials (Lobmaier et al., 2011). Both studies found that participants reported reductions in alcohol consumption. However, the review's authors note that in both these studies the participants in the experimental and control groups both received psychosocial counselling which may have confounded the results (World Health Organization, 2010).

Acamprosate

Acamprosate is a pharmacological product that also acts to reduce alcohol cravings.

A systematic review conducted by Carmen et al. (2004) on its efficacy and safety found that it was associated with significant improvement in abstinence rates and days of cumulative abstinence. The review concluded that it would be useful to use in conjunction with a therapeutic approach targeted at abstinence.

52. Planning assessment process Changes to liquor licences

Intervention type:	Reduce supply
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

The City of Greater Geelong in Victoria owns this intervention. Its stakeholders include Victoria Police, Department of Justice (local Geelong office) and internal City of Greater Geelong departments. The intervention changed the way in which the council assesses liquor licence applications. Firstly, applications

for new or revised licences are assessed by the Community Development Department, which then runs the internal referral process. Secondly, statutory planning refers all liquor-related planning permits to the Community Development Department. This department has developed close relationships with internal stakeholders, Victoria Police and licensing enforcement officers. The intervention attempts to provide a more rigorous assessment of liquor licence applications, in particular, impacts on amenity. It ultimately limits outlet density.

53. Preparing Youth and Parents for Night-life

Intervention type:	Reduce harm
Societal level:	Societal/Family
Available evidence:	Delphi
Effectiveness rating:	**

This involves providing youth and their parents with information about the harms associated with night-life.

54. Purchase Age restrictions

Intervention type:	Reduce supply
Societal level:	Societal
Available evidence:	International peer reviewed
Effectiveness rating:	✓✓✓

Alcoholic beverages are easy to obtain in most of Australia. One avenue for reducing alcohol availability in the community, particularly for young people, is to establish or increase the Minimum Legal Purchase Age (MLPA). In a review and analysis of the effects of changes to the MLPA from 1960 to 2000, Wagenaar and Toomey (2002) examined 241 empirical studies on the subject. Of those with high methodological quality (56%), 33 investigated the effect of the MLPA on alcohol consumption, 79 looked at the MLPA and traffic crashes, and 23 related to miscellaneous social and health problems including violence. The studies found an inverse relationship between the particular outcome variable ie car crashes, and an increase in the MLPA (33%, 58 %, and 34 % respectively). All of the remaining studies bar one, found no effect. Thus, with the exception of a single piece of research, all of the statistically significant results obtained in the comprehensive range of literature reviewed supported a negative correlation between the MLPA and the particular outcome variables. Although, many of the results demonstrated small statistical effect sizes, the practical outcome of, for example, increasing the MLPA to 21 years, involved preventing an estimated 846 deaths on highways in the United States in 1997 (Wagenaar & Toomey, 2002). While most of the studies reviewed by Wagenaar and Toomey were North American, the negative correlation between MLPA and alcohol consumption and related harm, has also been found in other countries, such as New Zealand (Kypri et al., 2006) and Denmark (Møller, 2002).

Plunk, Cavazos-Rehg, Bierut and Grucza (2009) investigated the persistent effects of MLPA laws on drinking patterns later in life and found that the ability to buy alcohol before the age of 21 did not tend to increase overall drinking frequency, however it was associated with more frequent binge episodes, and less frequent non-heavy drinking. A change in MLPA from 21 to 18 years has been estimated to be associated with a 20–33 percent increase in alcohol consumption and a 10 percent increase in fatal traffic accidents for adult males (Kaestner & Yarnoff, 2011). In Australia, Smith and Burvill (1987) compared both South Australia and Western Australia to Queensland after they reduced their minimum legal purchase age from 20 and 21, respectively to 18. They found that reducing the legal drinking age resulted in an increase in male juvenile crime by 20–25 percent compared with state-control groups of the same age. Strict enforcement of a given legal drinking age is also required to obtain and preserve the desired result (Forster et al., 1995; Grube, 1997). For maximum effect, age limits must be enforced by police and bar staff. Although, some groups such as college students have been shown to resist age restrictions (Martinez et al., 2009), such adverse consequences are typically greatly outweighed by the benefits identified elsewhere (Wagenaar & Toomey, 2002).

Box 3: Reducing access to alcohol for young people under age 18 program

A research partnership between Victoria's Deakin University and Communities That Care Ltd is developing and testing an intervention to check the compliance of retailers with minimum age laws for alcohol sales. Purchase attempts are monitored for a young person who looks to be under the legal age for alcohol purchase. Retailers receive information about the purchase attempt and the law. This strategy is supported through media stories and public information. In subsequent years the strategy may be expanded to discourage other community practices that increase the availability to minors, including secondary supply (adults buying and providing alcohol to minors), and the promotion of child-friendly alcohol products such as the discounting of alcopops (premixed sweetened alcohol products).

Evaluation Evidence

Evidence shows that enforcing liquor laws can increase compliance with minimum age laws. In the United States, an intervention to increase retailer compliance with underage sales laws used a strategy of compliance checks coupled with media advocacy to deter retailers from selling alcohol to minors (Scribner & Cohen, 2001). The evaluation found substantial gains in compliance (51%) among retailers who were issued with citations for failing compliance checks. Gains were also made in compliance for those who had not been cited (35%).

55. Police interventions

Targeted

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Literature
Effectiveness rating:	✓✓

See below.

Random

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Literature
Effectiveness rating:	✓

Most police interventions are based on highly visible enforcement of drinking laws in and around licensed premises, and are either targeted at certain problematic establishments or at random in the community. This approach falls into the main strategies of 'randomised' and 'targeted' enforcement interventions (Graham & Homel, 2008).

Randomised enforcement interventions are exemplified by studies such as the Torquay (UK) experiment (Jeffs & Saunders, 1983), the Brighton (NZ) (Stewart & Casswell, 1993) and Sydney (Burns & Coumarelos, 1993) replications, and the Wellington (NZ) enforcement experiment (Sim, 2005). The central approach of these interventions emphasised random and visible police visits to licensed premises. The Brighton and Wellington initiatives also included police cooperation with other community bodies such as the liquor industry, licensing authorities, and public health. Although the Sydney and Wellington replications had no measurable impact, the Torquay and Brighton projects had positive effects on alcohol-related arrests as well as on the relationship between hospitality staff and police. In Brighton, a 14 percent decrease in alcohol-related assault was detected, while in Torquay alcohol-related arrests decreased significantly ($p < 0.005$). Improved RSA practice was also observed. While these findings were promising, the effect sizes were generally small and the overall impact decayed rapidly after the intervention (Jeffs & Saunders, 1983; Sim, 2005; Stewart & Casswell, 1993). Compared with randomised policing, targeted police enforcement has yielded better results. Two particularly promising strategies deserve special attention—the Australian Alcohol Linking Program (Wiggers et al., 2004) and the Welsh Tackling Alcohol-related Street Crime Project (TASC) (Maguire et al., 2003).

The Alcohol Linking Program ran in New South Wales over nine years. It focused mainly on assessing licensed premises for alcohol-related crime rates linked with specific venues. The project identified the last place of drinking of any intoxicated offenders apprehended by the authorities, allowing police to locate potential problem venues. Importantly, significant effort went into ensuring that police filled in the relevant forms. Once a drinking establishment had been linked to a certain number of alcohol-related crime incidents, the licensee was informed of their 'performance' compared with other venues. Police then audited the premises to determine whether it delivered an appropriate level of RSA. The licensees were invited to a police workshop to discuss proper alcohol service and management (Wiggers et al., 2004). Over three months, this course of action was associated with a 36 percent drop in alcohol-related criminal incidents in the experimental community compared to a decrease of 21 percent in the control area ($p < 0.08$). Further, assault-rates declined by 32 percent in the experimental community compared to a 25 percent reduction in the control region (Graham & Homel, 2008; Wiggers et al., 2004).

The TASC project was a multi-component enterprise. It included targeted policing of confirmed problem venues, local council lobbying to influence alcohol policy as well as an extensive media focus on alcohol-violence, RSA training for hospitality staff, and rehabilitation therapy for repeat offenders (Maguire et al., 2003). The project also included establishing a licensee forum to foster organised dialogue between licensees as a group and regulatory authorities (Maguire et al., 2003).

The evaluation of TASC found an eight percent decrease in the rate of violent incidents, although these results were qualified by several assumptions related to crime rates in other parts of New South Wales. Overall, most of the TASC project results were inconclusive and limited by flaws in the research methodology such as the lack of a comparison site as well as a relatively short project timeframe. The reportedly sceptical reception of the program by the local council greatly impeded hope for progress and results. Some elements of the program did seem to decrease violence. These included a combination of targeted police enforcement, graphic presentations of alcohol-violence injuries to managers of problematic establishments, and a police warning that an audit of the given venue would be published in six months (Graham & Homel, 2008; Maguire et al., 2003).

Considering the small body of literature available, the overall efficacy of police interventions ranges from the generally modest and unsustainable effects obtained in randomised interventions, to the more extensively researched and comprehensive targeted approach. The Alcohol Linking Program is far and away the most promising evidence-based police method of curbing alcohol-related harm in and around licensed premises. It has been permanently adopted by some other Australian states and territories as well as by New Zealand police (Graham & Homel, 2008). The TASC project also provides extra support for the potential of a targeted police enforcement approach.

56. Precinct Ambassadors

Intervention type:	Reduce harm
Societal level:	Societal/ Community
Available evidence:	Delphi
Effectiveness rating:	*

Precinct Ambassadors are non-police personnel tasked with the governance of streetscapes around licensed venues. Their level of training and statutory authority varies. At one end of the spectrum, off-duty police can be paid to patrol areas. This option is discussed below. Police are an expensive option and although employing off-duty police has many benefits, a range of alternative options may be considered. These include employing licensed security guards or council laws officers, through to employing purpose-specific trained government officers such as the Victorian 'Protective Services Officers', who carry some statutory authority, without being fully trained police officers. Ambassadors fulfil a public support role such as helping people

to access transport, calling for medical attention and summoning reinforcements where necessary. With a helping brief, they are also able to intervene in potentially negative events very early on without becoming physically involved. Just the presence of ambassadors may deter antisocial behaviour, but ensuring good contact with local police services will enable early intervention in potentially escalating incidents.

These programs are based on the rationale of ensuring that public spaces are obviously governed and people in these spaces will be held accountable for their actions. This approach fits well with criminological and governance literature in that people are more likely to observe rules when being observed. While trials have been conducted in several cities (eg Auckland, New Zealand, including one currently under way in Sydney), no evaluation of these projects has been published.

57. Price including Excise and Taxation

Intervention type:	Reduce demand
Societal level:	Societal
Available evidence:	Literature
Effectiveness rating:	✓✓✓

Studies have demonstrated that increasing the price of alcohol is directly associated with a reduction in acute and chronic health concerns, accidents, crime and violent incidents (Brennan et al., 2009). With a broad and international body of supporting research, excise taxation appears to be the most successful alcohol policy in terms of cost-effectiveness, reductions in level of consumption, and overall social benefit (Babor et al., 2003). Numerous studies have firmly established a negative correlation between alcohol price and general use (Babor et al., 2003), violence (Cook & Moore, 1993; Matthews et al., 2006), injury (Gray et al., 1999), and traffic accidents (Adrian et al., 2001). This applies across gender and age, socioeconomic status and geographical location.

For example, in a British study on how the real price of beer influences violence-sustained injuries across economic regions, it was found that a one percent increase in the price of alcohol would result in an economy-wide reduction of 5,000 alcohol-related assaults a year (Matthews et al., 2006). Such a decrease in injury would impact significantly on not only the most at-risk segment of the population, but also on the disbursement of health resources. The central message emanating from this study—ie that alcohol price and violence are inversely related—has further support in previous studies which found similar relationships between the price of beer and youth violence (Cook & Moore, 1993), and cask wine levies and general harm in the population (Gray et al., 1999).

One of the most recent and perhaps most conclusive examinations of the relationship between alcohol taxation and consumption, is the meta-analysis conducted by Wagenaar, Salois, and Komro (2009) in which they assessed the relative effects of various alcohol taxes on consumption. They found 112 relevant studies from which they derived 1,003 estimates of the effect of alcohol levies on alcohol use. After adjusting for various study characteristics, such as methodology, statistical models employed, level of analysis, and multiple outcome measures, the meta-analysis produced a highly significant negative relationship between alcohol price and use ($p < 0.001$; $r = -0.44$). It was further established in this study, that the tax approach to reduce alcohol consumption generally yielded considerably larger effect sizes than any other prevention policies or programs.

Apart from the clear and significant public health advantages noted above, other benefits of increasing excise and tax include its ease of introduction (equating to a simply changing legislation) and the added benefit of raising revenue—profits which can either be channelled for general purposes, or, more attractively, put towards prevention, treatment and community causes (such as sporting clubs). A few minor limitations associated with increased taxation include potential small rises in alcohol smuggling and home-production when alcohol levies are introduced on a loosely controlled market (Babor et al., 2003).

Minimum Price per unit of alcohol

Another promising way of reducing consumption through the price of alcohol is by increasing its minimum cost. In a United Kingdom review of the effects of alcohol cost, Meier et al. (2008) found a continually decreasing drop in consumption accompanying increasing levels of minimum pricing by 5p increments spanning from 20p to 70p. For instance, a 50p, 60p, and 70p increase in price per unit would decrease overall consumption by 6.9 percent, 12.8 percent, and 18.6 percent, respectively. As such, higher price consistently equated to disproportionately lower consumption. The review found that this strategy was most successful when applied to all alcohol products rather than targeted at certain types. More recently, definitive evidence from Canada has shown that, following adjustments to minimum alcohol prices in British Columbia over the past 20 years, consumption has reduced significantly across beverage types (Stockwell et al., 2012). Stockwell and colleagues (2012) report that time-series estimates indicate that a 10 percent increase in minimum prices reduced consumption of spirits and liqueurs by 6.8 percent ($P = 0.004$), wine by 8.9 percent ($P = 0.033$), alcoholic sodas and ciders by 13.9 percent ($P = 0.067$), beer by 1.5 percent ($P = 0.043$) and all alcoholic drinks by 3.4 percent ($P = 0.007$). Thus, similar to studies on excise taxation, these findings again attest to the firmly established negative correlation between price of alcohol and alcohol consumption.

With virtually no implementation cost, a wide array of empirical support, and very few limitations of any type, excise taxation and minimum pricing of alcohol can certainly be regarded as a highly (if not the most) efficient, cost-effective, and encompassing approach to reducing overall alcohol consumption and, in effect, alcohol-related harm and social costs.

Box 4: The Living With Alcohol Program

The Northern Territory's Living With Alcohol program imposes a small levy on alcoholic beverages that were greater than three percent alcohol by volume (Babor et al., 2010). The money made from this tax was then used to fund alcohol harm reduction programs. An evaluation by Chikritzhs et al. (2005) found that the combination of price increase and program implementation significantly reduced acute alcohol-related mortality. When the tax was removed the effect failed to exist. Chikritzhs et al. also noted a reduction in chronic mortality, however this did not appear until six years after the start of the program, and therefore it is hard to assign causality.

58. Radio communication networks

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Delphi
Effectiveness rating:	Internal: **
	External **

Radio communication networks are rapidly being deployed in many night-time entertainment districts (NEDs) around the world (Miller et al., 2011b). These networks cover both inside venues and within entertainment districts. How radio communication networks operate as best practice has not been evaluated, although there is a strong logic behind improving communication within and between venues and other stakeholders.

Inside venues

Good communication between both security and general staff has often been identified as best practice, although this is impossible to test scientifically. Communication between staff has some benefits. Specifically, communication between security staff allows for quicker response time to incidents and a better ability to allocate resources appropriately ensuring that areas are not left unattended. In some venues, incidents can result in all security staff rushing to a particular event, leaving other areas unattended. Conversely, security staff can be unaware of incidents occurring out of sight. Radio networks provide quick and easy communication to allow venue management to be aware of the movements of staff and potential issues that are emerging. Including key general staff, such as bar managers and RSA marshals, in the network allows

for greater staff sense of security, a better team approach to managing problem patrons and easier early intervention with intoxicated people or potentially aggressive situations.

Other elements that should be included or considered:

- setting minimum standards for the type of technology used;
- making radio network considerations a mandatory part of any security plan; and
- employers providing communication equipment free of charge to employees.

Issues needing careful consideration when implementing such a project include:

- What size venue should be considered a minimum size for such systems? In the absence of such a formula, any venue where there are not clear lines of sight between all bar areas and/or security posts should be required to implement a radio system.
- Who is responsible for maintaining radios in good working order?

Programs where security guards carry radios linking them to other colleagues within the venue provide greater flexibility and responsiveness within the security team. They also allow for better communication between security and other staff (such as bar staff, managers and RSA marshals). Improved communication should logically lead to early intervention and better resolution of problems. Important points to consider are: adequate training of staff in communication protocols, ensuring staff adopts the technology, and guaranteeing proper maintenance.

Precinct-wide

Radio networks between venues and other stakeholders are now being set up in many NEDs around the world, but there have been no intervention-specific evaluations to date. Radio networks within precincts involve each venue owning a headset that feeds back to a base station. Often, others in the NED (such as street cleaners and police) will also operate headsets. One of the first documented networks was established in Geelong, Australia (Armstrong-Rowe, 2008; Miller et al., 2011b). This radio program supports third party policing, which seeks to make best use of existing resources in improving community safety. Third party policing is based on the idea that a community does not necessarily need to create a new level of policing by employing private security, when trained people are already on the ground to support existing resources. Given the number of late-night licensed venues in central Geelong, an excellent opportunity exists to use the 'eyes and ears' of the trained security personnel employed by venues to support the work of the police and the existing camera network (Armstrong-Rowe, 2008). The network involves: venues operating after 1 am, street cleaners, fast-food venue operators and police. Each stakeholder bought a handheld radio. A base station was set up in the local police station where it was monitored by the safety camera officer, who watches over CCTV across the city. The program was officially launched in April 2007 and is still operating. So far it has:

- enabled early identification of groups of people who have been causing difficulty in or around venues;
- provided police access to more information to identify and deal with people who previously may have spent long periods on the streets in an intoxicated state;
- helped the camera operator to better track issues of concern;
- given 'real time' information to police and camera operator;
- established genuine goodwill of venues to support safety measures for the community;
- built a foundation to develop other creative strategies with venues and operators;
- provided the initial step leading to the redevelopment of the region's liquor accord; and
- helped to build positive relationships between all players as a result of early success.

While generally considered a success, the implementation of the radio network alone was not associated with any reductions in people attending the Geelong Hospital Emergency Department (Miller et al., 2011b).

Other elements that should be included or considered:

- clarifying the expectations of police attendance at incidents;
- making radio network cooperation a mandatory part of any security plan;
- ensuring minimum technical standards are outlined and adhered to; and
- ensuring mandatory check in/sign off each evening.

Issues needing careful consideration when implementing such a project include:

- Who calls emergency services? Experiences from Geelong suggest problems with communication between security and radio base station about calling 000 in an emergency.
- Are venues close enough for the system to work without needing expensive repeater technology?
- Who is responsible for maintaining radios in good working order?
- How long is it permissible for a venue to have a non-functioning radio?
- Who should be responsible for the overall management of the network?

Programs where security guards carry radios linking them to other venues, police and other stakeholders within the venue allows for greater flexibility and responsiveness across NEDs. A best practice model would incorporate a radio network with CCTV monitoring and eventually ID scanner technology. It is important that protocols be agreed around calling for an emergency response. Improved communication should lead logically to early intervention and better resolution of problems. Important points to consider are: adequate training of staff in communication protocols, ensuring stakeholders adopt the technology, and guaranteeing proper maintenance. This practice would mandate sign-on/sign off protocols during operating times, including penalties for not complying. Ideally, this would be built into a security plan as a part of the licence conditions.

59. Random breath testing in venues

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Delphi
Effectiveness rating:	**

Random breath testing in venues involved police being able to enter venues and breathalyse patrons, to ensure levels of intoxication are not excessive (Graham et al., 2014). Patrons are chosen at random, and if a person is above a particular level of intoxication the police can take an action they deem appropriate for both the individual and the venue.

60. Risk-based licensing

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Literature/Delphi
Effectiveness rating:	Literature: ✓ Delphi: **

Risk based licensing (RBL) frameworks exist in the Australian Capital Territory, Queensland and Victoria as well as New Zealand and Ontario, Canada. They vary substantially, but have similar components, especially a cost-recovery element and a system which charges higher fees for venues with higher risk. The Victorian government introduced the new schedule of licensing fees on 1 January 2011. The fee structure differentiates between licensed categories, such as restaurants versus general licences, late-night licences and packaged liquor outlets. The fee structure also includes 'multipliers', which account for venue size, hours of operation and compliance history. A late night (general) licence with a maximum capacity of 550 patrons would multiply the base fee plus risk fee by 2.5 to calculate its total annual licence renewal fee. Risk fees will apply for all licensees with a poor compliance history. The proposed risk fees for compliance history would be determined by the number of paid infringements or successful prosecutions for the following offences:

- supplying alcohol to an intoxicated person;
- permitting a drunk or disorderly person on the premises;
- supplying alcohol to a minor; and
- permitting a minor on licensed premises.

A licensee's compliance history between 1 January and 30 September 2010 will determine the relevant compliance history risk fee payable for 1 January 2011. Licensees with one to two infringements are charged an additional \$2,840 per infringement. Licensees with three or more infringements are charged \$5,860 per infringement. Although the regulatory changes provide a framework that rewards better service of alcohol practice, the effects of the changes are yet to be documented. The system relies on consistent and equitable law enforcement, as do others.

