Submission No 112

MEASURES TO REDUCE ALCOHOL AND DRUG-RELATED VIOLENCE

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The Committee Manager
Committee on Law and Safety
Parliament House
Macquarie St
SYDNEY NSW 2000

Dear Committee Manager

SUBMISSION TO COMMITTEE ON LAW AND SAFETY INQUIRY INTO MEASURES TO REDUCE ALCOHOL AND DRUG-RELATED VIOLENCE

Thank you for the opportunity to provide a submission to the New South Wales (NSW) Legislative Assembly *Inquiry into measures to reduce alcohol and drug related harms.*

I would like to offer my support to the NSW ACT Alcohol Policy Alliance (NAAPA) submission to this Inquiry. NAAPA is a coalition of 44 organisations working to reduce alcohol-related harms by ensuring that evidence-based solutions inform alcohol policy discussions in NSW and the ACT.

Alcohol harms in NSW are significant, with 1,837 alcohol-attributable deaths,[1] 51,981 alcohol-related hospitalisations[2] and over 25,000 incidents[3] of alcohol-related violence each year. In January this year the NSW Government announced a range of measures to prevent alcohol-related violence. These measures included a 10pm close for all off-licence premises and 3am last drinks for licenses within the Sydney CBD precinct. These were welcome measures and a significant step towards preventing alcohol harms.

I commend the Committee on Law and Safety (Committee) for holding an Inquiry that examines measures to reduce alcohol-related violence. However, it is important that the Committee acknowledges that the measures being examined as part of this Inquiry have been in effect for less than six months, which is not adequate time to assess their effectiveness. For a robust evaluation to take place, data is needed from independent and trusted sources for a timeframe of at least one year. This allows for seasonal variances in trends to be considered.

While it is too soon to assess the effectiveness of the measures announced by the former Premier, this Inquiry provides an opportunity to:

- demand a robust evaluation framework to assess the effectiveness of these measures;
- examine progress of the implementation these measures; and
- examine other evidence-based policies that could be introduced to stop alcohol-related harms.

Over the past two years there have been numerous Inquiries and reviews on alcohol. This has resulted in the Government responding to each of these in an ad hoc manner. With the strong leadership taken by

the NSW Government in January, there is now a need for strategic action to ensure that a whole-of-Government strategy is developed that focusses on the prevention and management of alcohol harms across the state.

The response from the NSW Government to the Review of the *Liquor Act 2007* was disappointing. The Government failed to use this opportunity to continue to roll out evidence-based reforms needed to prevent alcohol harms in NSW. The NSW Government has ignored the recommendation that the Liquor Promotion Guidelines be reviewed after 12 months, and has also ignored advice from health experts to begin the collection of sales data across the state. A fundamental flaw in the Government's response is that it failed to acknowledge the importance of prioritising harm minimisation as a primary object of the Act. Prioritising harm minimisation would ensure that the health and safety of communities in NSW are the priority of the Government in all liquor licensing decisions.

Along with this support letter, I have also provided the Committee with the below documents to be considered as part of this Inquiry.

- *Alcohol's burden of disease in Australia*. FARE and VicHealth in collaboration with Turning Point (July 2014);
- *Foundation for Alcohol Research and Education 10 Point Plan to Reduce Alcohol Harms in NSW* (August 2012);
- Submission to the NSW Legislative Assembly Social Policy Committee *Inquiry into the Strategies to reduce alcohol abuse among young people in New South Wales* (March 2013);
- *10 years on: An analysis of the progress made in preventing alcohol-related harms since the 2003 NSW Summit on Alcohol Abuse* (March 2013); and
- *2014 Foundation for Alcohol Research and Education Poll: Alcohol-related violence in New South Wales* (January 2014).

I strongly encourage you to take up the opportunities to hear testimony from NAAPA's membership of community representatives and professional experts about the further action needed to stop alcohol harm.

I welcome the opportunity to elaborate on any of the information provided.

Yours sincerely

MICHAEL THORN
CHIEF EXECUTIVE

[1] Gao, C., Ogeil, R, & Lloyd, B. (2014). *Alcohol's burden of disease in Australia*. Canberra: FARE and VicHealth in collaboration with Turning Point.
[2] Health Statistics New South Wales (2014). *Alcohol attributable hospitalisations by sex, NSW 1998-99 to 2012-13.* Sydney: NSW Government.
[3] NSW Bureau of Crime Statistics and Research (2014). *NSW Recorded Crime Statistics April 2004 to March 2014*. Sydney: NSW Government.

Foundation for Alcohol Research & Education

FARE's submission to the NSW Legislative Council Standing Committee on Social Issues

Inquiry into strategies to reduce alcohol abuse among young people in NSW

About the Foundation for Alcohol Research and Education

The Foundation for Alcohol Research and Education (FARE) is an independent charitable organisation working to prevent the harmful use of alcohol in Australia. Our mission is to help Australia change the way it drinks by:

- helping communities to prevent and reduce alcohol-related harms;
- building the case for alcohol policy reform; and
- engaging Australians in conversations about our drinking culture.

Over the last ten years FARE has have invested more than $115 million, helped 750 organisations and funded over 1,400 projects addressing the harms caused by alcohol misuse.

FARE is guided by the World Health Organisation's *Global Strategy to Reduce the Harmful Use of Alcohol*[i] for addressing alcohol-related harms through population-based strategies, problem-directed policies, and direct interventions.

If you would like to contribute to FARE's important work, call us on (02) 6122 8600 or email fare@fare.org.au. All donations to FARE over $2 are tax deductible.

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[i] World Health Organisation (2010). *Global strategy to reduce the harmful use of alcohol.* Geneva: World Health Organization.

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Introduction

The Foundation for Alcohol Research and Education (FARE) welcomes the opportunity to provide a submission to the *Inquiry into strategies to reduce alcohol abuse among young people in New South Wales* (NSW). The unnecessary harmful consumption of alcohol by young people is concerning and deserves immediate and comprehensive attention by the NSW Government.

For the purpose of this submission young people have been defined as being aged between 12 and 24 years of age. People within this age group can be divided into two key population groups, those under the legal drinking age of 18 years and those above the legal drinking age.

For people aged under the age of 18 years, almost three quarters (74 per cent) have ever consumed alcohol, with almost one in five (17.4 per cent) having consumed alcohol in the past seven days.[1] Of those who have consumed alcohol in the past seven days, 6.4 per cent have consumed alcohol at short term risky levels, with the average amount of alcohol consumed being 6.6 standard drinks in one sitting.

For young people aged 18 to 24 years, the vast majority (85.8 per cent) consume alcohol, with 43.7 per cent doing so each week.[2] More than one quarter of 18 to 24 year olds (27.4 per cent) consume alcohol at these levels each week.[3]

The excessive availability, affordability and promotion of alcohol all contribute to the current culture of risky alcohol consumption. For young people, the most apparent impact of this is the culture of consuming alcohol to get drunk, or "drinking to get drunk". Over one third (36.4 per cent) of young people aged 12 to 17 years admit to consuming alcohol with the intention of getting drunk most times or every time. [4] A majority (61 per cent) of young people aged 18 to 29 years also drink to get drunk.[5]

The excessive consumption of alcohol by young people and the culture of drinking to get drunk results in young people experiencing disproportionate levels of alcohol-related harms.[6] Between 1993 and 2001, 28 per cent of alcohol related injuries and deaths and 36 per cent of alcohol related hospitalisations were incurred by young people.[7]

Strategies to minimise harm to young people from alcohol use and misuse are most effective when they are multi-dimensional, and when each component is applied in a balanced manner.[8] As acknowledged by the World Health Organization (WHO)

> Policies to reduce the harmful use of alcohol must reach beyond the health sector, and appropriately engage such sectors as development, transport, justice, social welfare, fiscal policy, trade, agriculture, consumer policy, education and employment, as well as civil society and economic operators.[9]

In recent years governments have adopted an ad hoc approach to alcohol policy. This has resulted in an overemphasis of cleaning up the mess from alcohol-related harms, and a shortage of evidence-based regulatory policies that prevent alcohol-related harms. This approach fails to protect young Australians from being affected by the various harms that alcohol causes.

Over the last two years the O'Farrell Government has cut funding to important alcohol intervention programs for young people, including the Youth Drug and Alcohol Court and the Drug Prevention program under the Department of Education's student Welfare Directorate. These actions are not those of a government that is committed to reducing alcohol use and misuse and alcohol-related harms among young people.

There is the need for a broader, coordinated response to alcohol related harm In NSW. This need is reflected in the breadth of topics covered in the *Inquiry into strategies to reduce alcohol abuse among young people in NSW*. This is also reflected in the range of Government Departments (including, but not limited to, Healthcare, Education, Workplace Relations, Hospitality, Police, and Corrections) that carry the burdensome costs and responsibilities involved in managing alcohol-related harms.

This Inquiry is an opportunity to develop, implement and enforce a comprehensive approach to preventing alcohol-related harms among young people in NSW.

Recommendations

1. That the NSW Government applies the Liquor Promotion Guidelines to both on-license and off-license premises with equal weight.
2. That the NSW Government requires Point-of-Sale (POS) promotions at all on- and off-license premises in NSW to carry warnings about the harms associated with alcohol consumption.
3. That the NSW Government clarifies and tightens regulations regarding POS promotions with a view to minimising minors' exposure to these promotions in and around licensed premises in public-access areas, such as restaurants with bar sections, supermarkets with liquor sections, and shopping malls with packaged liquor outlets.
4. That the NSW Government provide the general public with clear guidelines on how to submit complaints concerning liquor promotions and advise the general public of the types of evidence that may support their submission.
5. That the NSW Government re-establish the dedicated Drug Prevention Programs Unit in the Department of Education and base the program on the evidence-base of what is most effective in the provision of AOD education.
6. That the NSW Government develops a code of practice in line with the World Health Organization (WHO) recommendation disallowing alcohol industry groups from participating in the development of alcohol policy or health promotion programs.
7. That the NSW Government should explore other emerging evidence-based AOD programs in criminal justice systems abroad, such as "Hawaii's Opportunity Probation with Enforcement" (HOPE) program.
8. That the NSW Government re-fund the Youth Drug and Alcohol Court (YDAC) program and ensure that it is regularly evaluated to continuously improve its practices with a view to enhancing future performance and outcomes.
9. That the NSW Government extends the eligibility criteria of the Drug Court program to include alcohol-dependent adult offenders.
10. That the NSW Government encourages work places to adopt an alcohol and drug policy that includes a particular focus on young employees and workplace safety.
11. That the NSW Government introduces a zero Blood Alcohol Concentration (BAC) limit for all drivers under 25 years regardless of their license status.
12. That the NSW Government develop a comprehensive public education campaign on drink driving targeting young people, that focuses on the potential for people to be over the legal BAC limit the morning after consuming alcohol.
13. That the NSW Government wind back late night trading hours. FARE proposes that the NSW Government legislate to introduce a 12 month state-wide trial of the reduction of trading hours based on the Newcastle alcohol restrictions, including:
    i. A common 3.00am closing time for all pubs and clubs with extended trading license conditions across NSW;
    ii. "Lockouts" (time periods disallowing patrons from entering or re-entering premises) at all extended trading licensed premises from 1.00am; and
    iii. The trial should be independently evaluated to ascertain the social, health, crime and economic effects of these trading controls. The data collection requirements for this independent evaluation should be in place from the commencement of the 12 month trial.

14. That the NSW Government make late night licensed premises contribute to the costs of alcohol-related harms. FARE proposes that the NSW Government introduce a risk-based licensing fee system that offsets and attributes the cost to Government and the community of administering and managing the impact of alcohol use and misuse on the community.
15. That the NSW Government that the NSW Government control the density of licensed premises. FARE proposes that the NSW Government:
    i. Establish and enforces saturation zones in areas that are identified as already having large numbers of liquor licences including the City of Sydney; and
    ii. Introduce cumulative impact and cluster control policies for the determination of new liquor licenses.
16. That the NSW Government enforce responsible service of alcohol requirements. FARE proposes that the NSW Government:
    i. introduce measures to better enforce RSA requirements in licensed venues throughout NSW including Compliance Officer visiting licensed premises outside of regular business hours.
    ii. introduce requirements for OLGR and the NSW Police Force to publically report on compliance activities relating to the Liquor Act, the number of venues inspected and their location, the times of day that these venues are inspected and the number of identified breaches of compliance.
    iii. prohibit the sale of shots, mixed drinks with more than 30mL of alcohol and ready mixed drinks stronger than five per cent alcohol by volume after 10.00pm;
    iv. prohibit the sale of more than four drinks to any patron at one time and a requirement to provide free water stations on every bar; and
    v. prohibit the sale of alcohol mixed with energy drinks after midnight.
17. That the NSW Government enhance data collection and the public availability of data on the burden of alcohol-attributable harms on the NSW health system.
18. That the NSW Government support the development and delivery of brief interventions for young people who misuse alcohol and are presented to hospital emergency departments as a result.
19. That the NSW Government introduces “irresponsible supply” laws to NSW, stating that the lawful supply of alcohol to minors must be conducted in a safe and responsible manner.
20. That the NSW Government develops and implements a comprehensive public education campaign that informs the general public of the state legislation regarding supplying alcohol to minors. This campaign should incorporate the lessons learnt from the evaluation of the NSW Police’s “Supply Means Supply” campaign.
21. That the NSW Government amends legislation in NSW to enable NSW Police Force to undertake controlled purchase operations for alcohol.
22. That the NSW Government fund culturally appropriate education, diversion and intervention programs that target young Aboriginal and Torres Strait Islander peoples.
23. That the NSW Government re-fund the Youth Drug and Alcohol Court and tailor eligibility criteria for Drug Court applicants who identify themselves as Aboriginal and Torres Strait Islander peoples.
24. That the NSW Government extend the NSW Drug Court’s eligibility criteria to include alcohol dependence, and tailor the Drug Court’s eligibility criteria to accommodate for program applicants who identify themselves as Aboriginal or Torres Strait Islander peoples.