Although there is no peer-reviewed research on risk-based licensing (RBL), the Foundation for Alcohol Research and Education, produced a report evaluating RBL in the Australian Capital Territory (Mathews & Legrand, 2013). Mathews and Legrand (2013) report that since December 2010, the territory has calculated fees for on-trade licensed premises according to venue type, occupancy, and trading hours. One year after the introduction of RBL, alcohol-related offences had declined. The extent of reductions at licensed premises in entertainment precincts after midnight was unclear. Although the report provides useful information regarding RBL, the territory's night-life is too small to draw reliable conclusions for larger jurisdictions. The key points from the report are that RBL is politically acceptable and was associated with modest reductions in alcohol-related harm.

Introducing RBL fees holds some promise in terms of acknowledging the costs associated with different types of venues to the community, and passing some of that cost back to the licensee. Clear evidence exists regarding the contribution of different types of licensed venues to alcohol-related harm in the community. The rollout of RBL in Victoria has demonstrated a small number of problems, mostly centred around the effects it has on small licensed venues and particularly those with live music. If the reasoning behind the intervention is to use economic penalties as an incentive to change behaviour, the Victorian system requires some adjustment. In particular, penalties of \$5,000 (for example) can be a major fine to one business and a very minor fine to another. Several people interviewed for this report suggested that a more equitable and effective approach would be to implement penalties on the basis of trading hours. This could be a reduction in hours permitted to trade, or as days of trading lost. This system has a stronger rationale for engendering behaviour change, particularly in large venues.

61. Responsible service of alcohol (RSA)—effectiveness

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Literature
Effectiveness rating:	x

Responsible service of alcohol interventions typically involve education about the MLPA. In particular they focus on public drunkenness, the physiological effects of alcohol, identifying overt signs of patron intoxication, legal issues of alcohol service, management training, and policy development (Graham & Homel, 2008). While positive effects have been found in some studies, effect sizes have generally been small and studies often short-lived (Johnsson & Berglund, 2003; Wagenaar et al., 2005a). For example, in a study on the association between RSA and patron intoxication, Lang et al. (1997a) demonstrated an 8.9 percent ($p < 0.017$) decrease in patrons rated by researchers as 'extremely drunk', and a small but statistically significant improvement in staff scores on an RSA questionnaire ($p < 0.05$). Similarly, Johnson and Berglund (2009) breathalysed bar patrons and questioned them on the social atmosphere of that bar. They reported reductions in average BAC-levels of bar patrons (-0.011 , $95\%CI = 0.022-0$) as well as in 'rowdy' atmospheres ($-6pts$, $95\%CI = -11$ to -1) following bar-staff training in RSA practice. However, this result decayed within five months (Johnsson & Berglund,

2009). A third study which focused on the association between RSA-training and RSA enforcement and alcohol sales to minors (Toomey et al., 2004) observed a 17 percent decline in alcohol purchases attempted by pseudo-customers without identification. Other studies have found that training has had no effect on service to intoxicated patrons or intoxication levels of patrons (Krass & Flaherty, 1994).

Within Australia, two recent studies into night-life have found that RSA is generally poorly upheld (Miller et al., 2013; Miller et al., 2012c). Miller et al. (2013) compares Geelong and Newcastle across a wide range of alcohol-related harms and intoxication measures. The observational arm of the study found that 83 percent of patrons who showed three or more signs of intoxication subsequently bought another drink. In a follow-up study spanning three cities, Miller et al. (2013) found that 86 percent of patrons who showed three or more signs of intoxication subsequently bought another drink. The combined findings of these two large studies suggest that the RSA conditions in Australia are failing.

Enforcement of server practice

While RSA programs have generated small, but positive outcomes as standalone initiatives, the best results have come from wider community projects with RSA as a central measure, such as STAD (see Box 1). This is likely due to the fact that most of these community projects include an enforcement component (Hemel, 2006; Wallin & Andreasson, 2005). Using STAD as an example, responsible service training was coupled with, and almost entirely dependent on, police and municipal enforcement practice in the NTE (Wallin & Andreasson, 2005). Similar conditions were reflected in the Queensland Community Action Projects (Hauritz & Hemel, 1998), and the link between RSA and enforcement were further highlighted in the Torquay experiment (Jefferis & Saunders, 1983), the Brighton replication (Stewart, 1993), and the Wellington enforcement experiment in New Zealand. All of these interventions emphasised random and visible police visits to licensed premises as their central approach. The Brighton and Wellington initiatives also included police cooperation with other community bodies such as the liquor industry, licensing authorities, and public health. Although the Sydney and Wellington replications had no measurable impact, the Torquay and Brighton projects had positive effects on alcohol-related arrests as well as on the relationship between hospitality staff and police. In Brighton, a 14 percent decrease in alcohol-related assault was detected, while in Torquay alcohol-related arrests decreased significantly ($p < 0.005$) and notable indications of improving RSA practice were observed. However, while these findings were promising, the effect sizes were generally small and the overall impact decayed rapidly post-intervention (Jefferis & Saunders, 1983; Sim, 2005; Stewart, 1993). Thus, while RSA-training is important in its own right, it would appear that it is also highly dependent on proper enforcement methods, such as regular visits to venues by police and licensing officials to identify compliance issues, and following up issues with prosecution and/or licensing action, for maximum effect.

Several key elements make the current RSA conditions difficult for licensees to implement and for police to enforce. Many states have poorly defined conditions of 'intoxication' or 'drunkenness'. Further, many enforcement agencies are constrained substantially by judicial interpretation and rules of evidence, making the enforcement of RSA extremely difficult, especially around service of intoxicated people. In at least one state in Australia, there have been no successful prosecutions of licensees who have served intoxicated patrons in the past year. Such a situation impacts negatively on the effectiveness of this intervention and the morale of enforcement personnel. A review of relevant liquor Acts across Australia is indicated, especially investigating success rates of prosecutions and subsequent penalties.

Mandatory versus voluntary RSA training

One major difference between different RSA interventions which has not been adequately described in its own right is the difference between projects in which RSA training is mandatory, versus those in which it is

voluntary. One study (Dresser & Gliksman, 1998) compared two states with mandatory training, two states with incentives for training, and two states with no formal statewide system. It found that significantly more servers are trained and fewer patrons are visibly intoxicated in states with mandatory training versus those with incentives or free market systems. This is consistent with a previous study using a time series analysis of single-vehicle, night-time, injury-producing crashes (Holder & Wagenaar, 1994) that showed a reduction in crashes associated with mandatory server training (Graham & Chandler-Coutts, 2000).

Implementing a regime to provide training for mandatory RSA will ensure consistency in training and may improve practice. The available evidence shows that having a comprehensive program of monitoring and enforcement is a stronger predictor of improved RSA practice. In line with this, a range of enforcement practices, such as test purchasing is recommended.

62. RSA marshals

Intervention type:	Reduce harm
Societal level:	Societal/Community
Available evidence:	Delphi
Effectiveness rating:	**

Some precincts in Australia have started introducing RSA marshals. These are venue staff whose sole duty is to monitor intoxication levels, identify people who are showing signs of heavy intoxication and either intervene early to slow drinking (typically by offering free water) or identify the individual for security to remove from the premises. These marshals are a relatively recent phenomenon, and their role is aimed at picking up an area of security that has become less clear, or is more difficult to conduct in larger venues by regular security staff. Previously, and in smaller venues, security personnel are able to monitor the crowd comparatively closely, creating relationships with patrons and identifying earlier signs of intoxication (such as escalating noise or slurring of words). Such early intervention is clearly ideal, preventing higher intoxication levels, while allowing patrons to remain in the premises.

In larger venues, security personnel are seldom able to undertake this role. It is better suited to someone dedicated to the task, who is specially trained to identify earlier signs of intoxication and who has excellent communication skills. With no evidence of when such a role is needed, providing marshals should be either a part of an overall security plan, or set at a minimum one RSA marshal per number of security staff for large venues. No evidence exists concerning the effectiveness of such positions.

Other elements that should be included or considered:

- This role might suit some ex-crowd controllers or bar staff; experienced staff who can identify intoxicated patrons easily and have excellent communication skills.
- The security plan should include whether or not RSA marshal/s are required.
- RSA marshal numbers should be tailored to each venue, but should work from the minimum formula: one for every 10 security personnel.
- All staff induction should include briefing on the role of the RSA marshal.

Issues needing careful consideration when implementing such a project include:

- Is there adequate quality assurance of practice and staff training?
- How do you ensure security staff members continue to monitor intoxication where possible?
- Is there adequate provision for evaluation and review of the program at appropriate intervals?

The deployment of RSA marshals holds some promise, particularly in larger venues, where security is seldom able to undertake such a role. In-depth evaluation of such roles to determine best practice is strongly recommended.

63. Sales restrictions

Intervention type:	Reduce supply
Societal level:	Societal
Available evidence:	Literature
Effectiveness rating:	✓

Local agencies have a range of powers to control access to alcohol through the United Kingdom's *Licensing Act 2003* and related legislation. For example, the *Police Reform and Social Responsibility Act 2011*, Early Morning Restriction Orders allow local authorities to restrict late night alcohol sales in areas where they are causing problems. Local health bodies are responsible authorities under the *Licensing Act 2003*, meaning they are automatically notified when a licence application or review is instigated. The United Kingdom Alcohol Strategy (2012) committed to consult on introducing a health-related licensing objective specifically related to cumulative impact (enabling local authorities to limit the growth of alcohol outlets in an area).

64. Safer Bars

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Literature
Effectiveness rating:	✓✓

The Safer Bars intervention is a training program designed to reduce aggression and violence on licensed premises (Graham et al., 2004). It focuses on the contribution of alcohol intoxication to bar room aggression (Graham et al., 2006b) and the importance of avoiding over-serving patrons. Primarily it focuses on training staff in pragmatic and applied methods for dealing with and reacting to the problem behaviour and aggression of patrons (Graham et al., 2004). Staff training has six themes in interpersonal skills and handling (see Box 4). The Safer Bars program also includes a risk assessment workbook (Graham, 2009) which helps a venue's owner or manager to rate their premises in terms of known risk factors. This highlights particular components of the licensed operation that might be improved, as well as suggestions for making these improvements.

The value of Safer Bars has been documented in past studies. Graham et al. (2006a) assesses the effectiveness of the program in terms of staff knowledge and attitude to reducing bar room aggression, finding that the training sessions significantly improved staff-knowledge as evident in pre- to post-intervention test-scores ($t(514)=33.6, p<0.001$). Knowledge/attitude scores also improved significantly ($t(461)=20.1, p<0.001$), as did interpretation of body language ($t(451)=22.1, p<0.001$) (Graham et al., 2005b).

Graham et al. (2004) found that the program resulted in lower counts of aggression and violence recorded in intervention establishments after training compared to slight increases recorded in control venues. Moderate/severe physical aggression by patrons decreased from 11.5 percent pre-intervention to 8.3 percent post-intervention compared to a 5.1 percent increase in control bars ($t(28)=2.28, p<0.031$) (Graham et al., 2004). While the effect sizes were small, these results might in part have been 'diluted' by factors such as high-staff turnover (Graham et al., 2004). The relatively consistent significant findings across aggression categories for patrons, as well as staff, indicate the real effect of the *Safer Bars* training program.

Box 5: Main themes of the Safer Bars training program (Graham et al., 2004)

The central themes of the Safer Bars training program revolve around staff working as team, intervening early in incidents to prevent escalation, and dealing with patrons in a calm and respectful manner. Specifically the program involves:

- recognising dynamics of aggression and how it escalates;
- gauging an explosive situation effectively in terms of appropriate reaction and intervention;
- staying rational when confronted with aggression; not losing one's temper;
- using proactive non-verbal techniques to defuse a situation, for example by maintaining a calm, collected and respectful demeanour;
- reacting to aggressive patrons effectively with respect and consideration, and with the aim of resolving the situation; and
- being aware of the laws of liability in on-premises aggression and violence.

65. Secondary Supply Restrictions

Intervention type:	Reduce harm
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

Secondary supply restrictions state that an adult must not supply alcohol to a minor at a private place unless the adult is a parent or legal guardian of the minor, or has specific permission of the parent or guardian; and that any alcohol consumption by minors should be controlled by their parent, or equivalent.

66. Security personnel

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Literature
Effectiveness rating:	✓

Despite research connecting security personnel with increases in violence, past studies have also demonstrated the significance and value of well-trained and professional security personnel on licensed premises. Most of this research shows that effective security personnel typically display a firm, rather than aggressive, demeanour; act as patron guardians rather than antagonists (Graham et al., 2005a), and aim to defuse and resolve an explosive situation in an orderly and peaceful fashion (Fox & Sobol, 2000). Patron guardianship involves protecting patrons from violence and disorder through conflict resolution and prevention. In a study on patron guardianship and regulation in the NTE, Fox and Sobol (2000) observe the management of two bars in an unspecified town in the northeast of the United States. The authors found that greater levels of guardianship, through effective security personnel, were associated generally with a lower frequency of predatory sexual offending and disorder within the bar. Security staff who operated in a consistent and professional manner (rigorous in ID-checking and a firm, but friendly demeanour) were associated with lower patron interpersonal hostility and sexual aggression, as well as reduced violence in general on licensed premises (Fox & Sobol, 2000).

Education and training of security personnel appears to be crucial to the quality and effectiveness of their work. The relatively large body of research connecting security staff with increases in violence may therefore indicate that not enough security staff receive adequate training or apply their training. It might be that security personnel do not increase violence—but those who are poorly trained, do. This conclusion is supported in other studies linking specifically poorly skilled security personnel with aggression and violence (Graham

et al., 2005a; Graham et al., 2004; Hauritz & Homel, 1998; Hobbs, 2003; Homel et al., 1992; Wells et al., 1998). The variation in security personnel capability is likely a product of the difference between the variety of security firms that have different training programs and qualification requirements (Hobbs et al., 2002; Hobbs et al., 2000). This perhaps represents a need for a more rigorous, standardised security personnel screening, training and licensing program. More research is required before conclusive statements can be made.

67. Security plans

Intervention type:	Reduce harm
Societal level:	Societal/Community
Available evidence:	Delphi
Effectiveness rating:	**

A security plan is a document drawn up by a licensed venue that covers all security-related issues and explains the rationale for each measure. Staff should be aware of their venue's security plan. Every venue is different in its layout, capacity and customers, and so each plan is unique. Plans should cover issues such as strategies for dealing with different types of incidents in different areas (eg aggressive patrons being refused entry versus altercations in female toilets), normal operating procedures, and staffing solutions for each area that include details of the number of staff and their required level of experience. Licensees, consultants or security companies can develop these plans. They should also include the use of current and emerging technologies (such as CCTV coverage and ID scanners). Such plans have been recommended at least as far back as 2000 (Graham & Chandler-Coutts, 2000), but remain unproven in terms of direct effects on the prevention of problems.

Other elements that should be included or considered:

- mandatory and comprehensive use of incident registers with penalties for failure to complete;
- identification of all security personnel through a registered number system documented in the security register, as is commonly practised in many precincts in Australia;
- individualised security staff numbers for each venue, using the minimum formula: two security staff for every 100, plus one staff member for every subsequent hundred customers ;
- numbers of security staff that are built into the security plan and are an enforceable element of the licence;
- numbers of security staff renewed upon changes to venue/licensee or bi-annually;
- briefings on the plan included in all staff inductions with security staff being fully conversant with its contents; and
- approval of the final plan by senior police responsible for licensing as a condition of purchasing or renewing a licence.

Issues needing careful consideration when implementing such a project include:

- Should the scheme be mandatory?
- Is there adequate quality assurance of practice and staff training?
- Is there adequate quality assurance within police training to ensure responsible officers are qualified to evaluate security plans?
- Is appropriate legislation current to ensure anti-corruption practices are in place?
- Is there adequate provision for evaluation and review of plans at appropriate intervals?

Licensed venues vary substantially in size, trading hours, patron type and location. Linking an approved security plan with licence conditions, which are renewed, provides a flexible and tailored mechanism for ensuring best practice.

68. Service (opening) hours for venues

Intervention type:	Supply
Societal level:	Societal
Available evidence:	Literature
Effectiveness rating:	✓✓✓

Another way that the availability of alcohol can be limited is by restricting the hours it can be sold, most commonly by reducing licensed venue trading hours. A consistent and robust relationship between alcohol-related violence and outlet opening hours has received strong empirical support (Chikritzhs & Stockwell, 2002, 2006; Chikritzhs & Stockwell, 2007; Chikritzhs et al., 2005; Nelson et al., 2010). Perhaps most prominently, a Brazilian longitudinal study of the effects of a ban on alcohol trade between 11 pm and 6 am, found a large statistically significant reduction in homicides of nearly nine per month, or 30 per 100,000 population (Nelson et al., 2010). Similarly, Chikritzhs and Stockwell (2002) found that a one-hour extension of trading hours in the Perth NTE was related to a mean 70 percent rise in assaults in and around licensed venues. This effect was mainly attributed to an increase in alcohol consumption and patron numbers, which in turn was credited to longer trading hours of night-time businesses. In England, studies examining the impact of the *Licensing Act 2003* have found no evidence that violence increased following the introduction of extended licensing hours (possibly due to strong night-life policing) although the timing of violence was seen to have shifted further forward into the early hours of the morning.

Longer alcohol service hours have been introduced in some countries to prevent peaks in alcohol-related violence associated with fixed bar-closing times. In Australia, increased assaults were seen in venues that extended their opening hours (Chikritzhs et al., 2007b). Restrictions can also be placed on the days of the week on which alcohol can be sold. In 1981, for example, the government of Sweden implemented a trial that closed liquor stores on Saturdays. During the study period, both indoor and outdoor assaults declined as well as domestic and public disturbances. In 2000, the reopening of liquor stores on Saturdays was trialed and in 2001, reinstated across the country. Alcohol sales increased following Saturday reopening, but the number of assaults did not change significantly. In addition Rossow and Norstrom (2007) conducted a study in which they investigated the effect on violence of small changes in closing hours for on-premise alcohol sales across 18 cities in Norway. They discovered that on weekend nights in city centres a one-hour change in closing hours for on-premise sales was associated with a 16 percent increase in violent crime rates per extra trading hour.

The most recent and compelling evidence regarding trading hours has come from Newcastle in Australia, where trading hours were restricted to closing at 3:30 am, with a lockout (one-way door or curfew) and other minor conditions (Miller et al., 2012c). Research has documented a wide range of benefits, including a 37 percent reduction in assaults (Kypri et al., 2011; Miller et al., 2012c), significant reductions in property crime (Miller et al., 2012c) and a reduction of more than 340 emergency department attendances a year (Miller et al., in press; Miller et al., 2012c). Ongoing evidence of culture change is reflected by people going out earlier in Newcastle than Geelong and spending more money as well as an increase in the number of liquor licenses in Newcastle, compared to a reduction in the number of licensed venues in Geelong (Miller et al., 2012c). Subsequent research has also demonstrated that five-year trends in Newcastle have continued compared to nearby suburbs which had similar conditions but without the trading hours restrictions (Kypri et al., 2014). These findings are particularly important as they show that the active ingredient of the conditions implemented in Newcastle was the restriction on when alcohol was sold, not the lockouts or other restrictions.

Most the research supports the effectiveness of restricting opening hours to prevent alcohol-related violence, particularly in Australia. Distinguishing between on-licensed and off-licensed premises will be an important consideration for future interventions for outlet opening hours, as there appear to be differences between those who drink alcohol in on- and off-licensed premises.

69. Sunshine Coast Drink Safe Coalition Project

Intervention type:	Reduce harm
Societal level:	Societal/Community
Available evidence:	Literature
Effectiveness rating:	?

The aim of the project was to create a coalition to coordinate and facilitate multi-component strategies to promote safe drinking and reduce binge drinking particularly in young people aged 12–24 years. During 2009–11, the Drink Safe Coalition delivered more than 40 Drink Safe events and activities, partnered and supported a further 25, and provided events and activities for an estimated 2,000 young people. No evaluation has been produced and descriptions provided were not sufficient to include in the Delphi study.

70. Test Purchasing

Intervention type:	Reduce harm
Societal level:	Societal/Community
Available evidence:	Literature/Delphi
Effectiveness rating:	Literature: ✓ Delphi: **

In the United Kingdom, test purchasing is a procedure in which trained underage volunteers attempt to buy alcohol from retailers, to enable authorities to identify and prosecute those who break the law. It can be random or targeted towards high-risk premises and a successful sale can result in sanctions or licence suspensions (Hibell et al., 2009). An initial evaluation by the Home Office found that across three months, the test purchase failure rate was reduced from 25 to 15 percent (Hughes et al., 2010). While this measure might be considered to be primarily a state government responsibility, local communities can also engage in test purchasing.

71. Transport availability

Supervised taxi ranks

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Literature
Effectiveness rating:	✓

Night-time buses and trains

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Literature
Effectiveness rating:	✓

As well as factors related to entrance queues, other variables contributing to aggression and violence outside licensed venues mainly pertain to the number of people lingering on or around the premises after they have closed. Robust positive correlations have been demonstrated between the number of lingerers and the frequency of patron and staff aggression. Significant relationships have been found between the number of patrons hanging around the premises after closing time and: overall aggression ($p < 0.01$); frequency of aggression ($p < 0.001$); severity of patron aggression ($p < 0.01$); and, severity of staff aggression ($p < 0.01$) (Graham et al., 2006a). The outpouring of patrons onto the streets after venue closing times typically

overwhelms available local amenities such as fast food stands, taxi ranks and buses, and increases the risk of interpersonal conflict and aggression (Marsh & Kibby, 1992). This highlights a need for effective methods of dispersing patrons. Research in this area typically, if not exclusively, focuses on availability of transport after venue closing time.

Evidence relating to the effectiveness of increased transport availability in dispersing patrons and reducing violence is scarce and mixed. Homel et al. (2004a) did find that in the Queensland Community Safety Action Projects the ready availability of public transport, as observed by field researchers, leaped from there being available transport on 1.4 percent of observations in 1994 to 21.7 percent in 1996. They reported that this increase was a key factor in significant reductions in aggression and violence. Specifically, the number of observed patron arguments declined by 28.2 percent, verbal abuse declined by 60.4 percent, and threats decreased by 40.5 percent. Most significantly, violence declined by 81.2 percent (Homel et al., 2004a). This relationship was only present in multivariate analyses, and not in bivariate analyses, indicating that increasing transport availability alone may not be enough to significantly impact levels of aggression and violence. In addition, a community NTE initiative in Seattle, Washington, had a strong focus on improved late-night transportation options. Almost 90 percent of community respondents believed that increasing transport availability in entertainment precincts would be likely to decrease drink-driving and other alcohol-related crimes (McGinn, 2010). Improving late-night transit options was the most commonly mentioned measure to improve the Seattle NTE (McGinn, 2010).

Other approaches include the Australian NightRider buses that operate in most of the larger cities across the country. These services typically operate between 1 am and 6 am on weekends, and offer relatively inexpensive (approximately \$5) transportation between the city centre and outer suburbs. The buses are fitted with CCTV cameras and have security guards on board. Phones are also available for travellers to make further transport arrangements beyond their drop-off (Metlink, 2011; Transperth, 2011). Similarly, the Vibrant and Safe Geelong Nightlife Project focused on creating a safer community overall, with a specific focus on the NTE. The project committee included key individuals from industry, local government, and police, who made recommendations based on their expertise. These included not only NightRider buses, but also supervised taxi ranks organising travellers by destination in order to fill every cab leaving the rank (Leaders for Geelong, 2011). Currently in Geelong, a taxi rank operates on weekends and NightRider buses operate between Geelong and surrounding suburbs.

While the initiatives mentioned above address some elements of the problematic issue of a lack of transport availability in the NTE, no empirical evaluations of such interventions have been conducted. This means there is no way of assessing their impact on alcohol-related violence. More research into the effectiveness of these measures is needed before any robust conclusions can be drawn about their value in countering crime.

Other elements of transport availability plans that should be included or considered:

- The quantity of available transport (the most commonly identified issue).
- Different formulations of transport solutions will be required for different geographical layouts.
- Security staff at taxi ranks will only be viable in larger cities.
- Alternative models for providing taxis could be required in some jurisdictions.

Issues needing careful consideration when implementing such a project include:

- Is there adequate transport infrastructure?
- Are there alternatives when transport infrastructure is inadequate?
- Is appropriate legislation in place to ensure adequate transport?
- Is transport available at the right times?

Other research suggests that staggered venue closing times within an NTE precinct to curb alcohol-related injury and assault has shown some promise with a 34 percent reduction in emergency department assault presentations (El-Maaytah et al., 2008). However, while variable venue closing times may avoid a simultaneous influx of patrons onto the streets, inadequate transport facilities still cause frustration and conflict in the NTE.

Staggered closing times can mean that high-risk times are more drawn out for police and other emergency services. Any changes in closing times should not result in a later closing time as the evidence is extremely clear that extending trading hours results in greater levels of alcohol-related harm (Chikritzhs & Stockwell, 2002, 2007; Chikritzhs, Stockwell & Masters, 1997). Most of the research to date indicates that often there are simply not enough available transport options.

Providing late-night public transport systems can constitute best practice in appropriate communities. Certainly, in entertainment districts with a lack of available transport, providing well researched and targeted transport solutions is best practice. In the absence of available information, trial programs should be run during peak times. Even where an adequate public transport system does exist, many people will choose the convenience of catching a taxi home late at night. Providing supervised ranks where patrons can safely catch a taxi appears to be a sensible addition to most entertainment districts and represents a good business decision on the part of local communities and businesses, if not best practice.

72. User pays policing alternatives

Intervention type:	Reduce harm
Societal level:	Societal/ Community
Available evidence:	Delphi
Effectiveness rating:	**

An alternative to the ‘ambassador’ approach (see intervention 56) is employing off-duty police for extra shifts. This model involves councils or licensee groups paying the local police department for an identified number of police to patrol defined areas. The individual officers will have volunteered for additional duties, normally at overtime rates. This solution has many positives, including having uniformed police with full powers. It also has the added benefit of running more money through the police force.

Issues needing careful consideration when implementing such a project include:

- Price and sustainability: is the cost of operation prohibitive to the extent that it may ultimately be viewed as too expensive to maintain once problem levels decline?
- Police numbers and sustainability: can enough police be employed on a regular, continuing basis?
- Competition with other duties: will enough police be able to cover this duty when more attractive alternative events (such as sporting or community events) are using the same system?
- Is there adequate provision for evaluation and review of this intervention at appropriate intervals?

The model has been trialled in regions such as New South Wales and Calgary, Canada, although no formal evaluation exists. This model has many clear benefits. However, when applying it to NEDs, real concerns could be raised over the long extended hours police would be required to work and the effects this would have on their performance of normal duties and to the overall availability of police officers.

73. Venue Capacity, crowding and aggression

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Literature
Effectiveness rating:	✓✓✓

In a study on violence in large-capacity bars and clubs (>300 patrons) in Toronto, Canada, Graham et al. (2006a) found that the capacity of the venue was associated with the frequency of on-premises aggression. Higher rates were typically found in establishments with more patrons. This relationship became non-significant in multivariate analyses, suggesting that the relationship is likely mediated by other factors such as the increased likelihood of patrons bumping into each other or spilling drinks in high density venues (Graham, 2008; Macintyre & Homel, 1997). The authors suggest that these results most likely occurred because such

venues typically have more people on a given night, increasing the overall number of aggressive exchanges, but perhaps not the proportionate per patron frequency of these incidents. Other studies support this conclusion finding that crowdedness within a venue (eg at the bar) to be a better predictor of aggression and violence than overall venue capacity (Homel & Clark, 1994). The correlation between crowdedness and aggression has also been established in other studies (see Table 5) and reviews (Hughes et al., 2011). However, a significant relationship was not found in some studies (Forsyth et al.; Graham et al., 1980) and may depend on the type of venues included in the sample.

Studies have also noted positive correlations between crowdedness and patron injury (Roche, 2001), and between venue size and patron intoxication (Graham, 1985; Roche, 2001). The latter relationship may be due to the presence of larger crowds which complicate RSA, crowd control and general management (Graham, 2008). It would appear that it is not so much the capacity, but the crowdedness of licensed premises, which predicts patron aggression, and this may in turn be related to venue design and layout as well as size.

Table 5: Associations between number of patrons/crowdedness and patron aggression

Study	Location	Sample	Predictor variable	Outcome variable	Sig. and/or effect size
Homel & Clark, 1994	Sydney, Australia	36 licensed premises	No. of patrons	Patron aggression	$r^2=0.19$ *
Macintyre & Homel, 1997	Surfers Paradise, Australia	22 licensed premises	Crowdedness	Patron aggression	$F(2, 25) = 48.89$ ***
Homel et al., 2004a	Queensland, Australia	75 licensed premises	Bar crowding	Patron aggression	$\Gamma = 0.09$ **
Graham et al., 2006a	Toronto, Canada	118 licensed premises	No. of patrons	Patron aggression	HLM=0.0001**
Roberts, 2007	Hoboken, NJ, United States	25 licensed premises	Crowdedness	Patron aggression	$\chi^2 = 29.62$ **
Forsyth, 2006	Glasgow, Scotland	8 licensed premises	No. of patrons	Patron aggression	$t = 2.425$ *
Quigley et al., 2003	Erie County, NY, United States	327 18–30 year olds	Crowdedness	Patron violence	$t = 7.87$ **

Note. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

74. Venue comfort

Intervention type: Reduce harm
Societal level: Community
Available evidence: Literature
Effectiveness rating: ✓✓

Overall comfort of the venue in terms of lay-out and seating (Roberts, 2007), and smokiness and temperature (Forsyth et al., 2005; Quigley et al., 2003), is negatively correlated with patron aggression. The Queensland Community Safety Action projects (Homel et al., 2004a) found that increases in the level of on-premises comfort predicted less aggression and fewer violent incidents. Specifically, there were significant inverse relationships between venue comfort and physical aggression ($B = -0.251, p = 0.025$), and between the number of chairs with armrests and non-physical aggression ($t = 2.21, p = 0.029$). Similarly, Homel and Clark (1994) found significant correlations between inadequacy of seating and frequency and severity of on-premises aggression ($r^2 = 0.19, p < 0.01$ and $r^2 = 0.22, p < 0.01$, respectively). Significant predictors of aggression were found to be: barstool availability (frequency of aggression, $r^2 = -0.19, p < 0.01$; severity of aggression, $r^2 = -0.20$,

$p < 0.01$); poor ventilation (frequency, $r^2 = 0.29$; $p < 0.01$; severity, $r^2 = 0.25$, $p < 0.01$) and; smokiness (frequency, $r^2 = 0.31$; severity, $r^2 = 0.30$) (Homel & Clark, 1994). Similarly, in a study of bar room violence in New Jersey in the United States, Roberts (2007) found that physical and non-physical (eg verbal abuse) aggression occurred in 65.7 percent ($n = 35$) of researcher observations of bars deemed 'uncomfortable', compared to 29 percent of observations of 'somewhat uncomfortable' bars ($n = 31$), and 12.2 percent ($n = 82$) of comfortable bars. Differences between bars were statistically significant ($\chi^2(2) = 34.57$, $p < 0.01$) (Roberts, 2007).

Ventilation and heat are also likely to be significant predictors of violence (Graham et al., 2006a; Homel et al., 2004a). Quigley et al. (2003) found that compared to non-violent bars, violent bars were significantly warmer ($t(325) = 6.25$, $p < 0.01$), less ventilated ($t(325) = 4.67$, $p < 0.01$), and more smoky ($t(325) = 5.66$, $p < 0.01$). Similarly, Roberts (2007) found that aggression occurred more often in 'smoky' bars compared to 'somewhat smoky' and 'mostly smoke free' bars ($\chi^2(2) = 27.55$, $p = 0.01$), and in 'hot' bars compared to 'somewhat warm' and 'cool' bars ($\chi^2(2) = 20.36$, $p = 0.01$). However, these physical environmental characteristics tended to be associated with certain kinds of social environments, and when social environmental variables were controlled in one study (Graham et al., 2006a), physical characteristics such as crowding and poor ventilation became non-significant.

Nonetheless, the research conducted in this area may indicate that increased patron anxiety and irritability resulting from less than desirable venue comfort translates into interpersonal aggression and violence (Graham, 2008).

75. Venue design and structural plan

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Literature
Effectiveness rating:	✓✓✓

The original observational study that quantified the association between the aggression and the bar room environment was conducted in licensed premises in Vancouver, Canada (Graham et al., 1980). It found that venues with a lot of inside patron movement tended to have more aggression. MacIntyre and Homel (1997) noted that patron crowding, and in turn aggression, were increased by the impractical and colliding flow of pedestrian activity between areas. For example, these colliding areas might be the bar and dance floor, entry and exit points, and pool tables and seating areas. The relationship between venue design, crowding and aggression also included venue capacity, thus highlighting an interaction between venue size and design in predicting patron aggression. This was also supported by a study conducted by Quigley et al. (2003) where aggressive and violent confrontations were observed in high-movement areas such as around pool tables and dance floors. In fact, more than 85 percent of 'violent' bars had billiards tables and more than 77 percent had dance floors—percentages significantly different from 'non-violent' bars with $\chi^2 = 61.89$ and $\chi^2 = 66.84$, respectively (Quigley et al., 2003). In their systematic review, (Hughes et al., 2011) also found associations between recreational games (eg pool, billiards) and dance floors, and increased aggression and violence. General crime also correlated positively with these factors in all of the reviewed studies except those in which the recreational games decreased the boredom of patrons (Hughes et al., 2011).

A relatively wide range of studies documenting the relationship between high-movement areas, such as dance floors and games, and aggression and violence, shows the importance of reducing potential in-house congestion areas by deliberate structural venue design. One example of this type of research in practice, is the 2009 Victorian design guidelines for licensed venues (Macwhirter, 2009), which specifies the relevance of such factors as venue structural design, patron movement, and the positioning of patron activity areas and flow. The guidelines provide clear and practical recommendations for making venues less conducive to patron aggression and violence, and while they are based on a small body of literature, the general content fits with modern behavioural theory and the available evidence. In the bid to create a standardised frame of reference for good practice in the NTE, the act of establishing such guidelines might be seen as a worthy exercise in itself.

76. Venue entrance queues

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Literature
Effectiveness rating:	✓✓

Graham et al. (2006a) found that patron and staff aggression was connected to whether there was a line-up of patrons waiting to enter the premises. Statistical analysis demonstrated several significant positive relationships for line-up and aggressive occurrences ($p < 0.01$), frequency of aggression ($p < 0.05$), severity of patron aggression ($p < 0.05$), and severity of staff aggression ($p < 0.001$). Further, research has also identified line-ups going into licensed premises as a relatively common location for fights to break out (Graham & Wells, 2001). This link between violence and entrance line-up is mediated by several factors, including the general frustration resulting from long waits in queues and queue jumping, guest-passes and bribery of door staff for entrance, as well as the presence and conduct of overbearing door staff (Graham & Homel, 2008; Leather & Lawrence, 1995; Roberts & Britain, 2004). Any of these factors potentially contributes to the general level of patron frustration, which in turn is reflected in patron behaviour on the premises. The frustration associated with waiting in queue may make patrons less willing to conduct themselves appropriately once inside the venue. Further, staff and patron tolerance of aggression or unfairness experienced in the queue may signal an environment of permissiveness, and further add to aggression and violence in the line-up as well as inside the venue (Graham & Homel, 2008; Homel et al., 2004a).

It would appear that properly organised and supervised queues with a focus on decreasing patron boredom, equal treatment, and respectful door-staff would counter some of the subsequent problems inside the venue.

77. Venue Order and cleanliness

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Literature
Effectiveness rating:	✓✓✓

The general cleanliness of individual premises also appears to be a relatively reliable predictor of aggression in licensed venues. Homel and Clark (1994) found that bar cleanliness was negatively correlated with severity ($r^2 = -0.25$) and frequency ($r^2 = -0.22$) of aggressive on-premises incidents, and both Graham et al. (2006a) and Forsyth (2006) reported that venue messiness was significantly associated with frequency ($p < 0.001$) and severity ($p < 0.05$) of aggression. Roberts (2007) found that physical and non-physical (eg verbal abuse) aggression occurred in 65.5 percent of researcher observations of 'unclean' bars ($n=35$), 36.4 percent of 'somewhat unclean bars' ($n=22$), and 12.1 percent of 'mostly clean' bars ($n=91$) ($\chi^2(2)=36.57$, $p < 0.01$). Further, in a systematic review of the literature investigating environmental factors associated with alcohol-related problems, Hughes et al. (2011) examined 53 empirical studies conducted since 1990. They found that poor cleanliness was associated with increased intoxication, violence, aggression, lax RSA-practice, and police call-outs across 27 empirical studies.

While seemingly relatively strong, the link between venue cleanliness and venue aggression and intoxication is probably indirect. Venue messiness is likely only a relevant factor when combined with other more direct variables—such as how busy the bar is, staff crowd control capabilities, and the social permissiveness of the venue environment in general (Graham & Homel, 2008). This is supported by the finding that cleanliness became non-significant in one study that controlled for variables in the social environment (Graham et al., 2006a). As such, the correlation between an unclean bar and patron aggression could be a bi-product of staff being busy with other areas of service as a result of a high customer flow (and crowding) causing them to neglect bar tidiness as well as, for example, RSA practice, crowd management, or other factors which have been related more directly to patron aggression (Graham & Homel, 2008; Hauritz & Homel, 1998). On the other hand, poor venue tidiness could also play a causal role by signalling to the patron that the particular

establishment is not concerned with cleanliness issues, indicating a permissive and careless environment relatively tolerant of belligerent behaviour (Graham & Homel, 2008). This latter conclusion is supported in other studies where management indifference and leniency represented by factors such as a messy venue were found to contribute to patron aggression (Leather & Lawrence, 1995).

78. Venue Staff-to-patron ratio

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Literature
Effectiveness rating:	?

The studies looking at the relationship between on-premises aggression and staff-to-patron ratio have produced mixed results. An Australian study on violence in licensed venues found no relationship between staff number and on-premises aggression (Hauritz & Homel, 1998). Another Australian study on violence in licensed venues, found significant negative associations between staff number and frequency ($r^2=0.27$, $p<0.01$) and severity ($r^2=0.30$, $p<0.01$) of aggression (Homel & Clark, 1994). In contrast, a Canadian study on predictors of bar room violence found positive correlations between staff number and severity of staff aggression towards patrons ($p<0.05$) (Graham et al., 2006a). Overall, there does not appear to be a clear relationship between staff-to-patron ratio and aggression, although having sufficient staff for the number of patrons seems like a reasonable approach and good business.

79. Venue Staff gender

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Literature
Effectiveness rating:	?

The relationship between staff gender and aggression and violence, is not consistent enough to make any firm conclusions. Findings do indicate that it is not so much a matter of gender, but rather one of social gender roles and the stringency of these roles. Burly male security staff and female servers in skimpy outfits may communicate macho attitudes to patrons and heighten anxiety and rowdiness, and in turn, aggression (Graham & Homel, 2008). While anecdotal evidence indicates that female security staff can help diffuse problem situations, the one study of the role of female security staff suggests that they tend to adopt the more confrontational approaches of their male counterparts (Hobbs et al., 2007).

80. Venue Staff Drinking

Intervention type:	Reduce harm
Societal level:	Community
Available evidence:	Literature
Effectiveness rating:	✓

Aggression in patrons and staff at licensed venues has also been associated with staff drinking on the job. Roberts (2007) conducted 444 hours of structured observations in 25 licensed drinking establishments in Hoboken, New Jersey in the United States. Drinking by security staff significantly predicted aggression ($\chi^2(1)=45.65$, $p<0.01$), as did drinking by bartenders and servers ($\chi^2(1)=44.60$, $p<0.01$) (Roberts, 2007). This highlights the importance of proper enforcement of venue staff regulations.

Alcohol consumption and staff professionalism support the hypothesis that in-house security on licensed premises is related not solely to security personnel, but instead to teamwork and the proper management of

all staff, including bartenders, servers, non-servers and security personnel. Particularly relevant and important to overall venue security are employee conduct and professionalism, RSA, and staff-to-patron ratio.

Restricting staff from consuming alcohol while on duty could be seen as most appropriate for late-night venues. However, as a general rule, setting a standard that ensures a person serving alcohol is sober enough to make wise choices should be considered best practice. The most realistic level of blood alcohol concentration is probably best related to local drink-driving guidelines.

81. Violent venues register (Sch 4, NSW Liquor Act 2007)

Intervention type:	Reduce supply
Societal level:	Societal
Available evidence:	Delphi
Effectiveness rating:	**

The New South Wales government's Office of Liquor and Gaming Regulation owns this intervention. It involves placing conditions on the operations of the most violent licensed premises to reduce the sale of alcohol, restrict access to the venue, and to improve security. It addresses poorly managed licensed premises (venues placing profit before preventing alcohol-related harm) and the responsible service of alcohol. The process is regularly assessed for effectiveness, comparing venue violence levels before and after applying conditions. Quarterly reports are widely reported in the media and have shown a decline in assaults in and around licensed venues across NSW since the intervention started (BOCSAR, 2013).

4. Synthesis and summary

This section synthesises and summarises the findings from the literature review and Delphi study. League tables identify the intervention types in the study and classify them according to a rating system, based on the one developed by (Babor et al., 2010). They also include the findings of the Delphi study.

4.1. Evidence Rating System

A rating system was developed for this report to enable the interventions discovered in both the literature review and the Delphi study to be rated according to their impact or level of effectiveness. Ratings are outlined in Table 6 below.

A separate rating system was used for the interventions rated in the Delphi study to show clearly the differences in rating processes. Built on the same logic as the system used for the literature review, the Delphi system uses the mean ratings from the panel scores on relevant outcome variable (such as ‘reducing alcohol consumption’).

Table 6: Evidence and effectiveness rating system

Symbol	Criteria
✓✓✓	The highest level of impact for the literature review—a study must have substantial compelling evidence for its effectiveness, both in Australia and internationally. All relevant literature supports the intervention.
✓✓	The second level—an intervention must have strong evidence for positive outcomes. Studies may be confined to a context outside Australia, or may have limited evidence of impact within Australia. These studies may also have small effect sizes.
✓	The third level—studies must have research that supports an intervention’s effectiveness. In these studies effect sizes are small and the number of studies may be limited.
?	A study where evidence for an intervention’s effectiveness is inconclusive. This may mean the evidence both supports and contradicts the intervention, or that research in the area is so limited a conclusion cannot be drawn.
x	A study where evidence for an intervention’s effectiveness is not supported. Evidence consistently produces reliable findings that indicate a lack of, or poor outcomes, for reducing harm.
***	The highest rating in the Delphi study—when the current evidence from the literature is unclear but the ratings from the Delphi suggest an intervention is highly effective. Interventions were given this rating if their mean effectiveness rating for any of the outcome variables was between 7.1 and 10.
**	The second rating—when interventions do not have clear evidence in the literature, but receive moderate support from the ratings in the Delphi (3.1 and 7).
*	The third and lowest rating—when interventions do not have support from the literature, and receive low mean ratings of effectiveness from the Delphi (0 to 3).