25. That the NSW Government carry out enforcement activities more regularly at licensed premises on and around university campuses.
26. That universities in NSW develop comprehensive and universal alcohol policies that are communicated and promoted among students and reinforced within university council by-laws.
27. That universities in NSW introduce by-law rules that restrict the availability of alcohol on campuses in terms of trading hours, the number of outlets and the pricing and promotion of liquor.
28. That universities in NSW introduce by-law rules that discourage or prohibit the sponsorship of student associations, clubs and societies by licensed venues and alcohol companies.
29. That universities in NSW fund and design alcohol education and intervention programs to reduce risky alcohol consumption behaviours and improve university student health and resilience.

Responses to the Terms of Reference

(a) The effect of alcohol advertisements and promotions on young people, including consideration of the need to further restrict alcohol advertising and promotion

The exposure of young Australians to alcohol promotions shapes their perception of alcohol and alcohol consumption behaviours. The marketing of alcoholic beverages and brands is sophisticated, strategic, and uses a wide range of traditional media (e.g. print, television, radio) and "new" media (e.g. point-of-sale promotions, internet advertising, sporting and cultural event sponsorship, and product placement).[10]

One relatively new form of alcohol promotion is point-of-sale (POS) marketing. POS marketing refers to promotional materials that are found within or on the exterior of a licensed store or venue at the point where an alcohol purchase will be made (e.g. happy hours, free gifts with purchase, prominent signage, competitions, price discounts for bulk purchases, and sale prices).

POS marketing is increasingly used as a marketing tool for alcohol products to the point that it has been coined as "ubiquitous" and "aggressive".[11] Liquor outlets in Sydney alone host an average of 30.2 POS promotions per outlet.[12] The prolific nature of POS marketing is concerning because it results in young people (including minors) being regularly exposed to advertisements and promotions that depict alcohol consumption as a fun, social and inexpensive activity.[13]

Young people are also capable of interpreting the messages and images of alcohol advertisements in the same way as adults do.[14] For example, a survey of children (between 9 to 15 years of age) in Western Australia found that 75 per cent of children and adolescents recognise the Bundaberg Rum "Bundy Bear" and correctly associate him with an alcoholic product.[15]

Consumer studies reveal that exposing young people to alcohol advertising increases the likelihood of them starting to consume alcohol as well as increasing consumption in those already consuming alcohol.[16] [17] [18] There is consistent evidence to suggest that POS promotions are likely to affect overall consumption of underage alcohol consumers, binge drinkers, and regular drinkers.[19] [20] POS promotions involving price or volume discounts have been found to be particularly effective in encouraging the purchase of increased volumes of alcohol.[21] In addition, ownership of alcohol branded merchandise and promotional items among non-drinking children and adolescents predicts both early initiation to alcohol use and binge drinking.[22] [23]

Regulation of alcohol promotions in NSW

Liquor promotions in NSW are regulated under section 102 of the *Liquor Act 2007* (NSW) (the "Liquor Act"), wherein the "Director may restrict or prohibit [the] undesirable promotion of liquor". Section 102 of the Act refers to the *Liquor Promotion Guidelines* (the "Promotion Guidelines") published by the Director of the Office of Liquor, Gaming and Racing (OLGR), which indicate the kinds of activities or promotions that the Director may restrict or prohibit.[24]

The Promotion Guidelines state that the "Director of Liquor and Gaming may restrict or prohibit an activity or promotion" if they believe that the activity of promotion:

- "uses designs, name, motifs and characters that have special appeal to minors
- "involves the provision of liquor in non-standard measures that encourages irresponsible drinking and is likely to result in intoxication
- "involves free drinks, or extreme discounts or discounts of limited duration, that creates an incentive for patrons to consume liquor more rapidly than they otherwise might, and
- "encourages irresponsible, rapid or excessive consumption of liquor".[25]

More specifically the Promotion Guidelines state activities which pose an "unacceptable risk". These include those where: "entry, participation or outcome is dependent on the consumption of more than one alcoholic drink"; "prizes of alcoholic beverages are awarded and which involve their consumption on the premises'; "Two for the price of one offers"; and "50% or higher discount for consumption on the premises".[26] Despite these Promotion Guidelines being in place, premises throughout NSW continue to hold activities that encourage excessive consumption, and even those that pose an 'unacceptable risk' as outlined above.

The Promotion Guidelines also clearly convey that 'on-licence' premises are prioritised and many of the activities referred to are specific to on-licence premises. This is concerning because there are several promotions in off-licence premises which involve excessive discounting and bulk-buy purchases. Off-licence premises can also be attended by people under the age of 18 years, who are then exposed to the promotions that occur throughout the store. These activities will increasingly occur as the sale of liquor continues to move into supermarket settings, such as ALDI.

Policy options

Australian and international research identifies the restriction of alcohol advertising and promotions as a cost-effective policy measure to reduce alcohol related harms. [27] [28] [29] [30] [31] All promotions that take place on off- and on-license premises should be defined and regulated by the Promotion Guidelines with a view to minimising young people's exposure to alcohol promotions in and around licensed premises. This is particularly necessary in public areas where minors are exposed to such advertisements and promotions, such as restaurants with bar sections, supermarkets with liquor sections, and shopping malls with packaged liquor outlets. When POS are present, warnings about the risks of consuming alcohol should be present and visible alongside the promotion and promotional materials. Policies that require such health warnings alongside liquor promotions have been employed in Sweden.[32]

The Promotion Guidelines almost exclusively focus on on-license premises, which only addresses part of the liquor trade in NSW and ignores the expansion in retail liquor outlets and sales. The Act, the *Liquor Regulations 2008* (NSW) (the "Liquor Regulations") and the Promotion Guidelines need to be amended to address contemporary alcohol promotions, advertisements and promotional materials which take place or are distributed from licensed premises. Promotions that take place at on- and off-license premises should be regulated equally under law. The riskiness of promotions for package

liquor trading should not be exempted from the judgment by the Director of OLGR in terms of the nature of liquor promotions and encouragement of consumption, the promotional price, the time frame of the promotion, safety and amenity, and the legality of the promotion. This is particularly important to reduce minors' exposure to liquor promotions in public-access areas, such as restaurants with bar sections, supermarkets with liquor sections, and shopping malls with packaged liquor outlets. This is also of value to reducing the exposure of young adults to such promotions given that the culture of 'pre-loading' (heavily consuming packaged liquor before going out to licensed venues) continues to occur among young people.

Under regulation ("reg") 50 of the Liquor Regulations, promotions and advertisements that take place on licensed premises are not required to include messages that encourage the responsible consumption of alcohol. Imposition of such a requirement is at the discretion of the Director of OLGR, and only applies to individual licenses. Promotions that take place on licensed premises in NSW (regardless of license type) should be required to include a visible message encouraging responsible consumption of alcohol in line with the *Australian Guidelines to Reduce Health Risks from Drinking Alcohol* ("NHMRC Guidelines").

The process of submitting a complaint specifically regarding liquor promotions should also be clarified for the general public. At present, reg 73 of the Liquor Regulations limits such complaints to be made only by the Director, Police, or a local consent authority. Members of the general public should be aided in their submission of complaints concerning promotions in licensed premises with clear guidelines on how to submit such complaints and the types of evidence that may support their submission.

Improving such channels of communication between the general public and OLGR would improve the Director's awareness of possible breaches of the Promotion Guidelines. Allowing members of the general public to submit complaints would also act as an added incentive for licensees to comply with the laws and guidelines that concern the advertisement and promotion of liquor on their premises.

Recommendations

1. That the NSW Government applies the Liquor Promotion Guidelines to both on-license and off-license premises with equal weight.
2. That the NSW Government requires Point-of-Sale (POS) promotions at all on- and off-license premises in NSW to carry warnings about the harms associated with alcohol consumption.
3. That the NSW Government clarifies and tightens regulations regarding POS promotions with a view to minimising minors' exposure to these promotions in and around licensed premises in public-access areas, such as restaurants with bar sections, supermarkets with liquor sections, and shopping malls with packaged liquor outlets.
4. That the NSW Government provide the general public with clear guidelines on how to submit complaints concerning liquor promotions and advise the general public of the types of evidence that may support their submission.

(b) The effectiveness of alcohol harm minimisation strategies targeted at young people

This section will focus on the effectiveness of harm minimisation strategies not covered in other term of reference, namely education and diversion programs targeted at young people as strategies to minimise alcohol related harms.

The lack of a broader alcohol policy in NSW limits the effectiveness of alcohol harm minimisation strategies targeted at young people. Strategies that minimise harms to young people from the consumption of alcohol are most effective when they are multi-dimensional, and when each component is applied together in a balanced way.

Since the 2003 Alcohol Summit no comprehensive strategy has been developed regarding how alcohol and alcohol-related harms are to be addressed in a coordinated manner by all relevant departments and sections of the NSW Government. As a result, harm minimisation activities, programs and strategies in NSW are largely run in isolation of one another, and funding for these programs and strategies is delivered in an ad hoc manner.

The full potential of the NSW Government to address alcohol use and misuse among young people, and to deliver alcohol harm minimisation programs and strategies, is limited without an overarching alcohol policy that encompasses all relevant departments of government service in NSW.

Education

There is the need to provide young people with opportunities to reflect on the drinking culture they are exposed to, and the reasons and risks behind alcohol consumption behaviours. The World Health Organization (WHO) supports alcohol and other drug (AOD) education strategies as worthwhile pursuits based on the principle that the population "should know about and understand harmful alcohol use and associated health risks".[33] WHO also states that:

> … To be effective, education about alcohol needs to go beyond providing information about the risks of harmful use of alcohol to promoting the availability of effective interventions and mobilizing public opinion and support for effective alcohol policies.[34]

Most alcohol and other drug (AOD) education programs in Australia have been implemented in school-based settings. The advantages of school-based settings are that educators can deliver the lessons, materials and interact with large audiences while keeping costs low.[35] School-based AOD education interventions should start before harmful patterns of alcohol use are established among young people. Such pre-emptive action is important to reduce the occurrence and costs associated with alcohol use and misuse by young people in the short-term and long-term.[36]

In 2012 the NSW Department of Education's Drug Prevention Program (the "Education Program") was closed and funding from the program was cut. The role of the Education Program was to provide "strategic direction for the Department in drug education, as well as policy advice and resource development".[37] Since the closure of the Education Program, there has been little public information from the NSW Government as to why it was cut, and where and how future development of AOD education programs for NSW Schools will take place.[38]

Since funding for the Education Program ceased, the NSW Government announced the launch of an alcohol education website for high school students, *Out Tonight? Party Right*.[39] The website was developed by the NSW Government with input from the liquor and hospitality industry, including representatives from the Australian Hotels Association NSW, ClubsNSW and the Liquor Stores Association of NSW. The website is also poorly designed and included links to a range of websites providing general advice that is not supported by research evidence. It appeared to be that there was no input from independent public health, social marketing and AOD education researchers and practitioners.

The poor quality of the website and input from alcohol industry representatives is concerning given the need to communicate effectively with young people about alcohol and the vested interests of the alcohol industry. This directly contravenes WHO recommendation that:

> … Any interaction [with the alcohol industry] should be confined to discussion of the contribution the alcohol industry can make to the reduction of alcohol-related harm only in the context of their roles as producers, distributors and marketers of alcohol, and not in terms of alcohol policy development or health promotion.[40]

The cut in funding for formalised drug education programs in NSW has already resulted in the development of poor quality, ad hoc resources that are not based on the evidence of what is most effective.

Policy options

AOD school-based programs often face many challenges including that they are not always supported by the evidence; poorly implemented; funded in an ad hoc manner that jeopardises the sustainability of the project; or never evaluated to assess the effectiveness of the program and areas for future improvement.[41]

Effective AOD education programs for young people have inclusive, interactive teaching strategies that actively engage students in the learning process.[42] [43] Such programs are comprehensive and involve whole of school and community support for classroom drug education messages. AOD education programs should be also based on the experiences and interests of the students it is designed to influence, and should be timed such that the intervention starts before AOD experimentation begins and continues as young people mature.

An example of an effective school-based education program is the Drug Education in Victorian Schools (DEVS). A trial of this program commenced in 2008 and ran for three years in 21 High Schools in Victoria.[44] The classroom AOD education program addressed issues around the use of alcohol, tobacco and illicit drugs (mainly cannabis). At the heart of the DEVS program is its grounding in social learning theory, which posits that human learning – including alcohol and other drug use – occurs in a social context and is socially learned through modelling, imitating and reinforcing behaviours.[45] This "social cognitive approach" aims to teach young people to avoid using alcohol and other drugs by resisting external pressure from peers, family and the media, and by increasing coping skills.[46] [47]

The program was delivered to year eight and nine students and included up to 12 classes.[48] As part of the program students also completed three self-completion questionnaires: before the program, after the program (in 2008), and the year following the program (2009). The information collected

was used to collect information on knowledge, patterns and context of use, attitudes and harms experienced in relation to alcohol, tobacco, cannabis and other illicit drug use.

Students who participated in the intervention were no less likely to have tried alcohol, however the trial evaluation found that after the program they

- were more knowledgeable about drug use issues
- communicated more with their parents about alcohol
- drank less and got drunk less
- experienced fewer alcohol related harms, and
- remembered receiving more alcohol lessons.[49]

Inspired by the trial results, the Victorian Government has committed to roll-out the DEVS program in all secondary schools across Victoria.[50]

Diversion programs

The traditional criminal justice system has failed to elicit long-term behaviour change among alcohol- and other drug-dependent offenders.[51] In response to this, alternative options of treatment and rehabilitation for criminal offenders have been provided through diversion programs.

Diversion programs aim to reduce among participants the level of criminal activity and other problematic behaviours associated with their misuse of alcohol and other drugs. Two models of diversion has been available to offenders: the Drug Court for people aged over 18 years and Youth Drug and Alcohol Court for people aged 14 to 18 years.[52] [53] Offenders are presented with the choice of accepting the traditional criminal justice path or participating in the treatment option after pleading guilty, or indicating that they will plead guilty, to the charges. Eligible participants must also satisfy the court that their dependency contributed to them committing the offence for which they are charged.

Diversion programs such as drug courts must learn from best practice evidence-based examples found in Australia and abroad. AOD court programs and their practices innovative and must be evidence-based and regularly evaluated to ensure that they are most effective. The "total quality management" of diversion programs should ensure that AOD courts are held accountable and responsible for reducing participants' AOD use and misuse as well as for reducing the likelihood of them re-offending or violating probation or parole conditions.

The NSW Government should explore other emerging evidence-based AOD programs in criminal justice systems abroad. An example of this is "Hawaii's Opportunity Probation with Enforcement" (HOPE) program. HOPE targeted those on probation for all manner of crimes (e.g. burglary, auto theft, sexual assault and drug dealing) who were chronic violators and were continuing to use methamphetamine. HOPE is built on compliance with the rule "Stay away from illicit drugs" – treatment is available to participants, however the focus is on probationers getting sober, being regularly tested for drug use, and complying with other probation conditions.[54] The parole violation rate for HOPE participants was 90 per cent lower than the level for the three months before they were in the program, and HOPE participants were rearrested for new crimes less often and on less serious charges than those not participating in the HOPE program.[55] The application of such programs to the Australian context of alcohol abuse should be explored by the NSW Government.

Policy Options

The Youth Drug and Alcohol Court

Funding for the YDAC was cut in July 2012, after the program had run for 12 years. A 2004 evaluation of the YDAC program found "graduates" were less likely to re-offend and were more motivated to reduce their misuse of alcohol and other drugs compared to those who did not complete the program.[56] Many participants saw the support and care they received from the YDAC Workers as the best aspect of the program; while others believed that the best aspect of the program was the reduction in their use of alcohol and other drugs.

The same evaluation concluded that for all participants in the YDAC program, "[The] unit costs of achieving these impacts on a group of young people with entrenched drug use and criminal histories do not appear greater than keeping them in custody".[57]

In light of the benefits to participants in YDAC, it should be re-funded as a matter of urgency. The most vulnerable members of NSW society should have access to diversionary programs that address their alcohol and other drug use with a view to reducing their current and future prospects of criminal behaviour.

The NSW Drug Court

There is the need to ensure that diversion programs are in place for young people that are 18 years or over. Currently the NSW Drug Court for adult offenders limits its eligibility criteria to prohibited or illicit drugs; alcohol is not included in the dependency criteria.[58]

A member of the Drug Court Team suggested as far back as 2002 that dependence on alcohol should be included in the Drug Court eligibility criteria.[59] The exclusion of alcohol from the Drug Court's eligibility criteria reduces the access of young offenders aged 18 and over to diversion programs and interventions that address their alcohol abuse and its relationship with their criminal behaviour and past offences.

There is a substantial body of evidence demonstrating the relationship between alcohol use and misuse and criminal offences.[60] Given the effectiveness of the YDAC in reducing AOD use and misuse among program participants, the NSW Drug Court should similarly extend its criteria to include alcohol dependence, as it would address the behaviours of a significant number of young adult offenders.

Recommendations

5. That the NSW Government re-establish the dedicated Drug Prevention Programs Unit in the Department of Education and base the program on the evidence-base of what is most effective in the provision of AOD education.
6. That the NSW Government develops a code of practice in line with the World Health Organization (WHO) recommendation disallowing alcohol industry groups from participating in the development of alcohol policy or health promotion programs.
7. That the NSW Government should explore other emerging evidence-based AOD programs in criminal justice systems abroad, such as "Hawaii's Opportunity Probation with Enforcement" (HOPE) program.

8. That the NSW Government re-fund the Youth Drug and Alcohol Court (YDAC) program and ensure that it is regularly evaluated to continuously improve its practices with a view to enhancing future performance and outcomes.
9. That the NSW Government extends the eligibility criteria of the Drug Court program to include alcohol-dependent adult offenders.

c) Measures to minimise the impact of alcohol in the workplace

According to the 2010 National Drug Strategy Household Survey (NDSHS), 3.7 per cent of people that consume alcohol nominated the workplace as a usual place of alcohol consumption. This was higher among (5.9 per cent) among people aged between 20 and 29 years.[61] Secondary analysis of the 2004 NDSHS has revealed that young workers were significantly more likely than older workers to attend work under the influence of alcohol, with 10.6 per cent of people aged between 14 and 19 years and 11.8 per cent of people aged 20 to 29 years having done this in the 12 month prior to the survey.[62] The same study also showed that young people are more likely than older people to report absenteeism due to alcohol use, with 7.6 per cent of 14 to 19 year-olds and 9.2 per cent of 20 to 29 year olds having missed work due to their alcohol use.

Alcohol has a negative impact on the workplace. An Australian study found that 16 per cent of victims of fatal workplace injuries had alcohol in their system at the time of their accidents. [63] Work-related harm is not limited to impacts on the drinker themselves. Third-party harms include accidents affecting other workers, absenteeism or reduced work performance causing others to work harder to compensate. Between 5 to 8.1 per cent of the working population reported being negatively affected by a co-worker's alcohol consumption in some way.[64]

Industries with the highest risk of alcohol-affected employees tend to be those involving high levels of physical work with potentially dangerous equipment and conditions. They include hospitality, construction, trades and unskilled work, [65] which tend to employ high proportions of younger workers.[66]

Young people affected by alcohol in the workplace are likely to experience greater harms than older people. This could be due to a combination of factors such as lack of experience with consuming alcohol and lack of experience with work.[67] It is also important to note that many young people, particularly those who have left school early, may be missing out on the alcohol education, intervention and the welfare supervision that exists mostly within school-based contexts. Young people are treated as adults in the workplace, however, they may lack the emotional maturity to deal with alcohol issues and require continuity of education and care in that regard.

Policy options

The National Centre for Education and Training on Addiction (NCETA) produced a set of guidelines specifically focused on young employees and alcohol and drug issues. The document is entitled *Young workers and workplace safety: Guidelines for managing alcohol and other drug risk* and

provides useful advice regarding young workers and alcohol. The Guidelines contain principles that apply to workers of all ages. These include:

- Reducing workplace factors that may contribute to alcohol related workplace risk. These factors may be physical (e.g. The physical environment), social (e.g. Reducing workplace social factors that encourage alcohol consumption, or psychological (e.g. Controlling workplace bullying).
- Implementing a written drug and alcohol policy which clearly outlines the rules and guidelines over consumption, possession or supply of alcohol or drugs at the workplace, procedures for responding to detected use in the workplace, and actions taken.
- Providing education and training on the drug and alcohol policy to ensure worker awareness of the policy as well as knowledge about the dangers of being alcohol or drug affected in the workplace.
- Providing access to counselling and rehabilitation services, either to a private service provider through employee assistance program (eap) or to a public non-profit service provider.
- Using additional strategies, where relevant and appropriate, to ensure the best possible outcome. Examples include peer intervention and drug testing.[68]

For young workers, further strategies should also be used to complement the general principles. These include:

- Providing a copy of the workplace drug and alcohol policy explaining the safety risks and penalties associated drug and alcohol use at work
- Building alcohol and drug information and training specifically into occupational health, safety & welfare orientation and training. This training needs to be repeated and assessed regularly to ensure best uptake for young workers
- Providing positive reinforcement by rewarding young workers for safe work practices, including those around alcohol. This may be effective because young people have a greater desire than older people to impress supervisors and colleagues
- Providing adequate supervision. Young workers lack the work experience and have incomplete cognitive development and would therefore benefit from extra supervision. Supervisors should model safe work behaviours including those related to alcohol or drugs
- Providing a workplace mentor or “buddy”. This mentor can help monitor the young worker’s behaviour, model safe work behaviours and provide advice.

It is important that alcohol and drug policies have a specific focus on supporting young people and incorporate the principles above to reduce the risk of harms for young people in the workplace.

Recommendation

10. That the NSW Government encourages work places to adopt an alcohol and drug policy that includes a particular focus on young employees and workplace safety.

d) The effectiveness of measures to reduce drink driving

Alcohol impairs driving ability by slowing brain function, impairing judgment and reducing the ability to focus on multiple things.[69] For these reasons, alcohol not only increases the likelihood of a crash, it also increases its severity. Road traffic crashes in which alcohol is involved are more likely than non-alcohol-involved crashes to result in severe injury or death.[70]

Young people are disproportionately represented in fatal crash statistics. In 2011 in NSW, twenty one per cent of all drivers and motorcycle riders involved in fatal crashes were aged 17 to 25 years old, despite this age group accounting for only 14 per cent of license holders.[71] Australian research has found that first-year provisional drivers are three times more likely than experienced drivers (defined as more than five years driving experience) to be injured in a crash if they have been consuming alcohol. [72] This is attributed to inexperience with both driving and with consuming alcohol.

Blood Alcohol Concentration (BAC) is the measure of grams of alcohol per 100 millilitres (mL) of blood. In NSW laws allow drivers a BAC of up to 0.05 for full license holders, and zero for learner and provisional one and two licence holders.[73] The majority of states and territories enforce a zero BAC limit for learner and provisional licence holders, although Western Australia allows up to 0.02 for provisional drivers who have held their license in Australia or anywhere else for over two years,[74] and Northern Territory places a zero limit on drivers under 25 years of age who have not held a license for three continuous years.[75]

Random Breath Testing (RBT) has been in effect in NSW since 1982. RBT is a successful demonstration of how the intersection of public education, evidence and multi-sectoral cooperation between Police and Government do have an effect on alcohol-attributable harms. The introduction of RBT has been associated with immediately reduced road fatalities in NSW, with a 19.5 per cent reduction overall and a 30 per cent reduction during holiday periods.[76] In 2011 alone NSW Police Force conducted 4.5 million RBT.[77] It is estimated that between 1982 and 2011, RBT has saved around 7,000 lives.[78]

Under current NSW law, provisional drivers progress from zero BAC to 0.05 BAC once they receive their full license. This is problematic for two main reasons:

- Young people in general are at greater risk of drink-driving harm. New Zealand research found that drivers in their 20s had more than five times the risk of crashing compared to drivers in their 30s for all BAC levels, including as low as 0.02.[79] This may pose a danger in NSW given that drivers as young as 20 years are able to achieve full licensure (with the corresponding increase in allowable BAC).

- There is evidence to suggest that a sudden elevation in allowable BAC level from zero to 0.05 may contribute to the increased incidence of drink driving injuries of young people at this stage of their licensure.[80]

Policy options

RBT in NSW takes two main forms: stationary and mobile. Stationary RBT units, or "booze buses", involve an organised operation in which a number of police section off part of the road and conduct RBT on a random selection of drivers. Mobile RBT refers to police cars being fitted with an RBT unit, enabling them to test anyone on the road. Mobile RBT have recently been fitted on all police cars, marked and unmarked.[81]

To keep up with new driver notification technologies, enforcement of BAC laws through mobile RBT needs to be enhanced in order to increase the success of these activities. Drivers who have been tested for alcohol (or know someone who has), and perceive police avoidance to be difficult, are less likely to drink drive in the future.[82] However, the majority of RBT testing tends to use stationary units, which are easier to avoid than mobile units.[83] Current technology facilitates speedy information sharing, with phone apps and social media pages dedicated to RBT detection. One example is the mobile phone app Trapster, which is Global Positioning System (GPS)-based software used by drivers to alert other motorists to RBT locations, among other traffic events.[84]

Zero alcohol restrictions for young and/or inexperienced drivers have reduced crash-related fatal crashes and injuries considerably. An Australian study collected information from various jurisdictions within both Australia and the United States, allowing comparison of novice driver crashes across a range of different BAC limits (zero, 0.02, 0.04, 0.05 and 0.06). The study found that the number of night-time, single-vehicle crashes resulting in death reduced by 22 per cent in places that had introduced a zero BAC restriction.[85]

People of all ages may not be aware that their BAC could take a considerable amount of time to return to the legal BAC limit. However, young people are at particular risk because of: a) their lower legal BAC limit; b) their greater tendency to consume more standard drinks on a single occasion compared to older people,[86] therefore increasing the chances that their BAC is still above the limit the next day. Currently the NSW Police Force do perform testing in the morning; unfortunately, this is not supported by a highly visible media campaign outlining the dangers of still being "over the limit" several hours after a drinking occasion. Further awareness is needed of "morning after" BAC, and a public education campaign addressing this issue is warranted.