4.2. Reducing supply

Interventions to reduce supply include any measures associated with the supply of alcohol. The current report found that the literature has only minimal strategies for reducing supply, and the Delphi study revealed the same issue. Reducing a society’s supply of alcohol was shown consistently to have the most impact/effectiveness. Measures rated as the most effective include: restricting the hours of alcohol sales (intervention 68), especially in on-premise venues; minimum legal purchase age or MLPA (54); and reducing the density of alcohol outlets (48).

Restricting trading hours has the strongest evidence base in Australia and recent work identified midnight as the pivotal hour after which intoxication and subsequent harms increase significantly (Chikritzhs & Stockwell, 2002, 2006; Miller et al., 2014c). Reducing the MLPA from 21 to 18 years has been demonstrated to increase episodes of binge drinking and increase the rate of traffic accidents.

Increases in the density of alcohol outlets have been found to be associated with increases in the number of violent crimes committed in a certain geographical area. This relationship exists for both on-licence premises and street violence (Livingston, 2008; Livingston et al., 2010) and for off-licence outlets and family and domestic violence (Liang & Chikritzhs, 2011). While explicit examples of interventions that reduced the density of outlets (such as licence buy-back schemes) were not found, some governments in Australia have enacted 'freezes' or caps on the number of liquor licences being granted (especially late night licences). The Victorian government reviewed this intervention and extended the freeze until 2015, although the report was never made public.

The intervention that consistently scored the highest in the Delphi study for reducing supply was the Western Australian liquor licence restriction, s 64 (10), which involved cutting back trading hours for packaged liquor and reducing the types and size of liquor that can be sold. This intervention involves the police applying to the Director of Liquor Licensing for liquor restrictions for a town, some adjoining towns or even a region. It can also be for a particular licensed venue requesting conditions to be placed on the licence. The intervention was rated as being moderately effective in the Delphi study for reducing alcohol-related assaults, reducing intoxication, preventing crime, reducing alcohol-related harm, and reducing alcohol consumption.

A second intervention from the Delphi which received moderate effectiveness ratings for reducing alcohol-related aggression, reducing intoxication, preventing crime, reducing alcohol-related harm, and reducing alcohol consumption was sch 4 New South Wales violent venues register (81). It involves applying conditions to the operations of the most violent licensed premises. These conditions are designed to reduce the sale of alcohol, restrict access to a venue, and to improve security. This intervention addresses poorly-managed licensed premises, venues placing profit before alcohol-related harm, and the responsible service of alcohol.

4.3. Reducing demand

Demand reduction covers many major areas such as restricting advertising/marketing, prevention programs, early-intervention programs for people exhibiting alcohol problems, education measures, treatment, and policy-level measures such as pricing controls (some may view this as supply reduction).

As with supply reduction, reducing demand tended to have a small number of interventions identified within both the literature and through the Delphi study. The literature review identified one intervention that could be considered to have the highest level of evidence for impact. This was a societal intervention of increasing the price of alcohol, including excise and taxation (57). Increasing alcohol's price has been associated consistently with a reduction in alcohol consumption, as well as alcohol-related harm. The Delphi study revealed two interventions which both received moderate effectiveness ratings on the Delphi for certain variables. The first was alcohol warning labels (9), a societal intervention that received a moderate effectiveness rating for reducing alcohol consumption. The second was an individual intervention, known as the Early Intervention Pilot Program (24), which incorporates a variety of prevention measures, and was rated moderately for reducing alcohol consumption, intoxication, alcohol-related harm, and for preventing crime.

4.4. Reducing harm

Within the literature, there was a paucity of well-researched and strong evidence-based interventions for reducing alcohol-related harm. Four interventions reached the second highest level of effectiveness according to the rating system, and these were targeted police interventions (55), Safer Bars (64), mandatory plastic glasses (30), and community interventions such as STAD (16). All these interventions could be considered to be at the community level.

Targeted interventions by police involve highly visible enforcement of drinking laws on and around licensed premises, and have been found to reduce alcohol-related assaults, as well as harm more generally. Safer Bars is a comprehensive strategy which focuses on training staff in pragmatic and applied methods for dealing with and reacting to problem behaviour and aggression by patrons, and has been found to be effective in changing staff attitudes and reducing bar room aggression (Graham, Jelley, & Purcell, 2005). Using plastic glasses in venues is an effective strategy for reducing harm that is related to glassware injuries and assaults, and is an easy-to-implement strategy. Community interventions typically include community mobilisation such as publicity campaigns, local task force activities, and community forums and discussion groups. Emphasis is also usually placed on RSA practice, security staff capabilities, environmental safety factors, and police enforcement of liquor laws. While this strategy appears promising, it was implemented in a context of very low-level (if any) regulation or enforcement, and is unlikely to have any further impact in Australia.

The Delphi study revealed 43 interventions that were rated as being moderately effective on a variety of other measures. The three most effective interventions for all outcome variables were sections of legal Acts. Firstly, 175(1a) Liquor Control Act (41; M=5.82), followed by Liquor Licence Restriction s 64 (10; M=5.36), and finally sch 4 of the New South Wales violent venues register (81; M=5.08). The latter two interventions are measures to reduce supply. This supports the idea that reducing supply of alcohol can assist in reducing harm. The interventions all involve placing restrictions for alcohol consumption on entire communities. This is consistent with the literature review in which interventions that placed restrictions on the community as a whole have the strongest evidence base (eg MLPA; alcohol outlet density).

Only one intervention within the Delphi study was rated as being very effective for reducing alcohol consumption. This intervention is s 175(1a) of Western Australia's Liquor Control Act (41). It was the only intervention in the Delphi study to achieve this rating for any outcome measure. The interventions also received moderate ratings for reducing assaults, harm, intoxication, and for preventing crime. The intervention gives an Indigenous community the ability to apply to the Minister for Racing Gaming and Liquor for their community to be declared a restricted area. Once declared, it is unlawful to take liquor into the community and or consume it in the community.

Reducing the alcohol content of beverages served after midnight (4) fared well across a variety of measures, being found moderately effective for reducing consumption, intoxication, alcohol-related assaults, alcohol-related harm, and preventing crime. In line with this, banning the sale of shots and similar alcoholic beverages (46) was rated moderately for the same outcome variables. This is promising as these strategies are very easy to implement and can be applied simultaneously, allowing their effects to be compared for evaluation.

Although they did not rate as highly as the interventions above, free availability of water (29), and limiting the percentage of alcohol in drinks (4) are logical interventions for reducing intoxication, and in turn reducing alcohol-related harm. Although they are not necessarily considered a solution for alcohol-related harm, they have their part in the complex process of harm reduction.

4.5. Limitations

One limitation of the current report is the way in which a Delphi study is conducted. For this report it involved bringing together a panel of researchers and individuals who are involved in the processes (eg police officers and public servants) and asking them to rate many differing interventions that they may never have experienced. This means that panel members with no prior knowledge of an intervention could rate it as being low in effectiveness. This could reduce the overall mean effectiveness of the intervention. This means that many of the ratings from the Delphi study may be misrepresented as being lower than they would have been had they been rated by a panel of experts.

A further limitation is that the scope of the environmental scan is unclear. While a wide range of international stakeholders and experts were contacted, their participation was anonymous and so it was not known whether there were a substantial number of participants globally. However, offline communication indicated that responses had come from the Netherlands, the United Kingdom, the United States and Canada, along

with Australia. To redress this limitation, it would be ideal to have an online, updateable and maintained register of these interventions and their evidence base. The alternative would be to repeat this review regularly, probably triennially.

4.6. Mandatory versus voluntary interventions

A range of the research reviewed in this study highlighted the difficulties and benefits associated with voluntary compared to mandatory measures (Chikritzhs et al., 2007b). This has been identified as an issue in measures ranging from restricting advertising alcohol to using ID scanners (36) and CCTV (15) in nightclubs. A recent, large-scale study of licensing interventions specifically compared a system of voluntary measures in Geelong to a system of mandatory measures in Newcastle (Miller et al., 2012c). The study demonstrated patrons in Newcastle were more likely to report having been refused service when intoxicated in the past 12 months. Further, observational data showed that RSA practice was significantly more likely in Newcastle where practices were mandated across the board. In contrast, many venues observed in Geelong were not even signatories to the liquor accord and operated outside any voluntary harm-reduction schemes.

Further, some of the venues that purported to be part of such schemes operated on ad hoc bases, according to their own definition of need, and were often influenced by financial considerations. The implementation and use of ID scanners in Geelong provides a perfect example. While ID scanners were meant to have been operating in every late night venue in Geelong, in reality this applied only to liquor accord members. At least two of the venues operating past 1 am did not have ID scanners working at any time during the 18month observation period. Other venues, not part of the accord and operating up to 1 am, did not have ID scanners at all. Substantial issues also arose about the quality of the system being used, but most concerning were the scanning practices of different venues. Similar concerns exist with CCTV systems. The key lesson was that good operators were penalised and bad operators could get away with promises that did not have consequences.

Key informants in the study identified the following benefits of mandatory systems:

- it created a level playing field for all venue operators;
- venue operators were clear about the rules;
- regulatory authorities were able to act immediately on infringements; and
- a clear message was sent to patrons that the government and community were serious about responsible alcohol consumption.

To summarise, where possible the evidence shows that mandatory measures are more likely to be effective than voluntary systems. While voluntary measures allow poor practice to remain while penalising good operators, mandatory systems provide businesses with a predictable operating environment.

4.7. Enforcement

A recurring finding of this review has been the need for effective enforcement of restrictions. Abundant evidence shows that enforcement is a crucial element among the range of factors needed to successfully implement measures (Babor et al., 2010; Chikritzhs et al., 2007b; Hughes et al., 2011). Without such enforcement, interventions typically have limited impact or fail. Enforcing restrictions is almost entirely left to police, although using a wide range of people for detection (eg liquor licensing authorities) has been identified as a more effective and cost-effective approach. Restrictions often fall short of their full potential, simply because there are too few police. In these cases, alternative enforcement strategies should be considered (see user pays policing intervention, 72). What might be considered is appointing specially trained liquor licensing officers who can monitor server behaviour, report, and then assist the police to charge licensees or others who breach restrictions. These inspectors would not be serving police officers, but might be employed by licensing bodies or even police, and would require extra resourcing which might be covered through

additional levies on licensing fees. A core consideration would be good ongoing operational relationships between police and licensing to achieve the scheme's maximum effect. It is conceivable that with the cooperation of state, territory and Commonwealth governments, hypothecated alcohol taxes or levied liquor licence fees could be used to fund the enforcement of restrictions. The public is likely to support this move (Tobin et al., 2010).

It is not enough, however, to simply enforce. The penalties imposed must be substantial enough to outweigh any financial, personal or social gains to be made in violating the restrictions. The threat of considerable financial loss, when well publicised, is in itself a significant deterrent to those who might otherwise act irresponsibly (Chikritzhs et al., 2007b).

4.8 Cost-effectiveness

Cost-effectiveness is a key element to consider in relation to the interventions reviewed. Almost no information exists on how cost-effective most interventions might be, despite governments around the world spending substantial amounts of money on interventions. Research is also lacking which documents the costs of alcohol relating to some elements. For example, although Australia has good estimates for the direct costs of alcohol (Collins & Lapsley, 2008) and the costs of alcohol-related harm to others (Laslett et al., 2010), there is little evidence on how much cost is associated with night-time entertainment precincts in terms of harms, police and emergency services responses and how this might relate to the benefits to communities in terms of employment and associated trade. However, some key principles also apply. For example, prevention has consistently been found to be more efficient and is far preferable when it comes to harm such as assault and injury. Interventions such as restricting trading hours in Newcastle, came at almost no cost to the local community and was found to have prevented almost 5,000 assaults (Kypri et al., 2014) and 340 emergency department attendances a year (Miller et al., in press). Previous work on general prevention trials in schools have also demonstrated some economic benefit in terms of preventing subsequent substance use and antisocial behaviour (Kuklinski et al., 2012). The benefits of these types of preventative interventions need to be compared to an intervention such as intensive policing, which, while effective, has substantial budgetary implications for a range of governments.

4.9 Conclusions

Many interventions are moderately supported in the Delphi study and require further investigation. Often they have not been formally evaluated and the Delphi relies on opinions of those who are experts in the area and those who are on the ground implementing the strategies. As can be seen in the tables below, 41 interventions received a moderate rating of effectiveness for at least one of the outcome measures. While the low ratings given in the Delphi study may appear disappointing, it is not surprising given the reality that most of the interventions act to reduce harm in specific contexts and would therefore only be a part of an overall strategy to reduce alcohol-related harm.

This study has identified a large number of interventions for reducing alcohol-related harm, and most of these have very minimal evidence bases. This is concerning as resources are potentially being spread too broadly, resulting in a lack of community resources, and thus evidence for promising interventions. A further concern is that the bulk of interventions have been developed to reduce alcohol-related harm, and as a result there exists few supply and demand reduction strategies. Strategies for both supply and demand, if effective, have the ability to have a flow-on effect for reducing harm, such that if alcohol supply and demand are reduced, then this results in less alcohol-related harm.

While the most effective solutions have been found to act at the societal level, in the absence of government action, a clear demand exists for more interventions that focus at community, social, family, or individual levels, even if they are not going to have the same level of impact. Further thought is needed to determine how to intervene with those people who do not respond to interventions at a societal or community level.

Table 7: Summary table of interventions to reduce supply of alcohol effectiveness ratings

Intervention	Level	Evidence for impact	Recommendation
Minimum legal purchase age (54)	Societal	✓✓✓	International evidence suggests increasing the minimum purchasing age is effective.
Reducing alcohol outlet opening hours (63) (68)	Societal	✓✓✓	Strong international evidence exists for the relationship between reducing alcohol outlet opening hours and alcohol consumption.
Reducing alcohol outlet density (48)	Societal	✓✓	Evidence suggests increased density of alcohol outlets is associated with increased levels of harm in the community.
Restricting the sale of specific beverage types (14)	Societal	✓	Research demonstrates an association between full-strength beer and alcohol-related problems, however this research is minimal
Violent venues register: <i>Liquor Act 2007</i> NSW, sch 4: Conditions placed on the most violent licensed premises to reduce sale of alcohol, restrict access to venue, and to improve security (81)	Societal	**	Delphi panel reports revealed moderate effectiveness for reducing alcohol-related assaults and alcohol-related harm, alcohol consumption and intoxication, as well as for preventing crime.
Including emergency services, health and social services in liquor licence planning assessment process (52)	Societal	**	Delphi panel reported moderate effectiveness of this intervention for reducing alcohol-related assaults, and alcohol-related harm
Secondary supply restrictions (65)	Community	**	Delphi panel reported as moderately effective for reducing alcohol-related harm, alcohol consumption and intoxication.

Key: ✓✓✓ Very strong evidence for positive outcomes including substantial and/or compelling evidence of effectiveness in Australia and internationally. ✓✓ Strong evidence for positive outcomes, however some small effect sizes have been found. ✓ Moderate evidence for positive outcomes, however, small effect sizes have been found and/or contradictory evidence, or a lack of literature in the area. *** Current evidence unclear or insufficient to conclude causality. Delphi survey suggests high effectiveness. ** Current evidence unclear or insufficient to conclude causality. Delphi survey suggests moderate effectiveness. * Current evidence unclear or insufficient to conclude causality. Delphi survey suggests low effectiveness. ? Current evidence is unclear or insufficient to conclude causality. Requires and warrants further investigation. x Evidence repeatedly indicates absence of reliable positive effect of restriction on alcohol consumption and/or alcohol-related harms. In some instances, there may be evidence of counter-productive outcomes.

Table 8: Summary table of interventions to reduce demand of alcohol effectiveness ratings

Intervention	Level	Evidence for impact	Level of Evidence
Alcohol price including excise and taxation (57)	Societal	✓✓✓	Strong evidence base for effectiveness internationally
Developmental prevention interventions (19)	Individual	✓✓	Some evidence for effectiveness, but should be used in conjunction with other interventions to increase effectiveness
Alcohol advertising and promotion (3)	Social	✓	Strong associations found between advertising and subsequent high levels of consumption and increased harm. Few results available on the impact of reducing advertising, although positive effects found
Education (25)	Social	✓	Some interventions shown to be effective, although the interventions are normally low frequency. Research needed into high prevalence campaigns such as those used for smoking
Acamprosate (51)	Individual	✓	Evidence for using acamprosate, if used in conjunction with therapy. Research base is in its infancy
Family-based alcohol use prevention (28)	Family	✓	Evidence of some impact, although more sophisticated research is required
Good Sports (31)	Community	✓	Some evidence of culture change in clubs that adopt although these are only a small proportion. Needs further evaluation
Social Norms (25)	Social	?	Only one evaluation in Australia and did not show long-term effects
Naltrexone (51)	Individual	?	Some evidence for short-term effects, but is mixed for long-term effects. Minimal research in the area
Early intervention program (24)	Individual	**	Delphi study revealed moderate effectiveness for reducing alcohol consumption, intoxication and alcohol-related harm. Also, moderate support for preventing crime
Alcohol warning labels (9)	Societal	**	Moderate effectiveness ratings from the Delphi study for reducing alcohol consumption

Table 9: Summary table of interventions to reduce alcohol-related harm with effectiveness ratings

Intervention	Level	Evidence for impact	Level of Evidence
Safer Bars (64)	Community	✓✓	Has received international support. Further evaluation in Australia is needed
Police interventions—targeted (55)	Community	✓✓	Evidence for effectiveness, mainly in Australia
Consequence policing (18)	Societal	✓✓ **	Empirical support given in one study, although it showed a strong impact across several indicators (eg police assaults and emergency department attendances). Moderate effectiveness ratings from Delphi for reducing assaults, intoxication, preventing crime, reducing harm and consumption
Mandatory polycarbonate (plastic) glassware (30)	Community	✓✓	Evidence for effectiveness particularly for reducing injury as a result of glass
Community interventions for example STAD (16)	Community	with enforcement ✓✓ without enforcement ☒	Evidence limited for sustained success of these approaches in Australia
Risk-based licensing (60)	Community	✓ **	Strong rationale in favour despite lack of evaluation. Intervention may be useful over the longer term if penalties are appropriate in size. Moderate effectiveness ratings from the Delphi for reducing assaults, harm, intoxication and for preventing crime. Enforcement is crucial
Alcohol-free or 'dry' zones (23)	Community	✓	Strong rationale in favour. Alcohol-free zones within entertainment districts allow for greater control of behaviour on the streets and around licensed venues and constitute best practice, despite the lack of specific evidence
Police interventions—random (55)	Community	✓	Some evidence supports effectiveness, but only small effect sizes found. Evidence for a lack of effectiveness in some studies
RSA training (61)	Community	with enforcement ✓ without enforcement ☒	RSA training not a satisfactory approach to reducing alcohol consumption and harms. Only a support to more effective restrictions. RSA should be mandatory for all servers of alcohol.
Alcohol management plans: liquor restricted areas 175 (1a) Liquor Control Act—an Indigenous community can apply for their community to be declared an alcohol-restricted area (6)	Societal/ Community	✓ ***	Some evidence for effectiveness in the Northern Territory. Received strong support from the Delphi for reducing alcohol consumption. Moderate ratings for reducing assaults, harm, intoxication, and for preventing crime
ID scanners (36)	Community	with enforcement ? without enforcement ☒	Evidence remains mixed, with substantial issues about enforcing proper practice regarding privacy and informed consent. Once framework is in place, mandatory implementation is indicated with minimum equipment standards

Table 9: Summary table of interventions to reduce alcohol-related harm with effectiveness ratings cont.

Intervention	Level	Evidence for impact	Level of Evidence
Liquor accords (1)	Societal	with enforcement ? without enforcement ☒	In an environment of low regulation, accords may improve communication. Accords can provide a platform for implementing effective approaches but voluntary accords may be counterproductive in some circumstances
Supervised taxi ranks (71)	Community	✓	Strong rationale in favour despite lack of evaluation; dependent on identified need
Night-time buses and trains (71)	Community	✓	Strong rationale in favour despite lack of evaluation; dependent on identified need
CCTV (15)	Community	? **	Strong rationale in favour. Ideally, CCTV should be part of an overall security plan. CCTV has a major benefit in terms of solving crimes already committed
Test purchasing (70)	Societal/ Community	✓ **	Minimal evidence in the UK found a positive effect. Needs investigating in Australia. Was rated in the Delphi as moderately effective for reducing intoxication, consumption, harm, and for preventing crime
Patron banning notices (11)	Societal/ Community	**	Effectiveness uncertain. Further research required. Received moderate ratings on the Delphi for reducing assaults and harm, as well as preventing crime
Patron banning notices for family violence offenders (11)	Societal/ Community	**	Effectiveness promising. Further research required. Received moderate ratings on the Delphi for reducing assaults and harm, as well as preventing crime
Precinct ambassadors (56)	Societal/ Community	**	Strong rationale in favour despite lack of evaluation. Received moderate ratings for reducing assaults and harm, as well as for preventing crime
User pays policing (72)	Societal/ Community	**	Moderate rationale in favour despite lack of evaluation if hired through police services but further research recommended. General hiring of off-duty police directly, not recommended. Received moderate ratings in the Delphi for reducing assaults, harms and for preventing crime
Security plans (67)	Societal/ Community	**	Strong rationale in favour despite lack of evaluation. Received moderate effectiveness ratings in the Delphi for reducing alcohol-related assaults, and alcohol-related harm
RSA marshals (62)	Societal/ Community	**	Moderate rationale in favour for larger venues despite lack of evaluation. Moderate support from the Delphi for reducing alcohol-related assaults, harm, consumption, intoxication, and for preventing crime

Table 9: Summary table of interventions to reduce alcohol-related harm with effectiveness ratings cont.