Recommendations

11. That the NSW Government introduces a zero Blood Alcohol Concentration (BAC) limit for all drivers under 25 years regardless of their license status.
12. That the NSW Government develop a comprehensive public education campaign on drink driving targeting young people, that focuses on the potential for people to be over the legal BAC limit the morning after consuming alcohol.

(e) Measures to reduce alcohol-related violence, including in and around licensed venues

The over representation of young people in alcohol-related violence statistics is alarming. In the year ending March 2011, half (51 per cent) of all assailants proceeded against by the NSW Police Force for alcohol-related non-domestic assaults were under the age of 26 and one in five (22 per cent) of all assailants proceeded against for alcohol-related domestic assaults were under the age of 26.[87]

Each year in Australia there are an estimated 11 deaths of 15 to 24 year-olds due to alcohol-related interpersonal violence.[88] One in five (20 per cent) victims of alcohol-related interpersonal violence that are hospitalised for injuries sustained during the assault are aged between 15 to 24 years.[89]

A range of social factors predict young people's exposure to alcohol-related violence.[90] Alcohol consumption among young people is typified by frequent episodes of binge drinking, with young people treating intoxication as a normal outcome of consuming alcohol.[91] Young people also go out to pubs and clubs in the evening more often than other age groups do, which in turn increases their exposure to alcohol-related violence.[92]

The availability of alcohol is a significant contributor to alcohol-related harms, and in NSW alcohol has never been more readily available. There is approximately one liquor license for every 369 adults in NSW.[93] Pubs and clubs are often the focus of policies to reduce alcohol-related harms.[94] However, increases in take-away alcohol outlets also contribute to violence and domestic violence rates.[95] Take-away alcohol is often considerably cheaper than alcohol purchased at pubs and clubs, and the greater availability of cheap take-away alcohol and later trading hours of pubs and clubs has led to a culture of pre-loading where people consume alcohol before visiting licensed premises.[96]

Policy options

The increased availability of alcohol contributed to alcohol-related violence and harms. There is a substantial body of international and Australian research evidence that supports the approach of regulating alcohol availability to reduce rates of alcohol-attributable harms including violence. The availability of alcohol can be controlled to reduce alcohol-related violence through the stricter regulation of trading hours and the number and density of liquor outlets in a locality.[97]

In the City of Newcastle such availability measures were imposed on over a dozen licensed venues in 2008. The Liquor Administration Board (since replaced by the Independent Liquor and Gaming Authority) imposed restrictions on pub closing times to 3/3.30am and a range of restrictions on the service of alcohol. The result of the intervention was a 37 per cent relative reduction in alcohol-attributable assaults in the Newcastle CBD.[98]

In real terms, approximately 33 assaults per quarter were prevented as a result of the new licensing conditions in Newcastle.[99] An evaluation also found that there was no geographic displacement of consumers to the nearest late night trading district of Hamilton. This reduction in harms was not only sustained, but improved. A further study three years after the restrictions were introduced found a 35 per cent reduction in night-time non-domestic assaults requiring police attention and a 50 per cent reduction in night-time street offences.[100]

In the City of Newcastle, services of alcohol conditions were also imposed on the licensees as well as trading hour restrictions. These conditions included that from 10pm onwards licensees were not allowed to sell shots, mixed drinks with more than 30mLs of alcohol, ready mixed drinks stronger than five per cent alcohol by volume, nor were they allowed to sell more than four drinks to any patron at one time. [101] In the *Dealing with alcohol-related harm and the night-time economy (DANTE)* report that surveyed opinions of harm minimisation strategies, it was raised by licensees that "drinks restrictions were likely to be effective because they also send messages about what "responsible" drinking looks like".[102] Further, it was reported by industry sources "that the drink restriction laws allowed servers to more easily enforce [Responsible Service of Alcohol (RSA)] guidelines".[103]

In the City of Newcastle restrictions, licensees were also required to ensure that a "RSA marshal" – a supervisor with the sole purpose of monitoring responsible service of alcohol – be on the premises from 11pm until closing.[104] The DANTE study found that licensees and Police had positive views of RSA marshals because they "sent a different message to security or bar staff and they acted as a physical reminder of the RSA imperative".[105]

The role for the NSW Government is clear. Liquor licensing, planning and transport in NSW are the responsibility of State Government, and changes to these policy areas can result in significant reductions in alcohol-related harms. Most people in NSW perceive that alcohol companies (72 per cent), pubs and clubs (63 per cent) and governments (56 per cent) are not doing enough to address these problems.[106] This Inquiry is a prime opportunity for the NSW Government to take leadership on the issue of young people's exposure to alcohol-related violence through the implementation of a comprehensive and evidence-based plan to address alcohol-related harms.

Recommendations

13. That the NSW Government wind back late night trading hours. FARE proposes that the NSW Government legislate to introduce a 12 month state-wide trial of the reduction of trading hours based on the Newcastle alcohol restrictions, including:
    i. A common 3.00am closing time for all pubs and clubs with extended trading license conditions across NSW;
    ii. "Lockouts" (time periods disallowing patrons from entering or re-entering premises) at all extended trading licensed premises from 1.00am; and
    iii. The trial should be independently evaluated to ascertain the social, health, crime and economic effects of these trading controls. The data collection requirements for this independent evaluation should be in place from the commencement of the 12 month trial.
14. That the NSW Government make late night licensed premises contribute to the costs of alcohol-related harms. FARE proposes that the NSW Government introduce a risk-based licensing fee system that offsets and attributes the cost to Government and the community of administering and managing the impact of alcohol use and misuse on the community.
15. That the NSW Government that the NSW Government control the density of licensed premises. FARE proposes that the NSW Government:
    i. Establish and enforces saturation zones in areas that are identified as already having large numbers of liquor licences including the City of Sydney; and

ii. Introduce cumulative impact and cluster control policies for the determination of new liquor licenses.

16. That the NSW Government enforce responsible service of alcohol requirements. FARE proposes that the NSW Government:
    i. introduce measures to better enforce RSA requirements in licensed venues throughout NSW including Compliance Officer visiting licensed premises outside of regular business hours.
    ii. introduce requirements for OLGR and the NSW Police Force to publically report on compliance activities relating to the Liquor Act, the number of venues inspected and their location, the times of day that these venues are inspected and the number of identified breaches of compliance.
    iii. prohibit the sale of shots, mixed drinks with more than 30mL of alcohol and ready mixed drinks stronger than five per cent alcohol by volume after 10.00pm;
    iv. prohibit the sale of more than four drinks to any patron at one time and a requirement to provide free water stations on every bar; and
    v. prohibit the sale of alcohol mixed with energy drinks after midnight.

(f) Measures to address the impact of alcohol abuse on the health system

Hospitalisation rates for alcohol-related problems in NSW have increased over the past decade.[107] Consumption levels among young people are high.[108] The health system addresses the burden of alcohol-related injuries from assaults and self-inflicted accidents, road traffic crashes attributed to drink driving, and on-going chronic disease treatment caused by alcohol use and misuse.[109]

For NSW, this constitutes a significant cost burden to provide these treatment services for largely preventable injuries, diseases and deaths.[110] The annual cost of alcohol to St Vincent's Emergency Department alone was estimated to be as much as $1.38 million between 2004-2005.[111] Such costs are largely avoidable with the implementation of effective alcohol harm-minimisation policies.

In 2010-2011 there were a total of 49,409 hospitalisations attributed to alcohol in NSW between 2010 to 2011 and alcohol attributable hospitalisations representing approximately 1.83 per cent of all hospitalisations in NSW.[112] A 2005 study into *The role of alcohol in injuries presenting to St Vincent's Hospital Emergency Department* (ED) *and the associated short-term costs* found that patients under the age of 25:

- Were more likely to incur alcohol-related injuries compared to non-alcohol-related injuries
- Were more likely than any other age group to have alcohol-related injuries (representing 28.8 to 30.7 per cent of all alcohol-related injury presentations), and
- Were more likely than any other age group to present injuries due to assaults (representing 23 to 28.3 per cent of all assault-attributable injury presentations).[113]

This is concerning as two thirds (68.8 per cent) of patients who had been involved in an assault were likely to have consumed alcohol, and were likely to have consumed alcohol at high-risk levels than patients presenting to the ED with other injuries.[114]

Policy options

Given the overrepresentation of young people in EDs, opportunities must be taken to engage with young people on their alcohol use when they are coming into contact with the health system. Brief interventions should form part of normal practice in ED to ensure that people presenting with alcohol problems are supported to get the assistance they need to prevent further alcohol-related harms.

The availability of consistently collected health data on alcohol is also needed to ensure that there is a sound understanding of the impact of alcohol on health services to inform policy and program development. In NSW data on alcohol-related ambulance attendance *is limited in* NSW, and highlights the need for better data collection to accurately depict the burden of alcohol-related harms to the NSW Health System. Statistics from Geelong, Victoria, shows that most alcohol-related ambulance attendances occur on Friday and Saturday nights, and that the age group most commonly attended are 18 to 24 year olds (25.3 per cent).[115]

Brief interventions are clinical alcohol interventions designed to achieve a reduction in risky alcohol consumption, and/or alcohol-related problems.[116] Brief interventions delivered in hospital ED settings target individuals before their risky drinking behaviours develop into abuse or dependence disorders.[117] Studies have found that brief interventions can lead to significant reductions of up to 30 per cent in alcohol consumption, and have been achieved in a variety of health care settings, including hospital and general practice.[118 119 120] ED-based brief interventions have also been found to be worthwhile interventions for children and adolescents presenting with alcohol-related injuries and illness.[121] Brief interventions are cost-effective intervention methods, and should be standard practice in NSW primary health care facilities where patients presented to the facility have sustained injuries or illness due to their misuse of alcohol.[122]

Recommendations

17. That the NSW Government enhance data collection and the public availability of data on the burden of alcohol-attributable harms on the NSW health system.
18. That the NSW Government support the development and delivery of brief interventions for young people who misuse alcohol and are presented to hospital emergency departments as a result.

(g) Any other related matter

Measures to address the provision of alcohol to minors

In August 2012 FARE provided a submission to the *NSW Legislative Assembly Social Policy Committee: Inquiry into the Provision of Alcohol to Minors.* The submission outlined strategies to reduce alcohol related harms among people under the age of 18 years, with a particular focus on secondary supply laws and strategies to ensure that these laws are being implemented such as carrying out controlled purchase operations. A full copy of the submission and a Supplementary Submission made in October 2012 are attached. A summary of the key areas of focus for the submissions is also included below.

Many parents who supply alcohol to their children do so because they believe that supervised alcohol use will demystify the experience for the young person and prevent later irresponsible consumption.[123] However, this is against the advice given in the NHMRC Guidelines, which state that "for young people under 18 years of age, not consuming alcohol is the safest option".[124]

The prevalent and socially sanctioned act of parental supply may occur primarily due to misconceptions regarding the "right" time and method with which to introduce alcohol to a young person. Despite their best intentions, early alcohol use can result in higher levels of harmful alcohol consequences - even in adult-supervised settings.

Minors should avoid initiating alcohol consumption behaviours for as long as possible as under-age alcohol consumption is associated with physical injury, risky sexual behaviour, adverse behavioural patterns and academic failure.[125] Early alcohol use is also linked to later-life impacts such as

problematic alcohol consumption patterns as well as a range of long-term physical and mental health conditions.[126]

Policy options

Secondary supply laws should include irresponsible supply laws to ensure that parents that do provide alcohol to young people supervise their consumption. In some jurisdictions, such as Queensland and Tasmania, there are also "irresponsible supply" laws which prohibit the unsafe provision of alcohol (e.g. excessive amounts) or the inadequate supervision of the minor's alcohol consumption. In NSW the Liquor Act acknowledges the potential harms from alcohol consumption among minors by introducing secondary supply provisions which aim to prohibit the provision of alcohol to people under the age of 18 years by anyone other than an adult or guardian.

Strategies are also needed to ensure that young people are not directly purchasing alcohol from licenced premises. Controlled purchase operations are one way in which the NSW Government can actively raise licensee awareness and compliance with "supply to minors" provisions in the Liquor Act. Controlled purchase operations are designed to monitor and enforce "prohibited supply to minors" provisions in liquor laws that relate to the sale and supply of liquor to minors, and the allowance of liquor to be sold or supplied to minors.

Such operations involve engaging supervised volunteers (15 to 17 years of age) to attempt to purchase liquor from off-licensed, on-licensed and special licensed premises. If the volunteer is able to successfully purchase alcohol, the operator of the premises (licensee and/or manager) and staff member are liable to prosecution under the relevant sections of the Liquor Act.

Controlled purchase operations have been in place in New Zealand for over a decade, and legislation in NSW should be amended to enable police to undertake controlled purchase operations for alcohol.[127] Further, of the defence that currently exists for people convicted of selling liquor to minors should be removed.

Recommendations

19. That the NSW Government introduces "irresponsible supply" laws to NSW, stating that the lawful supply of alcohol to minors must be conducted in a safe and responsible manner.
20. That the NSW Government develops and implements a comprehensive public education campaign that informs the general public of the state legislation regarding supplying alcohol to minors. This campaign should incorporate the lessons learnt from the evaluation of the NSW Police's "Supply Means Supply" campaign.
21. That the NSW Government amends legislation in NSW to enable NSW Police Force to undertake controlled purchase operations for alcohol.

Young Aboriginal and Torres Strait Islander peoples

Nearly half (48.5 per cent) of Aboriginal and Torres Strait Islander peoples aged 16 to 24 years living in NSW consume alcohol at risky levels.[128] Aboriginal and Torres Strait Islander peoples are also more than six times more likely to die from an alcohol-related reason than non-Aboriginal and Torres Strait Islander peoples.[129]

The marginalisation, displacement and disadvantage among Aboriginal and Torres Strait Islander peoples has had a complex intergenerational impact on alcohol consumption and alcohol-attributed harm levels among the Aboriginal and Torres Strait Islander population in Australia.[130 131 132 133]

Throughout Australia there is also a disproportionate number of Aboriginal and Torres Strait Islander people in correctional systems. One in four (26 per cent) people in Australian prisons are Aboriginal and Torres Strait Islander peoples, yet only 2.5 per cent of the total Australian population identifies themselves as Aboriginal and Torres Strait Islander peoples.[134] [135] Aboriginal and Torres Strait Islander peoples who are in prisons are more likely to be dependent on alcohol than non-Indigenous people. [136] In NSW, Aboriginal and Torres Strait Islander men (73 per cent vs 59 per cent) and women (67 per cent vs 44 per cent) are more likely to report (compared to non-Aboriginal and Torres Strait Islander peoples) that they were intoxicated at the time of the offence for which they were charged and later incarcerated.[137]

Policy options

Given the impact of alcohol use and misuse on Aboriginal and Torres Strait Islander peoples, it is vitally important that strategies are developed and implemented to minimise alcohol-related harms among Aboriginal and Torres Strait Islander peoples. Such programs must also ensure that they connect with and relate to alcohol use and misuse among local Aboriginal and Torres Strait Islander communities.

In light of the over-representation of Aboriginal and Torres Strait Islander peoples in the Australian prison system, and the NSW data on the attribution of alcohol to their offending, young Aboriginal and Torres Strait Islander men and women should be provided with more culturally-appropriate opportunities to participate in diversion programs that direct them away from a life of substance abuse and crime. The National Indigenous Drug and Alcohol Committee (NIDAC) argues that this action is needed as a matter of urgency throughout Australia.

However, Aboriginal and Torres Strait Islander peoples are under-represented in court-based diversion programs. It has been highlighted by a recent *Deloitte Access* Economic paper for NIDAC that the eligibility criteria for such programs constitute a barrier to entry for Aboriginal and Torres Strait Islander offenders. It has been suggested that this may be explained by Aboriginal and Torres Strait Islander offenders being less likely to make an admission of guilt to police, more likely to have multiple charged, more likely to have previous criminal convictions (particularly for violent offences), more likely to have alcohol misuse problems that are not covered by drug diversion programs, and more likely to have co-existing mental illness.[138]

In order to enhance access to diversion programs for young Aboriginal and Torres Strait Islander peoples, the NSW Government should re-fund YDAC and reform eligibility criteria to enhance the

participation of Aboriginal and Torres Strait Islander peoples in the program. This should be developed in consultation with Aboriginal and Torres Strait Islander communities. In addition to extending the NSW Drug Court's eligibility criteria to include alcohol dependence, the NSW Government should tailor the Drug Court's eligibility criteria for participants who identify themselves as Aboriginal or Torres Strait Islander people.

Recommendations

22. That the NSW Government fund culturally appropriate education, diversion and intervention programs that target young Aboriginal and Torres Strait Islander peoples.
23. That the NSW Government re-fund the Youth Drug and Alcohol Court and tailor eligibility criteria for Drug Court applicants who identify themselves as Aboriginal and Torres Strait Islander peoples.
24. That the NSW Government extend the NSW Drug Court's eligibility criteria to include alcohol dependence, and tailor the Drug Court's eligibility criteria to accommodate for program applicants who identify themselves as Aboriginal or Torres Strait Islander peoples.

Alcohol use and misuse among university students

In 2011 there were 381,743 higher education students in NSW, and the majority (63 per cent) of Australian students attending higher education institutions, such as universities, are under 25 years of age. This presents the NSW Government with an opportunity to target the consumption behaviours and drinking environments of a significant population of young people.[139]

Heavy consumption of alcohol has long been seen a traditional aspect of student life in Australian universities. An Australian population-based study has found that the vast majority (90 per cent) of university students consume alcohol.[140] With one in three (34 per cent) respondents consuming alcohol at hazardous levels (i.e. exceeding at least six standard drinks on one occasion in the previous month), university students do not consume alcohol more frequently than their non-university counterparts, but they drink more excessively when they do.[141] [142]

Long-running trends of risky alcohol consumption patterns have a negative impact on many aspects of university life. This includes harms to the student, harms to other people (including interpersonal and sexual violence), and costs to the institution such as property damage and student attrition.[143] Alcohol-attributable harms to students can be of a social, physical or psychological nature, such as academic impairment, blackouts, injury, suicide, unintended sexual activity and sexual coercion.[144] [145]

In addition to harms incurred on themselves, a relatively large proportion of university students are adversely affected by other students' alcohol consumption behaviours.[146] Other people's consumption of alcohol has been attributed to student experiences of verbal abuse, interpersonal violence, and sexual assault and harassment.[147]

A study into the second-hand effects of people's alcohol consumption on other students at the University of Newcastle found that one in four (27 per cent) students have had to "baby sit" other inebriated students; one in five (20.9 per cent) have had their study or sleep interrupted by other alcohol-affected students; one in eight (12.9 per cent) students were insulted or humiliated by other

students affected by alcohol; and one in 9 (10.9 per cent) students have experienced unwanted sexual advances from alcohol-affected students.[148] Students aged 17 to 19 years are burdened with a greater share of these second-hand effects of other's alcohol consumption than students aged 20 to 22 years.[149]

Young people often go to university with pre-existing alcohol consumption behaviours and pre-conceived expectations of the university drinking cultures. Risk factors for frequent binge drinking by university students include: lower age, earlier onset age for alcohol consumption, monthly or more frequent binge drinking in high school, and living in a residential hall or a shared house (relative to living with parents).[150] This reiterates the need for earlier, more effective and more thoroughly evaluated education and intervention programs in secondary schools that minimise new tertiary students' exposure to these risk factors at university.

There is a pervasive and enduring campus culture – and factors within the university environment and certain drinking locations (such as pubs, residential halls and off-campus houses) – that appear to promote or facilitate heavy alcohol consumption by students.[151] [152] In a University of Western Australia study, the majority (74 per cent) of students reported participating in drinking games, of which the majority (60 per cent) reported being pressured to participate in the drinking games and half (51 per cent) reported an adverse outcome following participation.[153]

Policy Options

The university environment contributes to risky levels of alcohol consumption by students, which confirms the need for greater leadership and compliance with comprehensive alcohol policies in tertiary institutions. However, universities and their various student clubs and associations often lack comprehensive alcohol policies, or fail to ensure compliance with these policies.

Commercial interests may preclude compliance with responsible alcohol policies by student organisations and associations. It is common for student clubs and associations to subsidise their operations, activities and events through sponsorship from licensed venues and even from alcohol companies, such as Jim Beam.[154] Student associations subsequently reward members with discounted alcoholic beverages at the sponsor's venues, large-scale entertainment and events with cheap alcohol supplied and promoted by the sponsor (e.g. "Jim Beam On Campus" events), and host pub crawls and other events that heavily promote the excess consumption of discounted alcohol available to members at their sponsors' venues. University campuses should introduce policies that do not allow alcohol industry to sponsor university campus functions, including sporting events. This is particularly important where such sponsorship involves "in kind" gifts such as free or discounted alcohol.

Tertiary institutions, student clubs and associations and their sponsors must be held more accountable to the laws, regulations and guidelines concerning the promotion and consumption of liquor. The parts of the Liquor Act concerning the inappropriate promotion of alcohol are clear and should be more strictly enforced in order to reduce university students' consumption of alcohol at risky levels and to reduce their exposure to alcohol-attributable harms.

There are some programs in universities that are aiming to address the risky consumption of alcohol in Universities. The Tertiary Alcohol Project (TAP) at the University of Western Australia aims to

provide students with the knowledge, skills and support that enable them to make informed and healthy choices in regard to alcohol consumption.[155] The TAP provides a number of health services for students, including confidential online alcohol self-assessments which inform customised snapshots for students of the risks and costs associated with their current alcohol consumption levels. The TAP also provides "environmental support" to enhance the management of alcohol and compliance with responsible service of alcohol standards at student events.[156]

Internet-based brief interventions are also being delivered on other campuses and are proving to be effective. Internet-based alcohol interventions enhance the accessibility of interventions, such as the Western Australia Centre for Health Promotion Research's *Tertiary Health Research Intervention Via Email* (THRIVE) program. Key design elements of THRIVE include: ease of access (e.g. via an emailed hyperlink); brief length of intervention (10 minutes or less); clear, non-judgmental language; personalised normative feedback; and links to appropriate services.[157] Programs such as THRIVE provides universities with an opportunity to engage with their students about individual alcohol consumption behaviours at a larger scale than programs confined to on-campus health services.

On-line intervention programs such as THRIVE have been found to reduce alcohol consumption levels among students, and should be endorsed and supported by the NSW Government as a method of reducing young student's exposure to alcohol-related harms caused by alcohol use and misuse.

When implementing such programs and strategies, universities must also consider the density of alcohol outlets on and around university campuses as that may limit the effectiveness of education and intervention programs for students.[158] [159] [160] If the NSW Government is to reduce alcohol use and misuse among university students, enforcement activities must be carried out more regularly at licensed premises on and around university campuses.

University councils have the power to implement and enforce alcohol controls through university by-laws. With a view to reducing excessive alcohol consumption on campus and its associated harms and costs, university councils should exercise their powers to regulate the availability and promotion of alcohol on campus. Such action should regulate the availability of liquor on university campuses by restricting trading hours, the number of outlets and the pricing and promotion of liquor on campus. By-law restrictions may also prohibit the sponsorship of university bodies, organisations and/or events on campus by licensed venues and/or liquor producers. University councils may also enforce rules that university bodies, associations and other organisations composed of staff and/or students are held accountable to the Liquor Act, Liquor Regulations and Liquor Promotion Guidelines when hosting events and functions where liquor is supplied at unlicensed venues on campus.

Recommendations

25. That the NSW Government carry out enforcement activities more regularly at licensed premises on and around university campuses.
26. That universities in NSW develop comprehensive and universal alcohol policies that are communicated and promoted among students and reinforced within university council by-laws.
27. That universities in NSW introduce by-law rules that restrict the availability of alcohol on campuses in terms of trading hours, the number of outlets and the pricing and promotion of liquor.

28. That universities in NSW introduce by-law rules that discourage or prohibit the sponsorship of student associations, clubs and societies by licensed venues and alcohol companies.
29. That universities in NSW fund and design alcohol education and intervention programs to reduce risky alcohol consumption behaviours and improve university student health and resilience.