Intervention	Level	Evidence for impact	Level of Evidence
Mandatory high visibility clothing (33)	Societal/ Community	**	Moderate rationale in favour despite lack of evaluation. Found to be moderately effective for reducing alcohol-related assaults, harm, and for preventing crime
Internal radio networks (58)	Community	**	Strong rationale in favour despite lack of evaluation. Received moderate ratings from the Delphi for reducing assaults, and preventing crime
External radio networks (58)	Community	**	Strong rationale in favour despite lack of evaluation. Received moderate ratings from the Delphi for reducing assaults, harm, preventing crime, reducing consumption and intoxication
Liquor restricted premises s 152P Liquor Control Act (WA)—once declared, it is unlawful for anyone to take liquor onto the premises (42)	Societal	**	Moderate support for effectiveness in reducing alcohol-related assaults and harm, as well as reducing alcohol consumption and intoxication, and for preventing crime
Drunk tanks (22)	Societal	**	Moderate effectiveness ratings from the Delphi for reducing assaults and harm, as well as preventing crime
Mandatory treatment (NT) (44)	Individual	**	Moderate effectiveness ratings from the Delphi for reducing consumption and intoxication, as well as reducing harm
Holyoake family alcohol and drug programs (Tas) (35)	Individual	**	Moderate support from the Delphi for reducing alcohol-related harm, and consumption
No sale of shots, or cheap drinks/ promotion (46)	Community	**	Moderately effective ratings for reducing intoxication and consumption as well as for reducing alcohol-related assaults and harm
Alcohol to finish 30 minutes before closing (8)	Community	**	Moderate effectiveness ratings from the Delphi for reducing alcohol-related assaults and harm, preventing crime, and reducing consumption and intoxication
Free water (29)	Community	**	Moderately effective ratings for reducing alcohol consumption and intoxication, and for preventing crime and reducing alcohol-related harm
Random breath testing in venues (59)	Community	**	Moderately effective ratings for reducing assaults, harm, consumption, intoxication, and for preventing crime
Banning multi buy promotions (two for one deals), especially from off-licence premises (12)	Community	**	Moderate effectiveness ratings from the Delphi for reducing alcohol-related assaults, harm, consumption, and intoxication. Susceptible to industry simply reducing price
No RTD beverages more than 6% (4)	Community	**	Moderate effectiveness ratings from the Delphi for reducing alcohol-related assault and harm, reducing consumption and intoxication, and for preventing crime

Table 9: Summary table of interventions to reduce alcohol-related harm with effectiveness ratings cont.

Intervention	Level	Evidence for impact	Level of Evidence
Banning orders (11)	Societal	**	Moderate effectiveness ratings from the Delphi for reducing alcohol-related assault and harm, reducing consumption and intoxication, and for preventing crime
Preparing youth and parents for night-life (53)	Community	**	Moderately effective ratings for reducing alcohol-related assaults, harm, consumption and intoxication
People management by pedestrianising roads (50)	Community	**	Moderate ratings of effectiveness received for reducing alcohol-related assaults, harm and for preventing crime
Involving health and safety officials in licensing (40, 52)	Community	**	Rated as moderately effective for reducing alcohol-related harm
Energy drink restrictions (26)	Community	**	Received moderate ratings of effectiveness in the Delphi for reducing alcohol-related assaults, alcohol-related harm, as well as consumption and intoxication
Drug dogs (21)	Community	**	Rated as moderately effective for both solving and preventing crime
Multi Agency Liquor Taskforce / Liquor Advisory Board (45)	Societal	*	Received low ratings from the Delphi for all outcome measures
Lockouts (43)	Community	☒?	Evidence shows lack of impact and some potential negative consequences. May be considered as a pragmatic but short-term approach to reducing acute workload pressures on police during late-night hours. Should be regarded as a support strategy, secondary to other more effective mandatory restrictions
Drink Safe precincts (20)	Societal	☒ **	Minimal evidence, and results of evaluations mixed. Received moderate ratings of effectiveness on the Delphi for reducing alcohol-related assaults, reducing alcohol-related harm, consumption and intoxication, as well as preventing crime. Found ineffective by an Auditor General's report
People management by strategically placing food outlets (50)	Community	*	Low effectiveness ratings for reducing assaults, harm, and for preventing crime

5. Recommendations

Based on the literature reviewed and the ratings of the expert panel, the research team identified the following initiatives/strategies as the interventions most effective in reducing alcohol-related harm. While acknowledging the competing priorities faced by jurisdictions and agencies dealing with alcohol-related harm in the community, this report recommends that these interventions should be implemented to reduce alcohol-related harm. Beyond the specific recommendations is an additional section on 'Further matters for consideration'. This section discusses several key issues relating to the wider policy contexts in which interventions are implemented. While not directly informed by the evidence for effectiveness of specific interventions, we propose that these topics may be important for determining the ultimate effect achieved by even the strongest intervention.

5.1 Australian Government Responses

Price

Alcohol taxes and excises should be reformed

Rationale: Consistent with several reviews of taxation and public health, the most evidence-based measure to reduce alcohol consumption is to increase the price of alcohol. Alcohol consumption is price sensitive and even small increases in price can result in decreases in consumption and decreases in harm. Diverse models exist for reforming taxation of alcohol. A volumetric taxation system would increase price as alcohol content of beverages increases, encouraging the production and consumption of lower strength beverages. Revenue could go into general taxation. However, various indicators suggest that the community would be more likely to support such a measure if it were ring-fenced to support prevention and treatment effort.

Reducing alcohol availability

Regulatory measures should be implemented to reduce discount alcohol sales

In particular, bans on bulk-buys, two-for-one offers, shop-a-dockets and other promotions based on price, deserve consideration as policy responses that could reduce heavy episodic drinking. Further, some states have regulations pertaining to discounting which should be more strictly enforced both on and off licensed venues.

Rationale: To reduce demand for alcohol, promotions used to encourage consumption will require further regulation. A wide range of research has identified the impact of such promotions in terms of increasing people's consumption beyond their intended levels (Jones et al., 2012).

State and local governments should investigate mechanisms through which they can reduce the density of alcohol outlets in specific areas that experience unacceptable levels of harm.

Rationale: A strong body of evidence shows the association between the number of liquor outlets in any given area and the levels of harm experienced. This is especially the case for more disadvantaged areas. It is recommended that trials of policy interventions such as liquor licence buy-backs, fixed-term licences and freezes on current numbers of liquor licences be trialled and evaluated.

Prevention

Parenting programs should be provided that address the risks of alcohol-affected parents

Rationale: Strong evidence shows that well-implemented parenting support programs (such as the positive parenting program and nursing home visit programs) which are targeted at alcohol-dependent parents, especially of newborns, can have a substantial benefit in terms of the adult's alcohol consumption, and also in terms of the children's developmental prospects.

Controls on alcohol promotions

This review demonstrates the impact of alcohol advertising in influencing the intent to drink of naïve/young people, contributing to more problematic drinking patterns, and impacting across the population. In light of this, the following policy approaches are recommended:

Significant changes are required to the advertising and promotion environment

Some policy options are:

Banning promotion and advertising of all alcohol products

The simplest and most effective response would be to ban all alcohol advertising and promotions (including promotion in sports). A large body of literature has consistently shown the impact of alcohol advertising, both in terms of increasing consumption of current drinkers as well as influencing the development of new generations of drinkers. In particular, promotion of alcohol through major cultural outlets such as having sporting people covered in alcohol company promotions or through product placement in film, television and music has been found to increase consumption and associated harm. The successful reductions achieved in the prevalence of smoking have been testament to the effectiveness of advertising restrictions for that substance. In lieu of such an approach, a softer option is outlined below.

Advertising should be restricted to show only pictures of the product and description of its characteristics and to exclude any people or scenes that portray drinking as fun or associated with attractive people.

Rationale: It is often claimed that advertising is solely about securing market share. However, it is evident that many current marketing and promotions approaches groom young children to be future drinkers and encourage higher levels of drinking in adult populations. Removing people and any extraneous information from advertising may moderate the harmful associations developed by impressionable drinkers and children and reduce future demand for alcohol.

Government should manage the oversight of regulations on the promotion of alcohol

Repeated independent evaluations have demonstrated the failure of Australia's current voluntary advertising regulation system. Industry oversight of standards presents substantial problems and a lack of accountability and transparency, amounting to regulatory failure. It is recommended that an independent panel, appointed by government and free from industry involvement, be established with statutory powers to set standards and manage complaints.

Education

The National School Education Curriculum should adopt a consistent approach to including alcohol education in schools, as part of the focus on health and wellbeing

Rationale: Solid education can provide an important basis for healthier behaviour later in life and a consistent approach is strongly recommended in light of the current evidence.

Mandating public messages about alcohol

Rationale: Current levels of awareness and knowledge of the harms of alcohol and levels of least risk drinking remain poor. Several strategies are required to address this to ensure consumers are given adequate levels of information from which to inform their behaviour:

National minimum standards for education AND PUBLIC MESSAGING regarding alcohol and its associated harms should be developed, especially focused on ageappropriate content and high frequency exposure

Rationale: This review found that current education campaigns, which involve soft messages and are ad hoc, have little or no effect and some have even been found to have negative consequences. However, the literature on smoking has demonstrated that constant messaging using graphic and salient messages can have a positive impact on people's behaviour, when coupled with other approaches.

National Health and Medical Research Council guidelines for low-risk drinking should be incorporated on all advertising for products which have greater than three percent alcohol

Rationale: Current levels of awareness and knowledge about low-risk drinking guidelines are poor. It should be mandatory to provide constant reminders on all advertisements, rather than vague calls for 'responsible drinking', which have been found to encourage drinking.

Mandatory government-produced public health advertisements should be alongside all alcohol advertising

Every alcohol advertisement should be followed immediately by mandatory government-produced public health advertisements funded via a levy on all sales by alcohol producers and retailers. These should inform the public of the harms associated with drinking, and address social norms around intoxication.

Rationale: French authorities have used this model. Concern about rising levels of childhood obesity led the French Government to take action on junk food advertising in 2004. It passed public health legislation under which advertisements on television or radio 'for beverages containing added sugar, salt or artificial sweeteners and for food products processed and sold in France must contain seven percent health information'. For example, on television and in cinemas health messages are shown on a thin horizontal band (corresponding to 7% of the height of the screen), or as a screened notice displayed just after the advertisement (Jolly, 2011).

Warning Labels should be compulsorily placed on all alcohol products

Rationale: Research on warning labels, including tobacco labelling, has shown evidence that these labels can help raise awareness of specific risks. Combined with other approaches to reducing harm, they can be effective ways to communicate risk at the point of consumption. It is difficult to reduce demand without accurate information being disseminated to consumers at the point of consumption.

Minimum purchase age restrictions be reviewed

Rationale: This and other reviews have found that restricting access to alcohol for young people saves lives and reduces levels of problem drinking in the community. While this move clearly targets only one section of the community, in the absence of other measures such as restrictions on advertising, availability and price increases, this measure will substantially reduce alcohol supply, demand and harm in the community. Raising the legal purchase age to 21 has some public support (Toumbourou et al., 2014) and informed debate about the issue should be encouraged in the community. Different formulations of age restrictions, such as different age limits for on-premise and packaged liquor sales can be modelled to assess their differential impact.

5.2 State Government Policy

Trading hour restrictions

Australian jurisdictions should consider imposing trading hour restrictions. These restrictions should be applied consistently across regions to ensure businesses can compete on a level playing field.

Rationale: The research evidence covered in this review shows that alcohol-related intoxication and harm increases by between 15 and 20 percent every hour of trading after midnight (Chikritzhs & Stockwell, 2002, 2006; Chikritzhs & Stockwell, 2007; Pennay et al., In press). This review has also found that the most evidence-based approach to reducing intoxication levels is through closing all venues earlier (Kypri et al., 2011; Kypri et al., 2014; Miller et al., 2012c). Research has also shown that when trading hours restrictions are applied widely, they can lead to positive changes in drinking culture (Miller et al., 2012c).

Greater resources should be directed towards enforcing liquor licensing laws

Current regulatory and enforcement frameworks require further refinement and investment. In particular, responsible service of alcohol (RSA) measures are evidently insufficient and require more stringent regulation and more comprehensive and systematic enforcement regimes.

Rationale: Police and other regulatory bodies need strong legislative frameworks to allow them to act on venues that fail to implement RSA. Relevant state legislation must allow for the straightforward identification of people who are too intoxicated to be on licensed premises (specifically defined according to evidence-based signs) or served alcohol. Subsequent liquor licensing commission and judicial processes need to be streamlined so that there are significant, actual consequences for venues breaching RSA laws and that their penalties are enacted quickly. A further need exists for standardised, systematically collected, publicly available data about specific venues. This would facilitate the identification of those failing to meet their licence conditions and enable appropriate responses where required (Wiggers, 2007). It is recommended that a user-pays system of risk-based licensing be adopted in all states that incorporates a specific element for the funding of more police to enforce liquor licensing laws.

Risk-based licensing

Rationale: Risk-based licensing has been found to have moderate effects in the only evaluation to date. However, a stronger imperative is the need for governments to recover some of the substantial costs associated with licensing venues. Schemes are able to compensate for these costs by having higher-risk venues pay higher fees and will then be more financially able to act on alcohol-related harm.

Violent venues registers should be implemented in every state

Rationale: The introduction of the violent venues register in New South Wales has had a measurable impact on alcohol-related harm in the community. It also informs the public of the level of continuing harm associated with some venues.

A comprehensive review of Liquor Accords, including a cost-benefit analysis, should be implemented

Rationale: The proliferation of liquor accords across Australia comes in the face of mixed evidence and often involves the expenditure of substantial government resources. No recent evidence shows that accords achieve their goals of reducing harm. Some evidence suggests that liquor accords make the scene more complex, especially when licensees can point to belonging to an accord as proof of action when they continue to run problematic venues. A need exists to review the legislative framework on which they operate across the

country. This is especially relevant to issues such as whether licensees can be compelled to belong to, and whether they are obliged to share data with, statutory agencies.

Premises or area specific alcohol-free conditions

This intervention is currently incorporated within s 64 of the WA Liquor Control Act (1988) and gives local communities and enforcement officials the ability to act (invoke restrictions) to reduce alcohol-related harm. Individuals or communities can apply to the Director of Liquor Licensing to restrict the sale of alcohol from specific premises, towns or regions for a period to be determined.

Rationale: This intervention deserves further evaluation as it received strong support from the Delphi study and provides local communities and agencies with the ability to respond quickly to alcohol-related problems at the local level.

Medications for problem drinkers and other supportive treatment options

Rationale: The review identified that both acamprosate and naltrexone have evidence of effectiveness. It may be appropriate to look at the further use of such drugs in dealing with both treatment and tertiary prevention by examining parole conditions that include options for medication use and compliance. Further research and policy trials are required to identify innovative use of such therapeutic mechanisms to enact change.

5.2.1 Harm reduction initiatives

Licensed venues

The following are highlighted as being evidence-based and are recommended as reasonably straightforward and effective interventions.

Safer Bars trials

Rationale: The Safer Bars program for licensed venues has a consistently strong evidence base and trials should be conducted in Australian states.

Mandatory polycarbonate (plastic) glassware

Rationale: Polycarbonate glassware has been consistently found to reduce the severity and prevalence of injuries associated with glass in licensed venues.

Test Purchasing to monitor sales to minors

Rationale: Research in New Zealand, the United States and the United Kingdom has consistently shown that using underage people to conduct test purchases of alcohol, and giving police the powers to conduct such operations, are more effective in reducing harm. They are also far more in terms of the costs associated with alternative means of policing purchase age limits. Australian police are currently unable to conduct such operations resulting in inefficient and ineffective deployment of resources.

Mid-strength alcohol after midnight

Rationale: Alcohol-related harm increases as more alcohol is consumed. Evidence from several Australian studies shows that midnight is the key time after which alcohol-related harm increases. A single trial has suggested that serving mid-strength alcohol after midnight has substantial effects on intoxication and harm. This intervention warrants inclusion in community-wide responses and any form of risk-based licensing options.

Police forces and governments should explore the systematic and high profile use of fines and move-on orders for individual antisocial behaviour **Consequence Policing**

Such initiatives might be accompanied by high profile media and social media campaigns.

Rationale: The review found that consequence policing, supported by laws that enable people to be fined for being drunk on the street, are effective ways for police to reduce a substantial proportion of alcohol-related harm. Informing the public of the likelihood of being apprehended, and the penalties involved can enhance intensive policing. High profile campaigns (eg using Facebook with Facebook 'friends' of licenced venues), which make people aware of the extent of surveillance and the high cost of penalties, warrant further implementation and well-designed evaluation. This will always be a temporary measure only, as the costs of such intensive policing are disproportionately high.

5.3 Further research

This study has highlighted several areas that warrant consideration for further research.

Cost-effectiveness research

Rationale: Throughout the literature, research which documents cost-effectiveness is lacking. While price and cost-effectiveness should not be the only consideration, it is an important part of the decision-making process when it comes to determining which projects should be funded with public money.

Interventions targeting recidivist offenders where alcohol is a factor

Rationale: Very few interventions targeted recidivist offenders where alcohol plays a role in their offending behaviour. This should be considered a fertile area for intervention as recidivist offenders account for a large proportion of alcohol-related harm in the community. Further research into programs that deal with them is strongly recommended.

Banning Orders for problem patrons

Rationale: Most states operate some system of banning orders for problem patrons. These systems vary widely and there is substantial doubt about which system works best. A further program of research around these orders is recommended, especially in relation to using this measure for domestic violence offenders.

Lockouts should be reviewed

Lockouts are widely used throughout Australia. However, most current research remains unclear about the benefits, or suggests that the benefits may be counter-balanced by harms. A comprehensive review of lockouts as a policy response is recommended.

5.4 Further matters for consideration

As discussed above (Section 5), this section contains a discussion of points for consideration beyond the evidence. It looks at which individual interventions are effective and the contextual factors that influence their ability to reach their full potential.

5.4.1 Strategic responses

Strategic implementation and rigorous evaluation of interventions that reduce the supply and demand of alcohol in Australia by Australian, state and territory governments

Rationale: A substantial amount of money is spent every year on interventions that are not based on evidence and have no evaluations. Investing in well-designed evaluations is a significant way to ensure interventions are effective and system investments are sustainable and evidence-based. It is recommended that the Australian, state and territory governments should document the wide range of programs currently being undertaken. They should ensure resources are allocated for an evaluative framework that would include a cost-benefit analysis. A key component should be mandatory reporting requirements for publicly-funded intervention evaluations and that such reports be made available to the public.

Systemic, evidence-based, developmentally-focused prevention interventions that are coordinated by a single overseeing committee should be commissioned to coordinate community efforts across Australia

This strategy should ensure the adoption, evaluation and dissemination of best practice interventions that reduce the demand for and harms from alcohol from the pre-natal stages of life onwards.

Rationale: This review found that a strong body of literature on preventing alcohol demand comes from programs focusing on human developmental stages, especially early development. It is recommended that a national program of service delivery and continual refinement synthesises current approaches across Australia into a clear framework and approach. Projects such as Communities That Care and the Pathways to Prevention program show promising results and are cost-effective. Adopting such programs will substantially reduce future alcohol demand and its consequent harm in the generations ahead.

Australia should adopt a comprehensive data system to document the level of harm in communities and the sources of this harm

A systematic measure of alcohol-related harm—an Alcohol-Related Harm Index (ARHI)—should be established with readily available data across the Australian, state and territory governments and made available to the community for analysis

Rationale: A key finding of this and other reviews has been the inability of local communities and governments to identify how much of the harm occurring in their area is related to alcohol. Without this information, communities are unable to have sophisticated discussions about these levels and the measures they would like put in place. Having valid data available will enable the effectiveness of the intervention to be monitored.

The Australian, state and territory governments should work strategically towards comprehensive and cost minimised data sharing between health, social and law enforcement agencies AND research institutions

Rationale: Providing information across agencies is one successful mechanism through which local agencies and governments can identify and respond to alcohol-related harm. The World Health Organization recommends that national governments should: 'Strengthen collaboration between data producers, including national statistical authorities, national agencies/ministries responsible for violence and crime prevention, and research institutions to improve availability and quality of data on violence and crime'. Recent evidence shows that combining information from law enforcement, health and social support services (including non-government organisations) can substantially improve the identification and response to alcohol-related harm (Droste et al., 2014).

A 'last drinks' monitoring system should be implemented by police across Australia to identify those involved in alcohol-related crime and to identify high-risk venues

Rationale: The literature shows that an effective method for dealing with alcohol-related harm is the uniform adoption of mandatorily collected 'last drinks' data. This information is collected from police who are associated with targeted interventions by regulatory authorities. The Alcohol Linking Project in New South Wales demonstrated a significant reduction in harm associated with licenced venues by systematically collecting basic information about where an individual, arrested for an alcohol-related offence, had bought their last drinks (Wiggers et al., 2004).

A 'last drinks' monitoring system should be trialled in Australian emergency departments

Rationale: The literature demonstrates that the uniform adoption of mandatorily collected 'last drinks' data from emergency departments is an effective method for dealing with alcohol-related harm, when combined with responses such as police visits or visits to licensees from hospital staff. Collecting this data from patients attending the emergency department in Cardiff, Wales was found to be associated with a reduction of up to 40 percent of violence-related offences attending in the department (Shepherd, 2007). This finding has been replicated in a number of sites and a systematic review recently found this to be effective in (Droste et al., in press).

A working party should be set up to work towards standardising data collection systems and records across all jurisdictions, including wholesale alcohol purchase data and police records

Rationale: A key element of the systemic measures recommended above is the adoption of standard data across Australia, which is in line with best practice from around the world. The working party should include: (i) individuals with a national perspective who also bring relevant national and international collaborative research links; and (ii) local practitioners who can inform on ground-level community issues and data.