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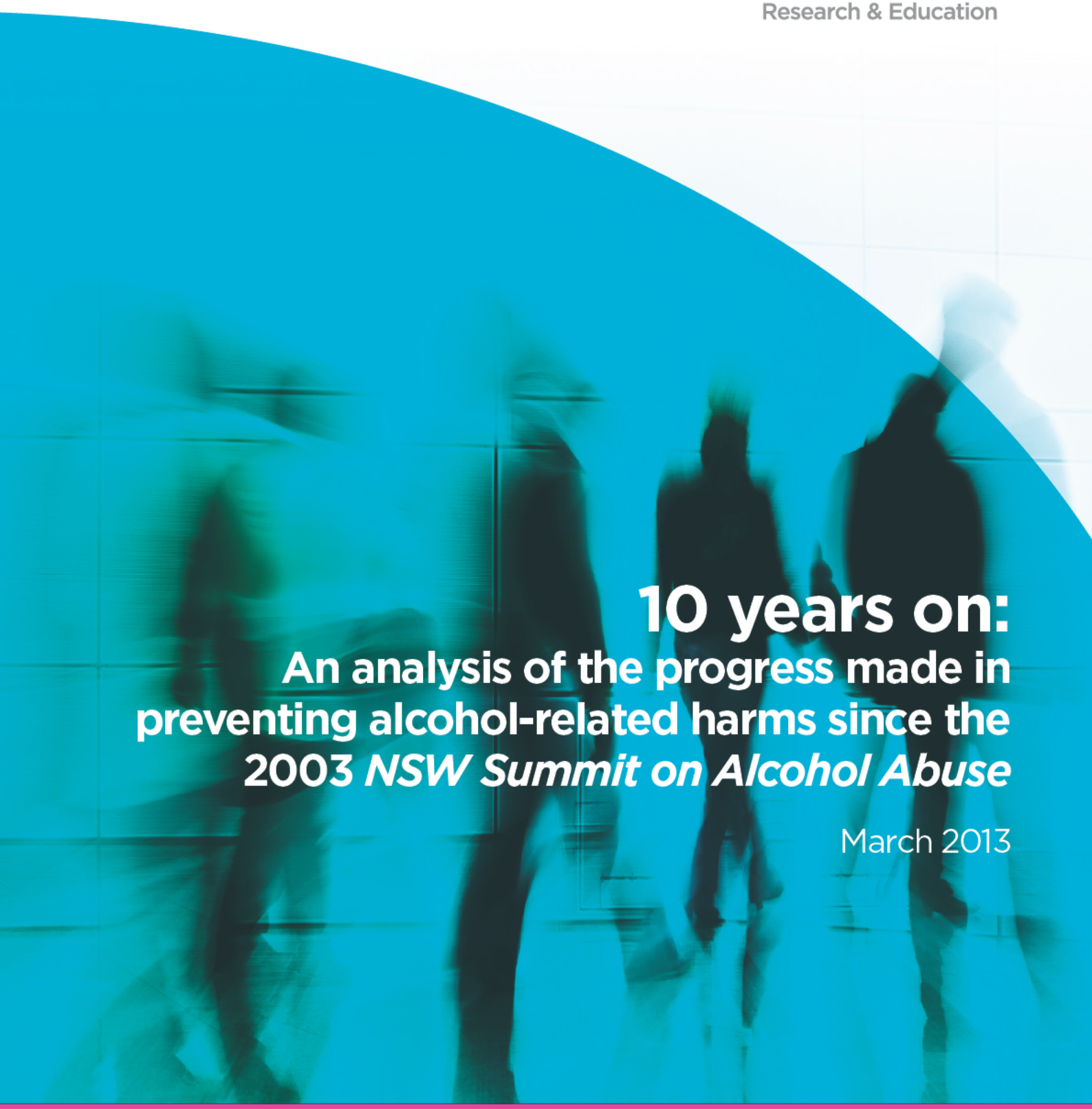

10 years on:

An analysis of the progress made in preventing alcohol-related harms since the 2003 *NSW Summit on Alcohol Abuse*

March 2013

About the Foundation for Alcohol Research and Education

The Foundation for Alcohol Research and Education (FARE) is an independent charitable organisation working to prevent the harmful use of alcohol in Australia. Our mission is to help Australia change the way it drinks by:

- helping communities to prevent and reduce alcohol-related harms;
- building the case for alcohol policy reform; and
- engaging Australians in conversations about our drinking culture.

Over the last ten years FARE has have invested more than $115 million, helped 800 organisations and funded over 1,500 projects addressing the harms caused by alcohol misuse.

FARE is guided by the *World Health Organization's Global Strategy to Reduce the Harmful Use of Alcohol*[1] for addressing alcohol-related harms through population-based strategies, problem-directed policies, and direct interventions.

If you would like to contribute to FARE's important work, call us on (02) 6122 8600 or email fare@fare.org.au. All donations to FARE over $2 are tax deductible.

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Summary

As part of the 2003 New South Wales (NSW) election campaign, the then Premier the Hon Bob Carr announced that if re-elected his Government would hold a summit on alcohol.[1] Following the Labor party's re-election, the NSW Parliament agreed to hold the *Summit on Alcohol Abuse* (the Summit). The Summit was held at NSW Parliament House between 26 and 29 August 2003 and was attended by more 300 stakeholders including parliamentarians, public servants, health professionals, community representatives and alcohol industry representatives.[2] A consultation process was also held in the lead up to the Summit and received over 300 submissions.

The NSW Government's response to the Summit came in May 2004 in the report *Outcomes of the NSW Summit on Alcohol Abuse 2003: Changing the culture of alcohol use in NSW* (Outcomes Report). The Outcomes Report specified the Government's long-term goal of

> changing the way the community uses and thinks about alcohol – to achieve a downward trend in irresponsible drinking behaviour, alcohol related incidents of violence, injury and disease, and an upward trend in research activities and accessibility of treatment and other programs.[3]

While the Summit was heralded as a success by the then NSW Government,[4] the effectiveness of the Summit outcomes in reducing alcohol-related harms have not been examined. Ten years on from the Summit, this study examines the contribution of the Summit in preventing alcohol-related harms in NSW.

To assess the impact of the Summit in preventing alcohol-related harms, the recommendations arising from the Summit were analysed to determine the strength of the evidence supporting them and the progress made against each one. Alcohol-related harms data in NSW were also analysed to determine whether there had been any changes in trends.

Of the Summit's 318 recommendations, 195 related to primary and secondary prevention and 107 of these recommendations specified at least one prevention activity. These recommendations were included as part of this analysis. Of the 107 recommendations that specified at least one prevention activity, the areas with little or no evidence to support their effectiveness in reducing alcohol-related harms (eg. awareness raising) had the greatest number of recommendations, while areas with substantial evidence to prove their effectiveness (eg. pricing) had the least number of recommendations.

The largest number of the 107 recommendations relating to at least one prevention activity focused on awareness raising (26) and liquor accords (15). The areas with the least number of recommendations were price (1), promotion and marketing (3), drink driving countermeasures (3) and availability (4).

Each of the recommendations was then assessed to determine progress made against them. The analysis found that in total 19 recommendations were completed, 53 had some action taken and 35 had no progress made against them. As with the analysis of the effectiveness of the evidence supporting each of the policy areas, activities were most likely to have been undertaken in areas with little or no evidence-base for effectiveness for reducing alcohol-related harms, when compared to areas with greater evidence for effectiveness. For example awareness raising (18), liquor accords (11) and RSA (8) were the policy areas where the most action was taken, while promotion and marketing (nil), brief intervention (2), availability (3) and price (1) had the least action taken.

Alcohol-related harms data for the ten year period preceding the most recent available data was also analysed to gain an indication of the trends in alcohol-related harms in NSW. Eight indicators of alcohol-related harms were examined including:

- alcohol-attributable hospitalisations and deaths;
- treatment episodes where alcohol was the principal drug of concern;
- alcohol-related domestic assaults, non-domestic assaults, assaults on police and all assaults; and
- alcohol-related road accidents.

The analysis found that there was an increase in levels of harm for five of the eight indicators, including a 37 per cent increase in alcohol-attributable hospitalisations (2001-02 to 2010-11), a 37 per cent increase in alcohol-related domestic assault (2002-03 to 2011-12), a 16 per cent increase in all alcohol-related assaults (2002-03 to 2011-12), a ten per cent increase in alcohol treatment episodes (2001-02-2010-11) and a nine per cent increase in non-domestic assaults (2002-03 to 2011-12). There were declines for three of the eight indicators, including an eight per cent decrease in alcohol-attributable deaths (1998-2007), a 34 per cent decrease in alcohol-related assaults on police (2002-03 to 2011-12), and a 34 per cent decrease in alcohol-related road accidents (2001-2010).

This study demonstrates that the recommendations arising from the Summit and actions following the Summit have had little impact in achieving the long-term goal from the Summit of "a downward trend in irresponsible drinking behaviour, alcohol related incidents of violence, injury and disease". This is evidenced by the significant and concerning increases in alcohol-attributable hospitalisations, all reported assaults, and treatment episodes where alcohol is the principal drug of concern.

While the Summit provided a valuable opportunity for people to come together to discuss alcohol interventions and policy, it failed to contribute to an overall decline in alcohol-related harms in NSW. The study concludes that the three primary reasons for this are that:

1. Many of the recommendations arising from the Summit were not evidence-based.
2. The Government's response to the Summit's recommendations was not well resourced, actions were not prioritised, and there was no ongoing political leadership in progressing the Summit's outcomes.
3. The alcohol industry was significantly involved in the Summit proceedings, which is reflected in the rhetoric included in many of the recommendations and the Government's Outcomes Report.

The NSW Government must ensure that future alcohol policy is evidence-based in order to prevent further increases in harms. However to introduce evidence-based policy, the Government must first acknowledge the need to address the supply of alcohol. This will require the Government to 'reframe' the alcohol policy debate in NSW from one with a focus on the problem of a few, to one that focuses on the need for population-based interventions. It also requires the Government to place a greater emphasis on consultation with public health experts and the community, ahead of the alcohol industry.

Contents

Background

The *Summit on Alcohol Abuse* (the Summit) was held at NSW Parliament House between 26 and 29 August 2003 and was attended by more 300 people including parliamentarians, public servants, health professionals, community representatives and alcohol industry representatives. A consultation process was also held in the lead up to the Summit and received over 300 submissions.

Premier Carr specified in a motion in Parliament on 26 June 2003 that the Summit was arranged

> in order to:
>
> - Create a better understanding by members of Parliament and the community of the causes, nature and extent of the problem of alcohol abuse.
> - Better inform members of Parliament and the community through a forum bringing together a range of alcohol experts, public health experts, law enforcement, industry and community representatives who reflect the spectrum of views on alcohol.
> - Examine existing approaches to the problems arising from alcohol abuse and consider new ideas and new options in a bipartisan forum.
> - Consider evidence regarding those strategies that work and those that do not, and in particular, to consider:
>   - the effectiveness of existing New South Wales laws, policies, programs and services.
>   - the cost to the community of alcohol-related harm.
>   - the impact on human services and their effectiveness in responding to problems and needs.
>   - the effectiveness of current resource allocations in targeting the problem of alcohol abuse.
>   - the role of Commonwealth Government agencies, programs and strategies.
>   - implement specific strategies to ensure the views of women, young people, Aboriginal people, rural and regional communities and people from culturally and linguistically diverse communities are fully represented at the Summit.
> - Identify ways to improve existing strategies, programs and services.
> - Build political and community consensus about future policy directions which target alcohol abuse and deal with its impact.
> - Recommend a future course of action so that the best and most cost-effective strategies, policies and programs, both long and short-term, are available to address and impact on the problem of alcohol abuse.[5]

Premier Carr also specified that

> New South Wales has made significant progress battling illegal drugs, and we will maintain that effort. However, we must also initiate a new focus on alcohol abuse—how to prevent it, how to help people who are dependent and how to promote a culture where alcohol is used responsibly.

Overview of the Summit

The Summit was held over four days, with each day guided by a theme. Day one focused on the nature and extent of alcohol abuse; day two examined existing policies, strategies and services; day three focused on informing and engaging the community; and the fourth day examined the way forward (the fourth and final day). The Summit was co-chaired by Dr Neal Blewett (a former Federal Minister for Health), and Ms Kerry Chikarovski (a former NSW Opposition leader and NSW Government Minister).

The Summit also convened ten working groups. The working groups addressed the following topics:

1. Informing and Engaging the Community;
2. Preventing Abuse and Harm;
3. Alcohol Dependence, Disease and Treatment;
4. Effective Health Care Service Delivery;
5. Alcohol Related Injury and Trauma;
6. Family Health and Wellbeing;
7. Workforce Development and Infrastructure;
8. Alcohol-Related Crime and Anti-Social Behaviour;
9. Alcohol and the Justice System; and
10. Responsible Supply and Consumption.

The recommendations arising from the Summit were also framed around these ten areas.

Outcomes of the Summit

The final report from the Summit, *Outcomes of the NSW Summit on Alcohol Abuse 2003: Changing the culture of alcohol use in NSW* (Outcomes Report) further specified the Government's short and long-term goals arising from the Summit. The Outcomes Report identified the Government's short-term goal for the course of 'the plan for the next four years' was

> improving and better targeting services and programs to deal with the effects of alcohol misuse as well as fostering a better understanding of the causes, effects and means of addressing alcohol abuse by the community and industry.[6]

The long-term goal arising from the Summit was

> changing the way the community uses and thinks about alcohol – to achieve a downward trend in irresponsible drinking behaviour, alcohol related incidents of violence, injury and disease, and an upward trend in research activities and accessibility of treatment and other programs.

The approach

To determine the Summit's success in contributing to the prevention of alcohol-related harms in NSW, two phases of analyses were undertaken. Phase one of the analysis identified the recommendations arising from the 2003 Summit that related to preventing alcohol-related harms, assessed the evidence-base supporting the recommendations and examined the progress made by subsequent NSW Governments in implementing the recommendations.

Phase two of the analysis examined available data on alcohol consumption and harms to determine whether there had been improvements against each of these measures following the 2003 Summit. The indicators to be examined as part of this phase of the analysis were determined based upon the long-term goal of the NSW Government's response to the Summit, which was 'to achieve a downward trend in irresponsible drinking behaviour, alcohol related incidents of violence, injury and disease'.[7] More specifically, phase two of the analysis assessed Governments progress in achieving reductions in the following

> Over the next 10 years it is intended that the communiqué and consequent Government action plan would help to achieve a downward trend in:
>
> - irresponsible drinking behaviour and the abuse of alcohol in the community
> - incidents of alcohol related violence, especially street violence and domestic violence
> - disease, injury and disability associated with alcohol abuse, and the burden associated with such disease and disability
> - the numbers of people who need treatment for alcohol problems
> - alcohol related crime
> - incarceration and detention rates arising from or related to alcohol abuse
> - harms experienced by young people, families and the community
> - the harm caused by alcohol abuse in Aboriginal communities
> - alcohol related road/pedestrian deaths and injuries.[8]

The study examined the trends in alcohol-related harms and eight indicators in total were used to assess these harms.

Further information on the study approach used within this study is provided in the following sections.

Phase One: Assessing the evidence for and actions by Government to progress the prevention recommendations from the Summit

Identifying recommendations for inclusion in the analysis

As this study examined the progress of the Summit in reducing and preventing alcohol-related harms, only the prevention recommendations of the Summit were analysed. To determine which of the 318 recommendations arising from the Summit related to prevention, the Australian Government definition of prevention was adopted. This definition describes prevention as being "action to reduce or eliminate or reduce the onset, causes, complications or recurrence of disease".[9]

More specifically, recommendations relating to primary and secondary prevention were examined. The Australian Government defines the goal of **primary prevention** as being to "limit the incidence of disease and disability in the population by measures that eliminate or reduce causes or determinants of departures from good health, control exposure to risk, and promote factors that are protective to health". Primary prevention targets the "total population, selected groups and healthy individuals".[10]

The goal of secondary prevention is to "reduce progression of diseases through early detection, usually by screening at the asymptomatic stage, and early intervention". Secondary prevention targets "asymptomatic individuals with early disease or established high risk factors".[11]

Once recommendations were identified as addressing primary or secondary prevention, they were assessed to determine whether they specified one or more prevention activity. Only recommendations that involved a prevention activity were included as part of the analysis. Qualitative thematic analysis was then undertaken to group the recommendations into 'policy areas' for analysis.

Assessing the evidence to support the prevention recommendations from the Summit

The effectiveness of the recommendations were analysed using *Alcohol no ordinary commodity* as the guide for determining the strength of evidence-base to support the effectiveness of different alcohol policies.[12] *Alcohol no ordinary commodity* was developed by a collection of the world's leading alcohol researchers. The publication was first produced in 2003 and a second edition was released in 2010. The second edition was used in this analysis.

Alcohol no ordinary commodity assesses the evidence supporting various alcohol strategies and interventions. In assessing the evidence, *Alcohol no ordinary commodity* provides a mark out of three in the categories of 'effectiveness', 'breadth of research and report' and 'cross-national testing' for all of the alcohol policies listed in the publication. For the purpose of this analysis, the 'effectiveness' category was used as a basis for determining whether a policy was effective in contributing to a reduction in alcohol-related harms.

Actions by Government to progress the prevention recommendations from the Summit

An assessment was also made of the progress by NSW Governments in implementing the recommendations from the time that the Summit ended on 29 August 2003 until 28 February 2013. The NSW Government's immediate response to the Summit was determined by examining the Outcomes Report released in May 2004, while progress by NSW Governments since the Summit was assessed by examining possible changes to alcohol prevention measures through searching relevant legislation, policy documents and program information.

Recommendations were then categorised as being 'completed', having had 'some action taken' or 'no progress made'. An assessment against each of these categories was made from March 2013, with progress being assessed at this point in time. More specifically, recommendations were categorised as having been 'completed' when the recommendation was implemented in full. Recommendations were categorised as having had 'some action taken' when part of the recommendation had been implemented or actioned. Recommendations were categorised as having had 'no progress made' if it was determined that progress has not been made against the recommendation.

Phase two: Trends in alcohol-related harms

Phase two examined the extent to which there have been changes in alcohol-related harms in NSW. Data was collected for the ten-year period preceding the most recent available data. For example, where the most recent available data was for 2010, trends were examined between 2001 and 2010. The data period allows for an examination of alcohol trends both prior to and after the Summit.

In addition to providing the numbers of people affected by each indicator of alcohol-related harm, data was also provided as people affected per 100,000 NSW residents. NSW Ministry of Health data included estimates per 100,000 NSW residents, for all other indicators NSW population figures were sourced from Australian Bureau of Statistics (ABS) Estimated Resident Population (ERP).[13] The ERP is calculated on a quarterly basis and provides population information for the years where there has not been a census. For data based on financial years (e.g. 2009-2010), ERP of the June quarter of that year has been applied to the calculations of incidents per 100,000. For data based on a single year (e.g. 2010), ERP of the December quarter of that year has been applied to the calculations of incidents per 100,000.

Information regarding the indicators used to assess trends in harms and the data sources from which they were accessed is provided in the following sections.

To determine the extent to which there has been a "downward trend in irresponsible drinking behaviour, alcohol related incidents of violence, injury and disease",[14] the following trends were examined:

- Alcohol-attributable hospitalisations (2001-02 to 2010-11)
- Alcohol-attributable deaths (1998 to 2007)
- Treatment episodes where alcohol was the principal drug of concern (2001-02 to 2010-11)
- Alcohol-related non-domestic assaults (2002-03 to 2011-12)
- Alcohol-related domestic assaults (2002-03 to 2011-12)
- Alcohol-related assaults on police (2002-03 to 2011-12)
- All alcohol-related assaults (2002-03 to 2011-12)
- Alcohol-related road accidents (2001 to 2010)

The data sources used to gain data on each of these indicators are described in the following sections.

Alcohol-attributable hospitalisations (2001-02 to 2010-11)

Alcohol-attributable hospitalisations were sourced from *Health Statistics NSW*, an open data web portal managed by the NSW Ministry of Health. Alcohol-attributable hospitalisation estimates use age and sex-specific aetiologic fractions developed by Begg, Voss and Barker for the Australian Institute of Health and Welfare (AIHW) and published in *The burden of disease and injury in Australia*.[15]

NSW hospitalisations include both overnight and day-only hospitalisations, however they do not include emergency department attendances. *Health Statistics NSW* do not detail the types of alcohol-related hospitalisations that are most common. However, other research on alcohol-attributable hospitalisations has reported that the leading cause of alcohol-related hospitalisations was alcohol dependence.[16]

The most recent available data on alcohol-related hospitalisations in NSW is for 2010-11. In examining a ten year period of trends, data was examined for the period 2001-02 until 2010-11.

Alcohol-attributable deaths (1998 to 2007)

Alcohol-attributable deaths were also sourced from *Health Statistics NSW*. As with hospitalisations, alcohol-attributable death estimates use age and sex-specific aetiologic fractions developed by Begg, Voss and Barker for the AIHW and published in *The burden of disease and injury in Australia*.[17] Health Statistics NSW mortality figures are based on the information contained in death certificates.

The most recent available data on alcohol-related hospitalisations in NSW is for 2007. In examining a ten year period of trends, data was examined for the period 1998 until 2007.

Treatment episodes where alcohol was the principal drug of concern (2001-02 to 2010-11)

Each year AIHW reports on the *Alcohol and other drug treatment services national minimum data set*. These reports publish data about alcohol and other drug treatment services, consumers accessing the services, drugs of concern and the types of treatment received. From this source, treatment episodes where alcohol is the principal drug of concern in NSW were identified.

Treatment episodes are defined as "a period of contact, with defined dates of commencement and cessation, between a client and treatment agency"[18] where alcohol is the main substance which led them to seek treatment.[19]

The most recent available data on treatment episodes where alcohol was the principal drug of concern in NSW is for 2010-2011. In examining a ten year period of trends, data was examined for the period 2001-02 until 2010-11.

Alcohol-related assaults (2002-03 to 2011-12)

The NSW Bureau of Crime Statistics and Research (BOCSAR) provided FARE with a monthly breakdown of alcohol-related assaults from January 2001 to September 2012. The data included a breakdown of alcohol-related assaults, alcohol-related domestic violence assaults, and alcohol-related assaults on police. Data was also provided as a combined figure of all alcohol-related assaults. Alcohol-related assaults are defined as assaults recorded by NSW Police based on whether alcohol was involved in the incident.

The most recent available data from BOCSAR on all assault measures where alcohol is involved in NSW is for 2011-12. In examining a ten year period of trends, data was examined for the period 2002-03 to 2011-12.

Road accident where alcohol has involved (2001 to 2010)

Transport for NSW publishes data each year on road vehicle accidents that occur on NSW roads. A road accident is classified as involving alcohol when at least one motor vehicle controller involved in the accident has a blood alcohol concentration (BAC) over the legal limit. There are three BAC limits in NSW. A zero BAC limit applies to learners and provisional P1 and P2 drivers. The second limit is under 0.02 BAC for drivers of vehicles of "gross vehicle mass, vehicles carrying dangerous goods and public vehicles such as taxi or bus drivers. The third BAC limit is under 0.05 for all other licenses.

The most recent available data from NSW Roads on road accidents where alcohol is involved in NSW is for 2010. In examining a ten year period of trends, data was examined for the period 2001 until 2010.

Results

Assessing the evidence to support the prevention recommendations from the Summit

Of the 318 recommendations arising from the Summit, 195 focused on primary and/or secondary prevention. Recommendations that were excluded from this analysis were those that related to tertiary prevention, and treatment and rehabilitation.

The recommendations relating to primary and secondary prevention were then assessed to determine whether they indicated at least one prevention activity. Recommendations that did not specify an activity and those that related to conducting research or collecting data were removed from the sample. A total of 107 recommendations remained and a full list of these is provided as Appendix 1.

Thematic analysis was undertaken of the 107 recommendations and 12 policy areas were identified. These policy areas, their definitions and an example of a Summit recommendation that related to these areas are included in Table 1 below.

Table 1: Definitions of policy areas and examples of recommendations

Policy area	Definition	Examples of Summit recommendations*
Availability	Activity targeted at reducing the supply of alcohol to communities through strategies such as restricting trading hours or outlet density.	2.8 Control of the economic and physical availability of alcohol can be effective in preventing alcohol misuse and harms in specific situations. Further consideration of these measures in NSW should be undertaken to ensure that existing research, investigation and strategies are optimised and additional effective strategies are not overlooked.
Awareness raising	Activity targeted at raising awareness of the harms associated with consuming alcohol and/or ways to reduce the risk of these harms occurring, such as television campaigns, information websites and printed resources.	8.12 A whole-of-government education campaign is required on the issues of parental and secondary supply of alcohol to underage persons.
Brief intervention	Activity targeted at identifying and supporting people who may be consuming alcohol at risky levels, such as health professionals routinely asking questions about alcohol consumption.	3.7 Provide training to frontline health workers in brief intervention. This should be a mandatory component of training for all primary health care workers and should be aimed at both aboriginal and non aboriginal workers.
Drink driving counter measures	Activity targeted at reducing drink driving and accidents resulting from drink driving.	5.9 The Roads and Traffic Authority and the Police establish a task force, with appropriate consultation with young people i.e. under 25 to consider the appropriateness of 0.00 Blood Alcohol Content (BAC) for L and P Plate drivers and report to the Minister for Roads as soon as possible.

Policy area	Definition	Examples of Summit recommendations*
Early intervention	Activity targeted at creating supportive environments for people to prevent them from engaging in risky drinking practices or experiencing alcohol-related harms, such as peer support programs.	4.17 Utilising the infrastructure provided by Families First and other early intervention programs provide integrated interventions, which target alcohol problems at all stages of the life cycle, inclusive of Foetal Alcohol Syndrome. Consideration be given to the appropriate establishment of Drug and Alcohol Early Childhood Nurses.
Education	Activity targeted at increasing awareness of alcohol related harms and/or ways to reduce the risk of these harms, based in a school or educational institution.	4.24 Given our responsibility for prevention and evidence based approaches and the equivocal research base regarding the benefits of drug education, that drug education approaches be rigorously evaluated for their preventative benefits prior to the commitment of resources to them.
Enforcement	Activity targeted at ensuring that legislation relating to alcohol control are complied with, such as regularly inspecting licensed premises.	8.52 Increase Police and Gaming and Racing Licensing activities.
Liquor accords	An agreement between liquor licensees and other stakeholders to introduce various actions to reduce alcohol-related harms, usually in and around on-licence premises.	8.26 A best practice liquor accord model should be developed, which can be customised to fit local circumstances and involves a mechanism for arbitration.
Price	Activity targeted at increasing the price of alcohol or limiting price discounting, such as taxation and restrictions on discounting.	2.9 There should be a national public inquiry into alcohol taxation that should consider the health, economic, social and community costs and benefits of current and proposed alcohol excise and taxation measures (eg greater price incentives for low alcohol products).
Promotion and marketing	Activity targeted at restricting or reducing marketing activities of the alcohol industry, such as removing alcohol advertising or sponsorship.	1.7 The Advertising Code does not encourage socially irresponsible drinking and work to find a way to incorporate NHMRC guidelines into the Code.
Responsible Service of Alcohol	Activity enacted by liquor licensees targeted at minimising risk of harms resulting from alcohol use, such as bar staff refusing to serve intoxicated persons.	7.13 Responsible service of alcohol training be extended in scope and content to include: a. mandatory training for the BYO sector with emphasis on service as well as sale of alcohol b. handling of difficult patrons and complaints by managers and supervisors c. dealing with those who move from bar to bar in large premises, from venue to venue and the sale or provision of alcohol to minors by adults.
Other	All activity that does not fit into the categories above.	8.21 Consideration be given to localised initiatives to improve relations between young people and police. We note the importance of PCYC, youth liaison officers, crime prevention officers in this process.