A comprehensive set of guidelines should be developed around the role of the alcohol industry in health and law enforcement policy formulation

Australian governments should adopt the World Health Organization position of consultation with industry on implementation that: 'the alcohol industry has no role in the formulation of alcohol policies, which must be protected from distortion by commercial or vested interests' (Chan, 2013).

Rationale: Substantial confusion exists about the appropriate level of industry engagement that governments should allow in order to ensure that effective policy is formulated and the best outcomes are achieved for the community. Previous examples regarding the behaviour of the alcohol industry provide a compelling case for the approach taken in tackling the tobacco issue where industry was perceived as a vested interest. Industry cannot be objective, and as with tobacco, effective change can best be achieved (and sometimes only achieved) if government is able to act in the interests of social order and public health without interference from vested interests. Alcohol industry actions promoting ineffective policy were recently and clearly shown in industry submissions to the Australian National Preventative Health Taskforce. It is important to acknowledge the industry's strong financial interest in selling more alcohol and increasing demand for their product. In light of this, appropriate guidelines akin to those of the World Health Organization, should be developed to contain the industry influence on alcohol policy.

6. References

- Ackerman, K., & Rogers, T. (2007). Best bare none - Croydon review. *Government Office for London - Dream group*.
- Adrian, M., Ferguson, B. S., & Her, M. (2001). Can alcohol price policies be used to reduce drunk driving? Evidence from Canada. *Substance Use & Misuse, 36*(13), 1923-1957.
- Agostinelli, G., & Grube, J. W. (2002). Alcohol counter-advertising and the media - A review of recent research. *Alcohol Research & Health, 26*(1), 15-21.
- Anderson, P., & Baumberg, B. (2006). Alcohol in Europe: A Public Health Perspective. from http://ec.europa.eu/health-eu/doc/alcoholineu_content_en.pdf
- Anderson, P., de Bruijn, A., Angus, K., Gordon, R., & Hastings, G. (2009). Impact of alcohol advertising and media exposure on adolescent alcohol use: a systematic review of longitudinal studies. *Alcohol and Alcoholism, 44*(3), 229.
- Andreasson, S. (2011). *Results of a six city intervention to reduce alcohol-related harm in Sweden. Talk given at Griffith University, Queensland, 19 March 2011.*
- Armitage, R., Smyth, G., & Pease, K. (1999). Burnley CCTV evaluation. *Surveillance of public space: CCTV, street lighting and crime prevention, 10*, 225-250.
- Armstrong-Rowe, L. (2008, February 25th 2008). *The Geelong night watch radio program*. Paper presented at the Young People, Crime and Community Safety, Melbourne.
- Austin, E. W., Pinkleton, B. E., & Fujioka, Y. (2000). The Role of Interpretation Processes and Parental Discussion in the Media's Effects on Adolescents' Use of Alcohol. *Pediatrics, 105*, 343-352.
- Australian Human Rights Commission. (2007). *Social Justice Report 2007*. Sydney: Aboriginal and Torres Straight Islander Social Justice Commissioner.
- Australian Institute of Health and Welfare. (2008). 2007 National Drug Strategy Household Survey: First Results Report <http://www.webcitation.org/5bhh5KhMu>
- Babor, T., Caetano, R., Casswell, S., Edwards, G., Giesbrecht, N., Graham, K., . . . Rossow, I. (2003). *Alcohol: No Ordinary Commodity - Research and Public Policy*. Oxford: Oxford University Press.
- Babor, T., Caetano, R., Casswell, S., Edwards, G., Giesbrecht, N., Graham, K., . . . Rossow, I. (2010). *Alcohol: No Ordinary Commodity - Research and Public Policy* (2nd ed.). Oxford: Oxford University Press.
- Babor, T. F., & Caetano, R. (2005). Evidence-based alcohol policy in the Americas: strengths, weaknesses, and future challenges. *Rev Panam Salud Publica, 18*(4-5), 327-337.
- BBC News. (2003). Surgeon on glass bottle 'weapon'. *BBC News Online, 24 October, 2003* (http://news.bbc.co.uk/2/hi/uk_news/wales/3211769.stm).
- Bellis, M., & Hughes, K. (2011). Getting drunk safely? Nightlife policy in the UK and its public health consequences. *Drug Alcohol Rev, 30*, 536 - 545.
- Bleetman, A., Perry, C., Crawford, R., & Swann, I. (1997). Effect of Strathclyde police initiative" Operation Blade" on accident and emergency attendances due to assault. *Journal Of Accident & Emergency Medicine, 14*(3), 153.
- Block, B., & Block, C. R. (1995). Space, place and crime: Hot spot areas and hot places of liquor-related crime. *Crime prevention studies, 4*, 145-184.
- Bocsar. (2013). New South Wales recorded crime statistics: Quarterly Update: NSW Bureau of Crime Statistics and Research. Available at: <http://tinyurl.com/BOCSAR2013>.
- Bormann, C. A., & Stone, M. H. (2001). The Effects of Eliminating Alcohol in a College Stadium: The Folsom Field Beer Ban. *Journal of American College Health, 50*(2), 81.
- Bowes, N., McMurrin, M., Williams, B., David, S., & Zammit, I. (2012). Treating Alcohol-Related Violence. *Criminal Justice and Behavior, 39*(3), 333-344. doi: 10.1177/0093854811433759
- Brennan, A., Purshouse, R., Rafia, R., Taylor, K., & Meier, P. (2009). Independent Review of the Effects of Alcohol Pricing and Promotion: Part B. Results from the Sheffield Alcohol Policy Model Sheffield: : University of Sheffield. (Downloaded from:http://www.dh.gov.uk/dr_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_091364.pdf).
- Britt, H. R., Carlin, B. P., Toomey, T. L., & Wagenaar, A. C. (2005). Neighborhood level spatial analysis of the relationship between alcohol outlet density and criminal violence. *Environmental and Ecological Statistics, 12*(4), 411-426.

- Burns, L., & Coumarelos, C. (1993). Policing pubs: Evaluation of a licensing enforcement strategy: Sydney, Australia: New South Wales Bureau of Crime Statistics and Research.
- Burrell, A., & Erol, R. (2009). Tackling violence in the night-time economy on the ground: Putting policy into practice in England and Wales. *Crime Prevention and Community Safety*, 11(3), 189.
- Caldeira, V., & Woodin, E. M. (2012). Social Support as a Moderator for Alcohol-Related Partner Aggression During the Transition to Parenthood. *Journal of Interpersonal Violence*, 27(4), 685-705. doi: 10.1177/0886260511423243
- Carmen, B., Angeles, M., Ana, M., & Maria, A. J. (2004). Efficacy and safety of naltrexone and acamprosate in the treatment of alcohol dependence: a systematic review. *Addiction*, 99(7), 811-828.
- Casematis, P., & Mazerolle, P. (2009). Understanding glassing incidents on licensed premises: Dimensions, prevention and control *Griffith University* (Vol. Queensland Government, Australia).
- Casswell, S., & Zhang, J. F. (1998). Impact of liking for advertising and brand allegiance on drinking and alcohol-related aggression: a longitudinal study. *Addiction*, 93(8), 1209-1217.
- Champion, K. E., Newton, N. C., Barrett, E. L., & Teesson, M. (2013). A systematic review of school-based alcohol and other drug prevention programs facilitated by computers or the Internet. *Drug and Alcohol Review*, 32(2), 115-123.
- Chan, M. (2013). RE: doctors and the alcohol industry: an unhealthy mix? *BMJ*, 346, f1889.
- Chikritzhs, T., Catalano, P., Pascal, R., & Henrickson, N. (2007a). Predicting alcohol-related harms from licensed outlet density: A feasibility study. Perth, WA: National Drug Research Institute, Curtin University of Technology for the National Drug Law Enforcement Research Fund, an Initiative of the National Drug Strategy.
- Chikritzhs, T., Catalano, P., Stockwell, T., Donath, S., Ngo, H., Young, D., & Matthews, S. (2003). Australian Alcohol Indicators: Patterns of Alcohol Use and Related Harms for Australian States and Territories 1990-2001. Melbourne: National Drug Research Institute and Turning Point Alcohol & Drug Centre.
- Chikritzhs, T., Gray, D., Lyons, Z., & Siggers, S. (2007b). Restrictions on the Sale and Supply of Alcohol: Evidence and Outcomes. Perth, WA: NDRI.
- Chikritzhs, T., & Stockwell, T. (2002). The impact of later trading hours for Australian public houses (hotels) on levels of violence. *J Stud Alcohol*, 63(5), 591-599.
- Chikritzhs, T., & Stockwell, T. (2006). The impact of later trading hours for hotels on levels of impaired driver road crashes and driver breath alcohol levels. *Addiction*, 101(9), 1254-1264.
- Chikritzhs, T., & Stockwell, T. (2007). The impact of later trading hours for hotels (public houses) on breath alcohol levels of apprehended impaired drivers. *Addiction*, 102(10), 1609-1617.
- Chikritzhs, T., Stockwell, T., & Pascal, R. (2005). The impact of the Northern Territory's Living With Alcohol program, 1992-2002: revisiting the evaluation. *Addiction*, 100(11), 1625-1636.
- City of Greater Geelong. (2007). Geelong Regional Liquor Licensing Accord (pp. 18). Geelong, Australia.
- Clapp, J., Reed, M., Min, J., Shillington, A., Croff, J., & Holmes, M. (2009). Blood alcohol concentrations among bar patrons: a multi-level study of drinking behavior. *Drug Alcohol Depend*, 102, 41 - 48.
- Collins, D. J., & Lapsley, H. M. (2008). The costs of tobacco, alcohol and illicit drug abuse to Australian Society in 2004/05. Canberra: Australian Government.
- Cook, C. (2005). *The end of "health terrorism"? Investigating innovative approaches to substance abuse prevention*. Paper presented at the 8th National rural Health Conference, Alice Springs.
- Cook, P. J., & Moore, M. J. (1993). Violence reduction through restrictions on alcohol availability. *Alcohol Health & Research World*, 17(2), 151-156.
- Coomaraswamy, K., & Shepherd, J. (2003). Predictors and severity of injury in assaults with barglasses and bottles. *Injury Prevention*, 9(1), 81.
- Crisp, J., Pelletier, D., Duffield, C., Adams, A., & Nagy, S. (1997). The Delphi method? *Nursing Research*, 46(2), 116-118.
- Donovan, R., Jancey, J., & Jones, S. (2002). Tobacco point of sale advertising increases positive brand user imagery. *British Medical Journal*, 11(3), 191.
- Dresser, J., & Gliksman, L. (1998). Comparing statewide alcohol server training systems. *Pharmacology, Biochemistry, and Behavior*, 61(1), 50.
- Droste, N., Miller, P., & Baker, T. (in press). Review Article: Emergency Department Data Sharing to Reduce Alcohol-Related Violence: A Systematic Review of the Feasibility and Effectiveness of Community Level Interventions. *Emergency Medicine Australasia*.

- Droste, N., Tonner, L., Zinkiewicz, L., Pennay, A., Lubman, D. I., & Miller, P. G. (2014). Combined Alcohol and Energy Drink Use: Motivations as predictors of consumption patterns, risk of alcohol dependence and experience of injury and aggression. *Alcohol: Clinical and Experimental Research*, 38(7), 2087-2095.
- Duff, C., & Munro, G. (2007). Preventing alcohol-related problems in community sports clubs: The good sports program. *Substance Use & Misuse*, 42(12), 1991-2001.
- Duncan, C., Jones, K., & Moon, G. (1999). Smoking and deprivation: are there neighbourhood effects? *Social Science & Medicine*, 48(4), 497-505. doi: 10.1016/s0277-9536(98)00360-8
- El-Maaytah, M., Smith, S. F., Jerjes, W., Upile, T., Petrie, A., Kalavrezos, N., . . . Lloyd, T. (2008). The effect of the new 24 hour alcohol licensing law on the incidence of facial trauma in London. *British Journal of Oral & Maxillofacial Surgery*, 46(6), 460-463.
- Ellickson, P. L., Collins, R. L., Hambarsoomians, K., & McCaffrey, D. F. (2005). Does alcohol advertising promote adolescent drinking? Results from a longitudinal assessment. *Addiction*, 100(2), 235-246.
- Engels, R. C. M. E., Hermans, R., van Baaren, R. B., Hollenstein, T., & Bot, S. M. (2009). Alcohol Portrayal on Television Affects Actual Drinking Behaviour. *Alcohol Alcohol*, agp003. doi: 10.1093/alcac/agp003
- Felson, M., Berends, R., Richardson, B., & Veno, A. (1997). Reducing pub hopping and related crime. *Policing for Prevention: Reducing Crime, Public Intoxication and Injury, Crime Prevention Studies*, 7, 115-132.
- Forster, J. L., Murray, D. M., Wolfson, M., & Wagenaar, A. C. (1995). Commercial availability of alcohol to young people: results of alcohol purchase attempts. *Preventive Medicine*, 24(4), 342-347.
- Forsyth, A. (2006). Assessing the relationships between late night drinks marketing and alcohol-related disorder in public space. *Report to the Alcohol Education Research Council (AERC). Glasgow: The Glasgow Centre for the Study of Violence, Glasgow Caledonian University.*
- Forsyth, A., Cloonan, M., & Barr, J. (2005). Factors associated with alcohol-related problems within licensed premises. *Glasgow: Greater Glasgow NHS Board. GCCAAG (2006) Play Safe in Glasgow: Annual Report, 2006.*
- Forsyth, A. J. M. (2008). Banning Glassware from Nightclubs in Glasgow (Scotland): Observed Impacts, Compliance and Patron's Views. *Alcohol & Alcoholism*, 43(1), 7.
- Forsyth, A. J. M., Khan, F., & McKinlay, W. (2010). The use of off-trade glass as a weapon in violent assaults by Young Offenders. *Crime Prevention & Community Safety*, 12(4), 233-245.
- Fox, J. G., & Sobol, J. J. (2000). Drinking patterns, social interaction, and barroom behavior: A routine activities approach. *Deviant Behavior*, 21(5), 429-450.
- Foxcroft, D., & Tsertsvadze, A. (2011). Universal family-based prevention programs for alcohol misuse in young people. *Cochrane Database Of Systematic Reviews (Online), Issue 9. Art. No.: CD009308.* doi: DOI: 10.1002/14651858.CD009308
- Foxcroft, D. R., Ireland, D., Lister-Sharp, D. J., Lowe, G., & Breen, R. (2003). Longer-term primary prevention for alcohol misuse in young people: a systematic review. *Addiction*, 98, 397-411.
- Frank, M. G., & Gilovich, T. (1988). The dark side of self-and social perception: Black uniforms and aggression in professional sports. *Journal of Personality and Social Psychology*, 54(1), 74.
- Gliksman, L., Douglas, R. R., Rylett, M., & Narbonne-Fortin, C. (1995). Reducing problems through municipal alcohol policies: The Canadian experiment in Ontario. *Drugs: Education, Prevention, and Policy*, 2(2), 105-118.
- Glindemann, K., Wiegand, D., & Geller, E. (2007). Celebratory drinking and intoxication: a contextual influence on alcohol consumption. *Environ Behav*, 39, 352 - 366.
- Graham, K. (1985). Determinants of heavy drinking and drinking problems: the contribution of the bar environment. In E. Single & T. Storm (Eds.), *Public drinking and public policy* (pp. 71-84). Toronto: Addiction Research Foundation.
- Graham, K. (2008). Fiddling while Rome burns? Balancing rigour with the need for practical knowledge. *Addiction*, 103(3), 414-415.
- Graham, K. (2009). They fight because we let them! Applying a situational crime prevention model to barroom violence. *Drug And Alcohol Review*, 28(2), 103-109.
- Graham, K., Bernards, S., Osgood, D. W., Homel, R., & Purcell, J. (2005a). Guardians and handlers: the role of bar staff in preventing and managing aggression. *Addiction*, 100(6), 755-766.
- Graham, K., Bernards, S., Osgood, D. W., & Wells, S. (2006a). Bad nights or bad bars? Multi level analysis of environmental predictors of aggression in late night large capacity bars and clubs. *Addiction*, 101(11), 1569-1580.
- Graham, K., & Chandler-Coutts, M. (2000). Community action research: who does what to whom and why? Lessons learned from local prevention efforts (international experiences). *Substance Use & Misuse*, 35(1-2), 87-110.

- Graham, K., & Homel, R. (2008). *Raising the Bar: Preventing aggression in and around bars, pubs and clubs*. London: Willan.
- Graham, K., Jelley, J., & Purcell, J. (2005b). Training bar staff in preventing and managing aggression in licensed premises. *Journal of Substance Use, 10*(1), 48-61.
- Graham, K., La Rocque, L., Yetman, R., Ross, T. J., & Guistra, E. (1980). Aggression and bar room environments. *Journal of Studies on Alcohol, 41*(3), 277-292.
- Graham, K., Miller, P., Chikritzhs, T., Bellis, M. A., Clapp, J. D., Hughes, K., . . . Wells, S. (2014). Reducing intoxication among bar patrons: some lessons from prevention of drinking and driving. *Addiction, 109*(5), 693-698. doi: 10.1111/add.12247
- Graham, K., Osgood, D. W., Wells, S., & Stockwell, T. (2006b). To What Extent is Intoxication Associated With Aggression in Bars? A Multilevel Analysis. *Journal of Studies on Alcohol, 67*(3), 382-390.
- Graham, K., Osgood, D. W., Zibrowski, E., Purcell, J., Gliksman, L., Leonard, K., . . . Toomey, T. L. (2004). The effect of the Safer Bars programme on physical aggression in bars: results of a randomized controlled trial. *Drug & Alcohol Review, 23*(1), 31-41.
- Graham, K., & Wells, S. (2001). Aggression among young adults in the social context of the bar. *Addiction Research & Theory, 9*(3), 193-219.
- Gray, D., Chikritzhs, T., & Stockwell, T. (1999). The Northern Territory's cask wine levy: health and taxation policy implications. *Aust N Z J Public Health, 23*(6), 651-653.
- Grube, J. W. (1997). Preventing sales of alcohol to minors: results from a community trial. *Addiction (Abingdon, England), 92 Suppl 2*, S251-260.
- Gruenewald, P. J., Freisthler, B., Remer, L., LaScala, E. A., & Treno, A. (2006). Ecological models of alcohol outlets and violent assaults: crime potentials and geospatial analysis. *Addiction, 101*(5), 666-677.
- Gruenewald, P. J., & Remer, L. (2006). Changes in Outlet Densities Affect Violence Rates. *Alcoholism: Clinical & Experimental Research, 30*(7), 1184-1193.
- Hasson, F., Keeney, S., & McKenna, H. (2000). Research guidelines for the Delphi survey technique. *Journal of Advanced Nursing, 32*(4), 1008-1015.
- Hastings, G., Anderson, S., Cooke, E., & Gordon, R. (2005). Alcohol marketing and young people's drinking: a review of the research. *Journal Of Public Health Policy, 26*(3), 296-311.
- Hauritz, M., & Homel, R. (1998). Reducing violence in licensed venues through community safety action projects: The Queensland. *Contemporary Drug Problems, 25*(3), 511.
- Havard, A., Shakeshaft, A., Conigrave, K., & Doran, C. (2012). Randomized controlled trial of mailed personalized feedback for problem drinkers in the emergency department: the short term impact. *Alcoholism - Clinical and Experimental Research, 36*(3). doi: <http://onlinelibrary.wiley.com/doi/10.1111/j.1530-0277.2011.01632.x/full>
- Hawkins, J., Oesterle, S., Brown, E., Arthur, M., Abbott, R., Fagan, A., & Catalano, R. (2009). Results of a type 2 translational research trial to prevent adolescent drug use and delinquency: A test of Communities That Care. *Archives of Pediatrics & Adolescent Medicine, 163*(9), 789.
- Hawks, D. (1999). *The evaluation of the Fremantle Police-Licensee Accord: Impact on serving practices, harm and the wider community*: National Drug Research Institute, Curtin University of Technology.
- Hibell, B., Guttormsson, U., Ahlstrom, S., Balakireva, O., Bjarnason, T., & Kokkevi, A. (2009). Stockholm: The Swedish Council for Information on Alcohol and other Drugs.
- Hobbs, D. (2003). *Bouncers: violence and governance in the night-time economy*: Oxford University Press, USA.
- Hobbs, D., Hadfield, P., Lister, S., & Winlow, S. (2002). 'Door Lore'. The Art and Economics of Intimidation. *British Journal of Criminology, 42*(2), 352-370.
- Hobbs, D., Lister, S., Hadfield, P., Winlow, S., & Hall, S. (2000). Receiving shadows: governance and liminality in the night-time economy. *The British Journal of Sociology, 51*(4), 701-717. doi: 10.1080/00071310020015334
- Hobbs, D., O'Brien, K., & Westmarland, L. (2007). Connecting the gendered door: women, violence and doorwork. *British Journal of Sociology, 58*(1), 21-38. doi: 10.1111/j.1468-4446.2007.00137.x
- Holder, H. D., Saltz, R. F., Grube, J. W., Voas, R. B., Gruenewald, P. J., & Treno, A. J. (1997). A community prevention trial to reduce alcohol-involved accidental injury and death: overview. *Addiction (Abingdon, England), 92 Suppl 2*, S155-171.
- Holder, H. D., & Wagenaar, A. C. (1994). Mandated server training and reduced alcohol-involved traffic crashes: a time series analysis of the Oregon experience. *Accident Analysis & Prevention, 26*(1), 89-97.
- Home Office. (2006). Violent Crime Reduction Act 2006. (Chapter 38).

- Hommel, R., Carvolth, R., Hauritz, M., Mcllwain, G., & Teague, R. (2004a). Making licensed venues safer for patrons: what environmental factors should be the focus of interventions? *Drug & Alcohol Review*, 23(1), 19-29.
- Hommel, R., Carvolth, R., Hauritz, M., Mcllwain, G., & Teague, R. (2004b). Making licensed venues safer for patrons: what environmental factors should be the focus of interventions? *Drug And Alcohol Review*, 23, 11.
- Hommel, R., & Clark, J. (1994). The prediction and prevention of violence in pubs and clubs. *Crime prevention studies*, 3, 1-46.
- Hommel, R., Hauritz, M., Wortley, R., Mcllwain, G., & Carvolth, R. (1997). Preventing alcohol-related crime through community action: the Surfers Paradise Safety Action Project. *Crime prevention studies*, 7, 35-90.
- Hommel, R., Hauritz, M., & Wortley, R. (2006). Preventing alcohol-related crime through community action: The Surfers Paradise safety action project. (35), 56.
- Hommel, R., Mcllwain, G., & Carvolth, R. In N. Heather, T.J. Peters & T. Stockwell (Eds. (2001), International Handbook of Alcohol Dependence and Problems (pp. 721-740). Chichester, UK: John Wiley & Sons. . (2001). Creating Safer Drinking Environments. *International Handbook of Alcohol Dependence and Problems*, 19.
- Hommel, R., Tomsen, S., & Thommeny, J. (1992). Public Drinking and Violence: Not Just an Alcohol Problem. *Journal of Drug Issues*, 22(3), 679.
- Hughes, C. (2008). The Social Norms Analysis Project: results, insights and future priorities. Hobart, Tasmania: University of Tasmania.
- Hughes, C., Julian, R., Richman, M., Mason, R., & Long, G. (2008). Harnessing the power of perception: Reducing alcohol-related harm among rural teenagers. *Youth Studies Australia*, 27(2), 26-35.
- Hughes, K., Furness, L., Jones, L., & Bellis, M. A. (2010). Reducing harm in drinking environments: Evidence and Practice in Europe. Liverpool: Centre for Public Health, Liverpool John Moores University.
- Hughes, K., Quigg, Z., Eckley, L., Bellis, M., Jones, L., Calafat, A., . . . van Hasselt, N. (2011). Environmental factors in drinking venues and alcohol-related harm: the evidence base for European intervention. *Addiction*, 106, 37-46. doi: 10.1111/j.1360-0443.2010.03316.x
- Janssen, M. M., Mathijssen, J. J. P., van Bon-Martens, M. J. H., van Oers, H. A. M., & Garretsen, H. F. L. (2013). Effectiveness of alcohol prevention interventions based on the principles of social marketing: a systematic review. *Substance Abuse Treatment, Prevention & Policy*, 8(1), 1-11. doi: 10.1186/1747-597X-8-18
- Jefferis, B. W., & Saunders, W. M. (1983). Minimizing alcohol related offences by enforcement of the existing licensing legislation. *British Journal of Addiction*, 78(1), 67-77.
- Johnsson, K. O., & Berglund, M. (2003). Education of key personnel in student pubs leads to a decrease in alcohol consumption among the patrons: a randomized controlled trial. *Addiction*, 98(5), 627-633.
- Johnsson, K. O., & Berglund, M. (2009). Do Responsible Beverage Service Programs Reduce Breath Alcohol Concentration Among Patrons: A Five-Month Follow-up of a Randomized Controlled Trial. *Substance Use & Misuse*, 44(11), 1592-1601.
- Jolly, R. (2011). Marketing obesity? Junk food, advertising and kids. Available online: <http://www.webcitation.org/6CxxTtZR>. Canberra: Social Policy Section, Parliament of Australia.
- Jones, S. C., Barrie, L., Robinson, L., Allsop, S., & Chikritzhs, T. (2012). Point-of-sale alcohol promotions in the Perth and Sydney metropolitan areas. *Drug and Alcohol Review*, 31(6), 803-808. doi: 10.1111/j.1465-3362.2012.00440.x
- Jones, S. C., & Lynch, M. (2007). A pilot study investigating of the nature of point-of-sale alcohol promotions in bottle shops in a large Australian regional city. *Aust N Z J Public Health*, 31(4), 318-321.
- Kaestner, R., & Yarnoff, B. (2011). Long-Term Effects of Minimum Legal Drinking Age Laws on Adult Alcohol Use and Driving Fatalities. *Journal of Law & Economics*, 54(2), 365-388.
- Kinnane, S., Farrington, F., Henderson-Yates, L., & Parker, H. (2009). Fitzroy Valley Alcohol Restriction Report: An evaluation of the effects of a restriction on take-away alcohol relating to measurable health and social outcomes, community perceptions and behaviours after a 12 month period. Broome: University of Notre Dame Australia.
- Kinnane, S., Golson, K., Henderson-Yates, L., & Melbourne, J. (2010). Halls Creek Alcohol Restriction Report: An evaluation of the effects of a restriction on take-away alcohol relating to measurable health and social outcomes, community perceptions and behaviours after a 12 month period. Broome: University of Notre Dame.
- KPMG. (2008). Evaluation of the temporary late night entry lockout. *Department of Justice Victoria*.
- Krass, I., & Flaherty, B. (1994). The impact of a responsible service training on patron and server behavior: a trial in Waverley (Sydney). *Health Promotion Journal of Australia*, 4(2), 51-58.
- Kuklinski, M. R., Briney, J. S., Hawkins, J. D., & Catalano, R. F. (2012). Cost-benefit analysis of communities that care outcomes at eighth grade. *Prev Sci*, 13(2), 150-161. doi: 10.1007/s11121-011-0259-9

- Kumpfer, K. L., Trunnell, E. P., & Whiteside, A. O. (Eds.). (1990). *The biopsychosocial model: Application to the addictions field*. Dubuque, IA: Kendall/Hunt Publishing Co.
- Kypri, K., Jones, C., McElduff, P., & Barker, D. (2011). Effects of restricting pub closing times on night-time assaults in an Australian city. *Addiction*, *106*(2), 303-310. doi: 10.1111/j.1360-0443.2010.03125.x
- Kypri, K., McElduff, P., & Miller, P. G. (2014). Restrictions in pub closing times and lockouts in Newcastle Australia 5 years on. *Drug And Alcohol Review*, *33*(3), 323-326.
- Kypri, K., O'Brien, K., & Miller, P. (2009). Time for precautionary action on alcohol industry funding of sporting bodies. *Addiction*, *104*(12), 1949-1950.
- Kypri, K., Voas, R. B., Langley, J. D., Stephenson, S. C. R., Begg, D. J., Tippetts, A. S., & Davie, G. S. (2006). Minimum purchasing age for alcohol and traffic crash injuries among 15- to 19-year-olds in New Zealand [corrected] [published erratum appears in AM J PUBLIC HEALTH 2006 May;96(5):767]. *American Journal Of Public Health*, *96*(1), 126-131.
- Lang, E., & Rumbold, G. (1997a). The effectiveness of community-based interventions to reduce violence in and around licensed premises: A comparison of three Australian models. *Contemporary Drug Problems*, *24*(4), 22.
- Lang, E., & Rumbold, G. (1997b). The effectiveness of community-based interventions to reduce violence in and around licensed premises: A comparison of three Australian models. *Contemporary Drug Problems*, *24*(4), 805.
- Laslett, A.-M., Catalano, P., Chikritzhs, T., Dale, C., Doran, C., Ferris, J., . . . Wilkinson, C. (2010). The Range and Magnitude of Alcohol's Harm to Others. Melbourne: Turning Point for the AERF.
- Laslett, A. M., Room, R., Ferris, J., Wilkinson, C., Livingston, M., & Mugavin, J. (2011). Surveying the range and magnitude of alcohol's harm to others in Australia. *Addiction*, *106*(9), 1603-1611.
- Leaders for Geelong. (2011). The vibrant and safe Geelong night life project. Available at: <http://www.committeeforgeelong.com.au/news/geelongleaders/home.htm> accessed on 30 March, 2011.
- Leather, P., & Lawrence, C. (1995). Perceiving pub violence: The symbolic influence of social and environmental factors. *British Journal of Social Psychology*, *34*(4), 395-407.
- Liang, W., & Chikritzhs, T. (2011). Revealing the link between licensed outlets and violence: Counting venues versus measuring alcohol availability. *Drug And Alcohol Review*, *30*(5), 524-535. doi: 10.1111/j.1465-3362.2010.00281.x
- Livingston, M. (2008). A Longitudinal Analysis of Alcohol Outlet Density and Assault. *Alcoholism: Clinical and Experimental Research*, *32*(6), 1074-1079. doi: doi:10.1111/j.1530-0277.2008.00669.x
- Livingston, M., Matthews, S., Barratt, M. J., Lloyd, B., & Room, R. (2010). Diverging trends in alcohol consumption and alcohol-related harm in Victoria. *Australian And New Zealand Journal Of Public Health*, *34*(4), 368-373. doi: 10.1111/j.1753-6405.2010.00568.x
- Lobmaier, P. P., Kunoe, N., Gossop, M., & Waal, H. (2011). Naltrexone Depot Formulations for Opioid and Alcohol Dependence: A Systematic Review *CNS Neuroscience & Therapeutics*, *17*, 629-636.
- Loxley, W., Toumbourou, J. W., Stockwell, T., Haines, B., Scott, K., Godfrey, C., . . . Spooner, C. (2004). *The Prevention of Substance Use, Risk and Harm in Australia: a review of the evidence*. Perth: The National Drug Research Centre and the Centre for Adolescent Health.
- Luke, L., Dewar, C., Bailey, M., McGreevy, D., Morris, H., & Burdett-Smith, P. (2002). A little nightclub medicine: the healthcare implications of clubbing. *Emergency Medicine Journal*, *19*(6), 542.
- Macintyre, S., & Homel, R. (1997). Danger on the dance floor: A study of interior design, crowding and aggression in nightclubs. *Policing for prevention: Reducing crime, public intoxication, and injury. Crime Prevention Studies*, *7*, 91-114.
- Macwhirter, A. (2009). Design guidelines for licensed venues. : Department of Justice. Victoria, Australia.
- Maguire, M., Nettleton, H., Rix, A., & Raybould, S. (2003). *Reducing alcohol-related violence and disorder: an evaluation of the 'TASC' project*: Home Office Research, Development and Statistics Directorate.
- Margolis, S. A., Ypinazar, V. A., & Muller, R. (2008). The impact of supply reduction through alcohol management plans on serious injury in remote indigenous communities in remote Australia: A ten-year analysis using data from the Royal Flying Doctor service. *Alcohol & Alcoholism*, *43*(1), 104-110.
- Marsh, P., & Kibby, K. F. (1992). *Drinking and public disorder - A report of research conducted for The Portman Group by MCM Research*. London: The Portman Group.
- Martinez, J. A., Muñoz García, M. A., & Sher, K. J. (2009). A new minimum legal drinking age (MLDA)? Some findings to inform the debate. *Addictive Behaviors*, *34*(4), 407-410.
- Mathews, R., & Legrand, T. (2013). *Risk-Based Licensing and Alcohol-Related Offences in the Australian Capital Territory*. Canberra: Australian National University and Griffith University for the Foundation for Alcohol Research and Education.

- Matthews, K., Shepherd, J., & Sivarajasingham, V. (2006). Violence-related injury and the price of beer in England and Wales. *Applied Economics*, 38(6), 661-670.
- McBride, N., Farrington, F., Midford, R., Meuleners, L., & Phillips, M. (2004). Harm minimization in school drug education: final results of the School Health and Alcohol Harm Reduction Project (SHAHRP). *Addiction*, 99(3), 278-291.
- McClure, A. C., Stoolmiller, M., Tanski, S. E., Worth, K. A., & Sargent, J. D. (2009). Alcohol-Branded Merchandise and Its Association With Drinking Attitudes and Outcomes in US Adolescents. *Arch Pediatr Adolesc Med*, 163(3), 211-217. doi: 10.1001/archpediatrics.2008.554
- McGinn, M. (2010). Seattle nightlife initiative community report. *Capitol Hill Seattle*.
- McKinney, C. M., Caetano, R., Harris, T. R., & Ebama, M. S. (2009). Alcohol Availability and Intimate Partner Violence Among US Couples. *Alcoholism: Clinical and Experimental Research*, 33(1), 169-176.
- McLeroy, K. R., Bibeau, D., Steckler, A., & Glanz, K. (1988). An ecological perspective on health promotion programs. *Health Education & Behavior*, 15(4), 351-377.
- Meier, P., Brenna, A., Stockwell, T., Sutton, A., Wilkinson, A., & Wong, R. (2008). Independent Review of the Effects of Alcohol Pricing and Promotion: Part A: Systematic Reviews. http://www.dh.gov.uk/en/Publichealth/Healthimprovement/Alcoholmisuse/DH_4001740
- Metlink. (2011). NightRider. <http://www.metlinkmelbourne.com.au/fares-tickets/metropolitan-fares-and-tickets/nightrider/> accessed on 30 March, 2011.
- Metropolitan Police. (2011). What is Pubwatch? <http://www.met.police.uk/crimeprevention/pubwatch.htm> accessed on 31 March, 2011.
- Miller, P., Curtis, A., Palmer, D., Busija, L., Tindall, J., Droste, N., . . . Wiggers, J. (in press). Changes in injury-related hospital emergency department presentations associated with the imposition of regulatory versus voluntary licensing conditions on licensed venues in two cities. *Drug & Alcohol Review*, accepted 13-1-2014.
- Miller, P. G., Curtis, A., Palmer, D., Busija, L., Tindall, J., Droste, N., . . . Wiggers, J. (2014a). Changes in injury-related hospital emergency department presentations associated with the imposition of regulatory versus voluntary licensing conditions on licensed venues in two cities. *Drug & Alcohol Review*, 33(3), 314-322.
- Miller, P. G., Palmer, D., Droste, N., Tindall, J., Gillham, K., Sonderlund, A., . . . Wiggers, J. (2011a). Dealing with Alcohol-related problems in the Night-Time Economy: A Study Protocol for Mapping trends in harm and stakeholder views surrounding local community level interventions. *BMC Research Notes*, 4(1), 204.
- Miller, P. G., Palmer, D., McFarlane, E., & Curtis, A. (2014b). Key stakeholder views of venue lockouts in Newcastle and Geelong. *Crime Prevention and Community Safety: An International Journal*, 16(1), 38-53.
- Miller, P. G., Pennay, A., Droste, N., Butler, E., Jenkinson, R., Hyder, S., . . . Lubman, D. I. (2014c). A comparative study of blood alcohol concentrations in Australian night-time entertainment districts. *Drug And Alcohol Review*, 33(4), 338-345. doi: 10.1111/dar.12145
- Miller, P. G., Pennay, A., Droste, N., Jenkinson, R., Chikritzhs, T., Tomsen, S., . . . Lubman, D. I. (2013). Patron Offending and Intoxication in Night Time Entertainment Districts (POINTED): Final Report. Geelong, Australia: NDLERF. Available at: http://www.ndlerf.gov.au/pub/Monograph_46.pdf.
- Miller, P. G., Sonderlund, A., Coomber, K., & McKenzie, S. (2012a). The long-term effect of lockouts on alcohol-related emergency department attendances within Ballarat, Australia. *Drug And Alcohol Review*, 31(4), 370-376.
- Miller, P. G., Sonderlund, A., Coomber, K., Palmer, D., Tindall, J., Gillham, K., & Wiggers, J. (2011b). The effect of community interventions targeting licensed venues on all alcohol-related Emergency Department attendances. *Drug And Alcohol Review*, 30(September), 546-553.
- Miller, P. G., Sonderlund, A., Coomber, K., Palmer, D., Tindall, J., Gillham, K., & Wiggers, J. (2012b). The effect of community interventions targeting licensed venues on alcohol-related assaults attending an Emergency Department. *The Open Criminology Journal*, 5. doi: DOI: 10.2174/1874917801205010008
- Miller, P. G., Tindall, J., Sonderlund, A., Groombridge, D., Lecathelinais, C., Gillham, K., . . . Wiggers, J. (2012c). Dealing with Alcohol and the Night-Time Economy (DANTE): Final Report. Geelong, Victoria: National Drug Law Enforcement Research Fund. Available at: www.ndlerf.gov.au/pub/Monograph_43.pdf.
- Moller, L. (2002). Legal restrictions resulted in a reduction of alcohol consumption among young people in Denmark. *The Effects Of Nordic Alcohol Policies*.
- Molloy, M., McDonald, J., McLaren, S., & Harvey, J. (2004). Operation Link: Be safe late program: Centre for Health Research and Practice. University of Ballarat, VIC, Australia.
- National Archives. (2008). The local authorities (Alcohol Disorder Zones) regulations 2008. <http://www.legislation.gov.uk/ukdsi/2008/9780110813295/contents>(Accessed on May 25, 2011).

- National Preventative Taskforce Alcohol Working Group. (2008). Australia: the healthiest country by 2020. *The Medical Journal Of Australia*, 189(10), 588-590.
- Navarro, H., Shakeshaft, A., Doran, C., & Petrie, D. (2011). The potential cost-effectiveness of general practitioner delivered brief intervention for alcohol misuse: Evidence from rural Australia. *Addictive Behaviors*, 36(12). doi: <http://www.sciencedirect.com/science/article/pii/S0306460311002334>
- Nelson, D., Naimi, T., Brewer, R., & Roerber, J. (2010). US state alcohol sales compared to survey data, 1993-2006. *Addiction*, 105, 1589 - 1596.
- Nicholas, R. (2008). Understanding and responding to alcohol-related social harms in Australia. Options for policing., 44.
- Nicholson, M., Hoyer, R., Sherry, E., Dyson, S., & Brown, K. (2013). Healthy Sporting Environment Demonstration Project: Final Evaluation Report: Developed for Leisure Networks and the Victorian Health Promotion Foundation.
- Palk, G., Davey, J., & Freeman, J. (2010). The impact of a lockout policy on levels of alcohol-related incidents in and around licensed premises. *Police Practice and Research*, 11(1), 5-15.
- Palmer, D., Warren, I., & Miller, P. (2010). ID scanners in the night time economy. *Technology and Society Magazine*, 234-241.
- Pennay, A., Miller, P., Busija, L., Jenkinson, R., Droste, N., Quinn, B., . . . Lubman, D. I. (In press). 'Wide Awake Drunkenness'? Investigating the association between alcohol intoxication and stimulant use in the night-time economy. *Addiction*.
- Pratten, J., & Greig, B. (2005a). Can Pubwatch Address the Problems of Binge Drinking? A Case Study from North West of England. *International Journal of Contemporary Hospitality Management*, 17(3), 9.
- Pratten, J. B., N. (2005b). Pubwatch: Questions on its validity and a police response. *International Journal of Contemporary Hospitality Management*, 17(4/5).
- Queensland Audit Office. (2013). Drink Safe Precincts trial. Brisbane: Queensland Audit Office.
- Queensland Government. (2011). Queensland liquor accords. Downloaded from: <http://www.olgr.qld.gov.au/aboutUs/QldLiquorAccords/qldliquoraccordsdecember2010.shtml>.
- Quigley, B. M., Leonard, K. E., & Collins, R. L. (2003). Characteristics of violent bars and bar patrons. *Journal of Studies on Alcohol*, 64(6), 765-772.
- Rehm, J., Mathers, C., Popova, S., Thavorncharoensap, M., Teerawattananon, Y., & Patra, J. (2009). Global burden of disease and injury and economic cost attributable to alcohol use and alcohol-use disorders. *The Lancet*, 373(9682), 2223-2233.
- Roberts, J. C. (2007). Barroom aggression in Hoboken, New Jersey: don't blame the bouncers! *Journal Of Drug Education*, 37(4), 429-445.
- Roberts, M., & Britain, G. (2004). *Good practice in managing the evening and late night economy: a literature review from an environmental perspective*: Office of the Deputy Prime Minister.
- Roche, K. W., Rod McClure, David M. Purdie, David Green, A. (2001). Injury and alcohol: a hospital emergency department study. *Drug And Alcohol Review*, 20(2), 155-166.
- Rowland, B., Allen, F., & Toumbourou, J. W. (2012a). Association of risky alcohol consumption and accreditation in the 'Good Sports' alcohol management programme. *Journal of Epidemiology and Community Health*, 66(8), 684-690.
- Rowland, B., Allen, F., & Toumbourou, J. W. (2012b). Impact of alcohol harm reduction strategies in community sports clubs: Pilot evaluation of the Good Sports program. *Health Psychology*, 31(3), 323.
- Saffer, H. (1991). Alcohol Advertising Bans and Alcohol-Abuse - an International Perspective. *Journal of Health Economics*, 10(1), 65-79.
- Saffer, H., & Dave, D. (2002). Alcohol consumption and alcohol advertising bans. *Applied Economics*, 34(11), 1325-1334.
- Schineanu, A., Velander, F., & Saggars, S. (2010). "Don't Wake Up Angry no more" The Evaluation of the Norseman Voluntary Liquor Agreement. Perth, Western Australia: National Drug Research Institute, Curtin University of Technology.
- Senior, K., Chenhall, R., Ivory, B., & Stevenson, C. (2009). Moving beyond the restrictions: the evaluation of the Alice Springs Alcohol Management Plan. Casuarina: Menzies School of Health Research.
- Shakeshaft, A., Petrie, D., Doran, C., Breen, C., & Sanson-Fisher, R. (2012). An empirical approach to selecting community-based alcohol interventions: combining research evidence, rural community views and professional opinion. *BMC Public Health*, 12(1). doi: <http://www.biomedcentral.com/content/pdf/1471-2458-12-25.pdf>
- Shepherd, J. (1994). Preventing injuries from bar glasses. *BMJ*, 308(6934), 932.
- Shepherd, J. (1998). The circumstances and prevention of bar-glass injury. *Addiction (Abingdon, England)*, 93(1), 5.
- Shepherd, J. (2007). Effective NHS Contributions to Violence Prevention: The Cardiff Model. Cardiff, Wales: Cardiff University.

- Shepherd, J., Shapland, M., Pearce, N., & Scully, C. (1990). Pattern, severity and aetiology of injuries in victims of assault. *J R Soc Med*, *83*(2), 75-78.
- Sim, M., Morgan, E., Batchelor, J. (2005). *The Impact of Enforcement On Intoxication and Alcohol Related Harm*. Wellington: Accident Compensation Corporation.
- Sivarajasingam, V., Shepherd, J. P., & Matthews, K. (2003). Effect of urban closed circuit television on assault injury and violence detection. *Injury Prevention*, *9*(4), 312-316.
- Smith, D. I., & Burvill, P. W. (1987). Effect on juvenile crime of lowering the drinking age in three Australian states. *British Journal of Addiction*, *82*(2), 181-188. doi: 10.1111/j.1360-0443.1987.tb01458.x
- Smith, L. A., & Foxcroft, D. R. (2009). The effect of alcohol advertising, marketing and portrayal on drinking behaviour in young people: systematic review of prospective cohort studies. *BMC Public Health*, *9*(51). doi: doi:10.1186/1471-2458-9-51
- Snyder, L. B., Milici, F. F., Slater, M., Sun, H., & Strizhakova, Y. (2006). Effects of Alcohol Advertising Exposure on Drinking Among Youth. *Arch Pediatr Adolesc Med*, *160*, 7.
- Spaite, D. W., Meislin, H. W., Valenzuela, T. D., Criss, E. A., Smith, R., & Nelson, A. (1990). Banning alcohol in a major college stadium: Impact on the incidence and patterns of injury and illness. *Journal of American College Health*, *39*(3), 125-128.
- Spooner, C., & McPherson, M. (2001). In what ways do police contribute to the prevention & management of alcohol-related problems in NSW? An overview. NDARC Technical Report No. 123. Sydney: National Drug and Alcohol Research Centre.
- Spoth, R. L., Redmond, C., & Shin, C. (2001a). Randomized trial of brief family interventions for general populations adolescent substance use outcomes 4 years following baseline. *Journal of Consulting and Clinical Psychology*, *69*, 1-15.
- Spoth, R. L., Redmond, C., Trudeau, L., & Shin, C. (2001b). Longitudinal substance initiation outcomes for a universal preventative intervention combining family and school programs. *Psychology of Addictive Behaviors*, *16*, 129-134.
- Squires, P. (1998). *An Evaluation of the Ilford Town Centre CCTV System: Brighton (United Kingdom): Health and Social Policy Research Centre*.
- Stewart, L. (1993). *Police Enforcement of Liquor Licensing Laws: The UK Experience: Alcohol & Public Health Research Unit, University of Auckland*.
- Stewart, L., & Casswell, S. (1993). Using evaluation resources in a community action project: Formative evaluation of public health. *Contemporary Drug Problems*, *20*(4), 681.
- Stockwell, T. (2006). Alcohol supply, demand, and harm reduction: What is the strongest cocktail? *International Journal Of Drug Policy*, *17*(4), 269-277.
- Stockwell, T., Auld, M. C., Zhao, J., & Martin, G. (2012). Does minimum pricing reduce alcohol consumption? The experience of a Canadian province. *Addiction*, *107*(5), 912-920. doi: 10.1111/j.1360-0443.2011.03763.x
- Stockwell, T., Masters, L., Philips, M., Daly, A., Gahegan, M., Midford, R., & Philp, A. (1998). Consumption of different alcoholic beverages as predictors of local rates of night-time assault and acute alcohol-related morbidity. *Australian And New Zealand Journal Of Public Health*, *22*(2), 237-242.
- Sutton, A., & Wilson, D. (2002). Open-street CCTV in Australia: the politics of resistance and expansion. *Surveillance & Society*, *2*(2/3).
- Tobin, C., Moodie, R., & Livingstone, C. (2010). A review of public opinion towards alcohol controls in Australia. *BMC Public Health*, *11*(1), 58.
- Tobler, N. S. (2000). Lessons learned. *Journal of Primary Prevention*, *20*, 261-274.
- Toomey, T. L., Wagenaar, A. C., Erickson, D. J., Fletcher, L. A., Patrek, W., & Lenk, K. M. (2004). Illegal alcohol sales to obviously intoxicated patrons at licensed establishments. *Alcoholism: Clinical & Experimental Research*, *28*(5), 769-774.
- Toumbourou, J. W., Kypri, K., Jones, S., & Hickie, I. (2014). Should the legal age for alcohol purchase be raised to 21? *Medical Journal of Australia*, *200*(10), 568-570. doi: doi: 10.5694/mja13.10465
- Toumbourou, J. W., Stockwell, T., Neighbors, C., Marlatt, G. A., Sturge, J., & Rehm, J. (2007). Interventions to reduce harm associated with adolescent substance use. *The Lancet*, *369*(9570), 1391-1401. doi: 10.1016/s0140-6736(07)60369-9
- Transperth. (2011). Having a big night? Catch the nightrider home. <http://www.transperth.wa.gov.au/UsingTransperth/NightRiderbusservices.aspx> accessed on 30 March, 2011.
- Treno, A. J., Gruenewald, P. J., Lee, J. P., & Remer, L. G. (2007). The Sacramento Neighborhood Alcohol Prevention Project: Outcomes From a Community Prevention Trial. *Journal Of Studies On Alcohol And Drugs*, *68*(2), 197-207.
- UK Home Office. (2011). Crime reduction. <http://webarchive.nationalarchives.gov.uk/20100413151441/http://www.crimereduction.homeoffice.gov.uk/tvcp/tvcp03.htm> accessed on 31 March, 2011.

- Vrij, A. (1997). Wearing black clothes: The impact of offenders' and suspects' clothing on impression formation. *Applied cognitive psychology*, 11(1), 47-53.
- Wagenaar, A. C., Salois, M. J., & Komro, K. A. (2009). Effects of beverage alcohol price and tax levels on drinking: a meta-analysis of 1003 estimates from 112 studies. *Addiction*, 104(2), 179-190. doi: ADD2438 [pii]
10.1111/j.1360-0443.2008.02438.x
- Wagenaar, A. C., & Toomey, T. L. (2002). Effects of minimum drinking age laws: review and analyses of the literature from 1960 to 2000. *J Stud Alcohol Suppl*(14), 206-225.
- Wagenaar, A. C., Toomey, T. L., & Erickson, D. J. (2005a). Complying with the minimum drinking age: effects of enforcement and training interventions. *Alcohol Clin Exp Res*, 29(2), 255-262. doi: 00000374-200502000-00009 [pii]
- Wagenaar, A. C., Toomey, T. L., & Erickson, D. J. (2005b). Preventing youth access to alcohol: outcomes from a multi-community time-series trial*. *Addiction*, 100(3), 335-345.
- Wallin, E., & Andreasson, S. (2005). Effects of a Community Action Program on Problems Related to Alcohol Consumption at Licensed Premises. In T. Stockwell, P. J. Gruenewald, J. W. Toumbourou & W. Loxley (Eds.), *Preventing harmful substance use: The evidence base for policy and practice*. (pp. 207-223). New York, NY US: John Wiley & Sons Ltd.
- Wallin, E., Andreasson, S., Stockwell, T., Gruenewald, P. J., Toumbourou, J. W., & Loxley, W. (2005a). Effects of a Community Action Program on Problems Related to Alcohol Consumption at Licensed Premises *Preventing harmful substance use: The evidence base for policy and practice*. (pp. 207-223). New York, NY US: John Wiley & Sons Ltd.
- Wallin, E., Gripenberg, J., & Andreasson, S. (2002). Too drunk for a beer? A study of overserving in Stockholm. *Addiction*, 97(7), 901-907. doi: 160 [pii]
- Wallin, E., Gripenberg, J., & Andreasson, S. (2005b). Overserving at licensed premises in Stockholm: Effects of a community action program. *Journal of Studies on Alcohol*, 66(6), 806-814.
- Wallin, E., Norstrom, T., & Andréasson, S. (2003). Alcohol Prevention Targeting Licensed Premises: A Study of Effects on Violence*. *Journal of Studies on Alcohol*, 64(2), 270-278.
- Warburton, A. L., & Shepherd, J. P. (2000). Effectiveness of toughened glassware in terms of reducing injury in bars: a randomised controlled trial. *Injury Prevention: Journal Of The International Society For Child And Adolescent Injury Prevention*, 6(1), 36-40.
- Warpenius, K., Holmila, M., & Mustonen, H. (2010). Effects of a community intervention to reduce the serving of alcohol to intoxicated patrons. *Addiction*, 105(6), 1032-1040.
- Webb, M., Marriot-Lloyd, P., & Grenfell, M. (2004). *Banning the bottle: Liquor bans in New Zealand*.
- Wells, S., Graham, K., & West, P. (1998). The good, the bad, and the ugly: Responses by security staff to aggressive incidents in public drinking settings. *Journal of Drug Issues*, 28(4), 817-836.
- Welsh, B. C., & Farrington, D. P. (2004a). Evidence-based crime prevention: The effectiveness of CCTV. *Crime Prevention & Community Safety*, 6(2), 21-33.
- Welsh, B. C., & Farrington, D. P. (2004b). Surveillance for crime prevention in public space: Results and policy choices in Britain and America. *Criminology & Public Policy*, 3(3), 497-526.
- Welsh, B. C., & Farrington, D. P. (2009). Public area CCTV and crime prevention: An updated systematic review and meta-analysis. *Justice Quarterly*, 26(4), 716-745.
- Welsh, B. C., Farrington, D. P., & Britain, G. (2002). *Crime prevention effects of closed circuit television: a systematic review*: Home Office Research, Development and Statistics Directorate.
- Welsh, B. P., & Farrington, D. C. (2008). Effects of closed circuit television surveillance on crime. *Campbell Systematic Reviews*, 17, 2-73.
- Weschler, H., Sciebring, M., Liu, I. C., & Ahl, M. (2004). Colleges respond to student binge drinking: Reducing student demand or limiting access. *Journal of American College Health*, 52(4), 159-168.
- Wiggers, J., Jauncey, M., Considine, R., Daly, J., Kingsland, M., Purss, K., . . . Lenton, S. (2004). Strategies and outcomes in translating alcohol harm reduction research into practice: the Alcohol Linking Program. *Drug & Alcohol Review*, 23(3), 355-364.
- Wiggers, J. H. (2007). Reducing alcohol-related violence and improving community safety: the Alcohol Linking Program. *NSW Public Health Bulletin*, 18(5-6), 3.
- Wilson, D., & Sutton, A. (2003). *Open-street CCTV in Australia*: Australian Institute of Criminology.
- World Health Organization. (2010). Geneva.
- Young, D. J. (1993). Alcohol Advertising Bans and Alcohol-Abuse - Comment. *Journal of Health Economics*, 12(2), 213-228.

7. Appendix A

Listed below are those interventions funded by the Australian National Preventive Health Agency, but which do not have evaluation reports to include in this review. They have been categorised by type of intervention. The amount of funding they received from ANPHA is also listed, showing the significant amount of money being spent on interventions for which effectiveness is unknown.

7.1 Community Approach

Eastern Goldfields YMCA Inc (WA)—This project focuses on providing both preventive and diversionary services and activities to young people aged 12–24 years in the Kalgoorlie-Boulder region of Western Australia. The project uses a ‘whole of community’ approach through working with community partners to address the issue of youth binge drinking in the community.

Mulungu Aboriginal Corporation Medical Centre (Qld)—\$280,908 for the Mareeba Young and Awesome: makin’ music, makin’ moves, makin’ over and makin’ out project. This project will provide a wide range of community activities and skills development for young Indigenous Australians in this rural Queensland community.

Eastern Goldfields YMCA Inc (WA)—\$424,879 for the Stronger Communities project. This project will provide a whole-of-community preventive approach to binge drinking in the Kalgoorlie-Boulder area.

Carpentaria Shire Council (Qld)—\$493,000 for the Carpentaria Shire Interagency Binge Drinking Working Group—community initiative to combat binge drinking in youth project. The project will strengthen agency and community networks in Normanton and Karumba to increase participation in social, cultural and sporting activities.

David Wirrpanda Foundation Inc (WA)—\$500,000 for the Gwabba Yorga–Gabba Warra project. This is aimed at Aboriginal and Torres Strait Islander girls 12–17 years engaged through netball competitions in Perth and several regional Western Australian towns.

Clarence Valley Council (NSW)—\$497,790 for the Eyes Wide project. This will bring together young people, local service providers and health agencies in a model responsive to a dispersed population with limited youth services in Grafton and the regional towns of the Clarence Valley.

7.2 Reducing harm

Gap Youth Centre Aboriginal Corporation (NT)—\$500,000 for the Off the Street project. This project will provide a safe alcohol-free entertainment venue for young people on Saturday nights in Alice Springs.

Mushroom Marketing Pty Ltd (National)—\$500,000 for the Live Solution—have a better time with live music project. This project will promote the enjoyment of a better live music experience by avoiding binge drinking.

The Salvation Army Melbourne Project 614 (Vic)—\$495,000 for the Youth Street Teams project. This project will employ a multi-faceted early intervention approach to address high-risk activities and the harms associated with young people binge drinking in Melbourne’s Central Business District. This project has partnered with the City of Melbourne, Victoria Police and Metro Trains to implement a coordinated approach to reduce binge drinking among young people and improve safety in the Melbourne CBD. A major component of the project is the provision of a street outreach program in the CBD on Friday and Saturday nights

Youthsafe (NSW)—\$356,678 for the resilience building approach to preventing and managing binge drinking among young workers project. This project will develop, deliver and evaluate a resilience-based binge

drinking program of preventive resources and training to support apprentices and trainees in both work and community settings across Sydney, the Hunter and Far Northern New South Wales.

Shire Wide Youth Services Inc (NSW)—\$500,000 for the Be A Smarty When You Party project. The project aims to reduce binge drinking by providing street outreach, alcohol-free activities and events, and drop-in support services in the Sutherland and St George areas.

Multicultural Centre for Women's Health (Vic)—\$492,267 for the Healthy Lives, Health Futures project. The project takes a community development approach across Victoria to improve the capacity of young people from immigrant and refugee backgrounds to reduce their risk of alcohol-related harm.

Adelaide City Council (SA)—\$151,018 for the Green Team West End Youth project. The project will extend the voluntary street outreach program currently conducted during Schoolies Week at Victor Harbor to a Saturday night presence in Adelaide's CBD

7.3 Education

Ngnowar Aerwah Aboriginal Corporation (WA)—This project aims to address binge drinking among young people aged 12–24 years in the Wyndham area by raising awareness of harms, providing alternative activities, mentoring and referrals.

Anglicare NT (NT)—\$300,000 for the Imagine, Create, Inspire project. This project focuses on youth engagement and awareness using peer education strategies and social media to encourage healthier behaviours in Darwin and Palmerston.

Queensland Remote Aboriginal Media Aboriginal Corporation (Qld)—\$255,610 for the In Our Own Words: young people working together to address binge drinking in remote Aboriginal communities in Queensland project. This project will bring young Indigenous people from remote Cape York and Gulf of Carpentaria communities together to produce a series of radio programs for their local communities addressing the issues of binge drinking.

Mushroom Marketing (National)—\$80,000 for this project aims at harnessing the power of live contemporary music to challenge the issue of youth binge drinking. Across the project period more than 80 Live Solution live music events and 20 educational music event workshops will be activated in all states in both metropolitan and regional locations.

Incolink (Vic)—300,000 for the Drink Safe Mate project. This project will target 8,000 young workers in the Victorian building and construction industry through health education and capacity building approaches.

Re-Engage Youth Services (SA)—\$497,445 for the Southern Collaborative Response to Binge Drinking project. This project will provide alcohol-free events and use social media to deliver health promotion messages in the communities of Marion and Onkaparinga.

Mitchell Community Health Service (Vic)—\$500,000 for the Whenever You're Likely To Drink project. This project aims to develop a coordinated community response to raise awareness of the health risks caused by binge drinking in the Hume communities of Broadford, Wallan and Seymour.

Glenorchy City Council (TAS)—\$248,637 for the Interactive Online project. This project will use social media to inform and educate young people on the risks and consequences of binge drinking.

Leeton Shire Council (NSW)—\$440,462 for the Bidgee Binge project. The project is an interactive, multi-faceted program aimed at reducing binge drinking among young people in the Leeton, Griffith and Narrandera areas.

CuriousWorks (NSW)—\$95,439 for the Western Sydney Alcohol Awareness Video Initiative project. This project will provide education and skills training for young people in the Penrith area as they develop and produce videos for their peers that promote the harms of binge drinking.

Bathurst Regional Council (NSW)—\$495,071 for the SMARTS—Smashed Arts project. This project will engage young people in the Bathurst region by providing health education messages and alternative entertainment opportunities.

Ngnowar Aerwah Aboriginal Corporation (WA)—\$300,000 for the Wyndham Youth Reconnect project. The project will target at-risk local youth by providing health education programs and alternative recreation activities.

Cloncurry PCYC (Qld)—\$278,981 for the Chill Out project. This project will provide a local solution to binge drinking in Cloncurry and Mt Isa through health awareness sessions and sporting and recreation activities.

Champions: Kingston, Manuka, Canberra City, Braddon, Dickson, Belconnen and Woden (ACT)—\$539,653.40 for this project which aimed to increase awareness of alcohol-related harm, personal responsibility and positive decision-making in relation to the use of alcohol among 18–24 year olds in the Australian Capital Territory. The key message of Champions ACT is to encourage young people to look after their friends by emulating ‘Champions’ who feature in a range of promotional material, targeted advertising and social media.

Melton Shire Council (Vic)—\$287,282 for the Saturday Nights!! Live!! project. This project will provide a weekly range of alcohol-free events for young people in the Melton and Taylors Hill communities while using peer educators to raise awareness of the harms associated with binge drinking.

Australian Red Cross (Qld)—\$300,000 for the Binge on Life program. The program aims to provide alternative arts activities for youth on Palm Island and Central West communities to tackle the issue of binge drinking.

8. Appendix B

Below is a list of DrinkWise education programs that were located through extensive searching, particularly through media releases or the DrinkWise website. Where evaluation data could be located it is reported, however this data was limited and often only summarised on the website without any link to the evaluation report.

Responsible Drinking on Campus—DrinkWise and Macquarie University jointly developed this intervention. It is a three-stage three-year study of alcohol attitudes, behaviours, and practices for students, with the intention of developing a model for managing alcohol on-campus. The first stage involved surveying students and staff, as well as high school partners and parents of children who participated in the university's swim school in order to get a better understanding about their views about alcohol. The second stage involves more focused research using focus groups, and the third stage will evaluate the effectiveness of a related intervention.

Long-term social change campaign to influence generation change towards responsible consumption of alcohol—This project is jointly funded by DrinkWise and the Australian Government's Department of Health and Aging. It focuses on influencing people's attitudes and behaviours towards the consumption of alcohol. It intends to empower parents, so they can positively influence their children's future drinking behaviour, and in particular reverse the trend of teenagers drinking at an early age. A major aim of this campaign is to encourage the next generation to believe that drinking to get drunk is socially unacceptable.

Red Dust Role Models—DrinkWise, in partnership with Red Dust Role Models, deliver education programs to Indigenous Australians in Alice Springs schools, town camps, and remote communities. The campaign aims to effectively and appropriately educate people on the harmful effect alcohol consumption can have, both on the individual and on their family. DrinkWise notes that in developing this program it has considered education, early intervention, and peer-led mentoring in order to provide a holistic and integrated approach.

Kids and Alcohol Don't Mix—The aim of the program is to assist parents in delaying the age at which their child first consumes alcohol. The campaign encourages parents to talk about, and implement a strategy to appropriately deal with the situation in which their child asks about drinking alcohol. The campaign has received media attention in major newspapers, as well as television and radio. Some initial evaluation of this program is reported on the DrinkWise website, however only outcome data is reported and as such cannot be compared to any initial data that was obtained. Although it is noted that attitudinal change has occurred for parents it is difficult to determine this without the appropriate information being reported. Further, the evaluation was conducted by a marketing research company that focuses on statistics such as the number of people who visit a website. These are not appropriate evaluations of effectiveness for harm reduction associated with alcohol.

Drinking—Do it properly—This campaign is designed to influence young adults to drink responsibly, in particular to moderate the intensity and frequency of binge drinking occasions. An aim of the campaign is to make binge drinking/drinking to get drunk a socially unacceptable behaviour, and instead to encourage safe and moderate drinking. Once again, some evaluation results are available, though these are focused on how much people are considering change, rather than an evaluation of any actual change.

Kids Absorb Your Drinking—This campaign focused on encouraging the Australian community to change their attitudes towards alcohol in order to promote a safer and more responsible drinking culture. Initial evaluations indicate that a third of parents reported reducing the amount of alcohol consumed in front of their children, and six percent reported not drinking in front of children. Approximately 40 percent of parents indicated reducing drinking in order to be a good role model or to set a good example, and 14 percent indicated that TV advertising has been a factor in these decisions. However, using a marketing company to evaluate research is not an appropriate form of peer-review evidence. Further, the program was evaluated using a sample of 512 people which is very small considering the program was implemented Australia-wide. The findings cannot be generalised to the wider population.

Lions Australia—Drinkwise provided Lions Australia with \$25,000 to develop an interactive mobile and internet presentation to educate 18–25 year olds about the dangers associated with excessive alcohol consumption and teach them to drink responsibly.