*The Summit recommendations are taken directly from the report: *Outcomes of the NSW Summit on Alcohol Abuse 2003, Changing the culture of alcohol use in New South Wales, May 2004.*

The policy areas with the most recommendations were awareness raising (26), other (17), liquor accords (15), enforcement (10) and RSA (8). Price (1), promotion and marketing (3), drink driving countermeasures (3), and availability (4) had the least number of recommendations. Table 2 below provides an overview of the 'policy areas' and number of recommendations categorised under each of these policy areas.

Table 2: Number of recommendations categorised by policy area

Policy area	Number of recommendations
Awareness raising	26
Liquor accords	15
Enforcement	10
RSA	8
Early intervention	8
Education	6
Brief intervention	6
Availability	4
Drink driving countermeasures	3
Promotion and marketing	3
Price	1
Other	17
TOTAL	107

Each of the policy areas were then assessed to determine the strength of evidence supporting their effectiveness in reducing alcohol-related harms. This information was determined using *Alcohol no ordinary commodity*, which assesses the effectiveness of various policy interventions. Effectiveness is rated as a score of zero, one, two or three, where three is the most effective. Where evidence of the effectiveness is unknown, the intervention is marked with a question mark (?). For example, there is strong evidence demonstrating the effectiveness of alcohol pricing policies such as increased taxes on alcohol, which received a score of three. There is also strong evidence to support measures such as brief interventions, which also received a score of three.

Table 3 below provides an overview of the effectiveness of the various strategies under each of the policy areas.

Table 3: Effectiveness of alcohol interventions by policy area

Policy area	Strategy or intervention	Effectiveness*
Awareness raising	Social marketing	0
Liquor accords	Voluntary codes of bar practice	0
Enforcement	Enhanced enforcement of on-premises laws and legal requirements	2
Responsible Service of Alcohol	Staff training and house policies relating to responsible beverage service	0/1
	Staff management and training to better manage aggression	2
Early intervention	N/A	N/A
Education	Classroom education	0
	College student normative education	1
Brief intervention	Brief intervention with at-risk drinkers	3
Availability	Hours and days of sale restrictions	2
	Restrictions on the density of outlets	2
Drink driving countermeasures	Sobriety check points	2
	Random breath testing	3
	Lowered BAC limits	3
	Low BAC for young drivers (zero tolerance)	3
Promotion and marketing	Legal restrictions on exposure	1/2
	Legal restrictions on content	?
	Alcohol industry voluntary self-regulation	0
Price	Alcohol taxes	3
	Bans on price discounts and promotions	?
Other	N/A	N/A

*Source: *Alcohol no ordinary commodity*.[20] Effectiveness is measured as a score out of 3, where 0 is not effective and 3 is most effective. When effectiveness is unknown a question mark (?) is used to denote this.

When assessing the effectiveness of the policy areas against the number of recommendations in each of the areas, it becomes apparent that the majority of prevention recommendations were made in areas where there is little evidence to support the effectiveness of these activities. For example, there were 26 prevention recommendations in the area of awareness raising, which is a policy area that is not rated as being effective. However six recommendations were made for policy areas such as brief interventions which are very effective policy measures. Table 4 below provides an overview of the number of recommendations against each policy area and evidence to support the effectiveness of the policy area.

Table 4: Number of recommendations by policy area and effectiveness

Policy area	Number of recommendations	Effectiveness of the intervention*
Awareness raising	26	0
Liquor accords	15	0
Enforcement	10	2
RSA	8	0/1/2
Early intervention	8	N/A
Education	6	0/1
Brief intervention	6	3
Availability	4	2
Drink driving countermeasures	3	2/3
Promotion and marketing	3	0/1/2/?
Price	1	3/?
Other	17	N/A

*Source: *Alcohol no ordinary commodity*.[21] Effectiveness is measured as a score out of 3, where 0 is not effective and 3 is most effective. When effectiveness is unknown a question mark (?) is used to denote this.

Assessing the progress made against each of the policy areas

Each of the 107 primary and secondary prevention recommendations was also assessed to determine the progress made against each of the policy areas. Recommendations were categorised as having been completed, had some action taken or no progress made. In total 19 recommendations were completed, 53 had some action taken and 35 had no progress made against them.

A complete overview of the categorisation of each of the recommendations is provided as Appendix 1. An overview of the number of the progress made against each of the policy areas is provided in Table 5 below.

Table 5: Progress made against recommendations by policy area

Policy area	Completed	Some progress made	No progress made	Total number of recommendations
Awareness raising	1	17	8	26
Liquor accords	4	7	4	15
Enforcement	3	4	3	10
RSA	6	2	0	8
Early intervention	0	6	2	8
Education	0	4	2	6
Brief intervention	0	2	4	6
Availability	0	3	1	4
Drink driving countermeasures	2	1	0	3
Promotion and marketing	0	0	3	3
Price	0	1	0	1
Other	3	6	8	17
TOTAL	19	53	35	107

As with the analysis of the evidence supporting the effectiveness of each of the policy areas, the progress made against each of the policy areas clearly indicates that the activities undertaken in policy areas where there is little evidence of effectiveness had the most progress. For example awareness raising (18), liquor accords (11) and RSA (8) were the policy areas where the most action was taken, while promotion and marketing (0), brief intervention(2), availability (3) and price (1) had the least action taken. Table 6 below provides an overview of the progress made in each policy area and the strength of evidence supporting each policy area.

Table 6: Number of recommendations where some action was taken, measured against effectiveness

Policy area	Number of recommendations where some progress was made or was completed	Effectiveness of the intervention*
Awareness raising	18	0
Liquor accords	11	0
Enforcement	7	2
RSA	8	0/1/2
Early intervention	6	N/A
Education	4	0
Brief intervention	2	3
Availability	3	2
Drink driving countermeasures	3	2/3
Promotion and marketing	0	1/2
Price	1	3/?
Other	9	N/A

*Source: *Alcohol no ordinary commodity.*[21] Effectiveness is measured as a score out of 3, where 0 is not effective and 3 is most effective. When effectiveness is unknown a question mark (?) is used to denote this.

Trends in alcohol-related harms

Eight indicators of alcohol-related harms were assessed to determine the trends in harms overtime. For five of the eight indicators of alcohol-related harms there was an increase in levels of harm ranged from a 9 per cent increase in alcohol-related non domestic assaults to a 37 per cent increase in alcohol-attributable hospitalisations. Decreases were observed for three indicators, ranging from a 5 per cent decrease in alcohol-attributable deaths, to a 34 per cent decrease in road accidents where alcohol was involved. When examining trends per 100,000 population, four of the indicators demonstrated increases or remained the same, three decreased and data was not available for the final indicator. Table 7 below provides an overview of the trends observed against each of the eight indicators, both overall and per 100,000 NSW residents.

Table 7: Trends in alcohol-related harm indicators

Indicator	Time-frame	Trend	Trend per 100,000 population
Alcohol attributable hospitalisations	2001-02 to 2010-11	37% increase	20% increase
Alcohol attributable deaths	1998-2007	5% decline	19% decline
Treatment episodes where alcohol is the principal drug of concern	2001-02 to 2010-11	10% increase	1% increase
Alcohol-related non-domestic assaults	2002-03 to 2011-12	9% increase	no change
Alcohol-related domestic assaults	2002-03 to 2011-12	37% increase	25% increase
Alcohol-related assaults on police	2002-03 to 2011-12	15% decline	22% decline
All alcohol-related assaults (domestic, non-domestic and on police)	2002-03 to 2011-12	16% increase	7% increase
Road accidents where alcohol as involved	2001-2010	34% decline	39% decline

A more detailed analysis of the trends against each of the indicators is provided in the following sections.

Alcohol-attributable hospitalisations (2001-02 to 2010-11)

Alcohol-attributable hospitalisations have increased by 37 per cent between 2001-02 and 2010-11 from 36,182 to 49,409. This increase was more prominent among women (49 per cent) than men (28 per cent).

When examining trends in alcohol-attributable hospitalisations per 100,000 people residing in NSW, overall hospitalisations increased by 20 per cent from 544.4 to 654.8. This increase was again more prominent among women (30 per cent), than men (15 per cent). Table 8 below provides an overview of the number of alcohol-attributable hospitalisations for men, women, persons and per 100,000 population between 2001-02 and 2010-11.

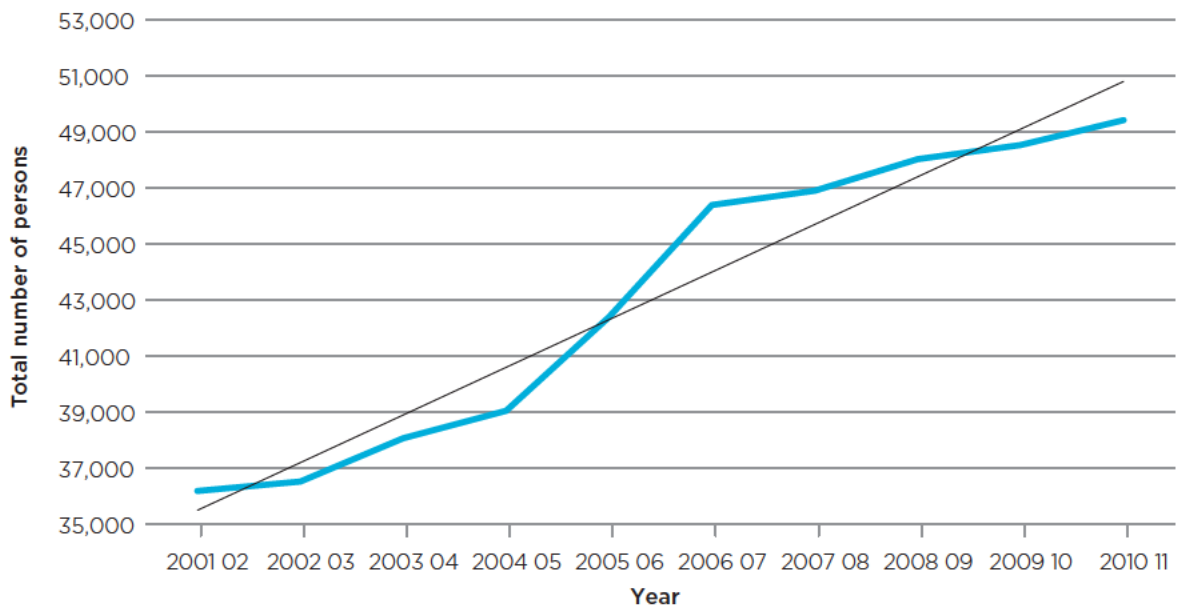
Table 8: Trends in alcohol-attributable hospitalisations

	Men	Men	Women	Women	Persons	Persons
Year	Number	Rate per 100,000 population	Number	Rate per 100,000 population	Number	Rate per 100,000 population
2001-02	22,182	686.5	14,000	399.2	36,182	544.4
2002-03	22,452	688	14,065	395.7	36,518	542.8
2003-04	23,147	703.9	14,917	414.3	38,064	560
2004-05	23,969	722.4	15,072	413	39,042	568.3
2005-06	25,901	772.5	16,487	446.2	42,388	610.3
2006-07	28,022	823.2	18,361	490.7	46,383	657.7
2007-08	28,038	808.3	18,854	493.7	46,892	652
2008-09	28,405	805.2	19,612	504.6	48,018	655.9
2009-10	28,205	791.2	20,316	512.5	48,521	653.2
2010-11	28,494	790.1	20,915	517.4	49,409	654.8

Source: NSW Ministry for Health 2011.[22]

Graph 1 below demonstrates the increase in the total number of alcohol-attributable hospitalisations between 2001-02 and 2010-11.

Graph 1: Alcohol-attributable hospitalisations



Alcohol-attributable deaths (1998 to 2007)

Alcohol-attributable deaths declined by five per cent between 1998 and 2007 from 1,293 to 1,224. When examining trends in alcohol-attributable deaths per 100,000 people residing in NSW, overall deaths declined by 19 per cent from 20.6 per 100,000 to 16.6 per 100,000.

Alcohol-attributable death rates in Australia are declining while hospitalisation rates are increasing due to improved screening and treatment for alcohol-caused illnesses.[23] The significant increase in hospital admissions also suggests an increase in the prevalence of Alcoholic Liver Disease (ALD) among the Australian population.[24] Further, the observed trend in ALD mortality may be partly due to the residual effect of an ageing population.

Table 9 below provides an overview of the number of alcohol-attributable deaths for men, women, persons and per 100,000 population between 1998 and 2007.

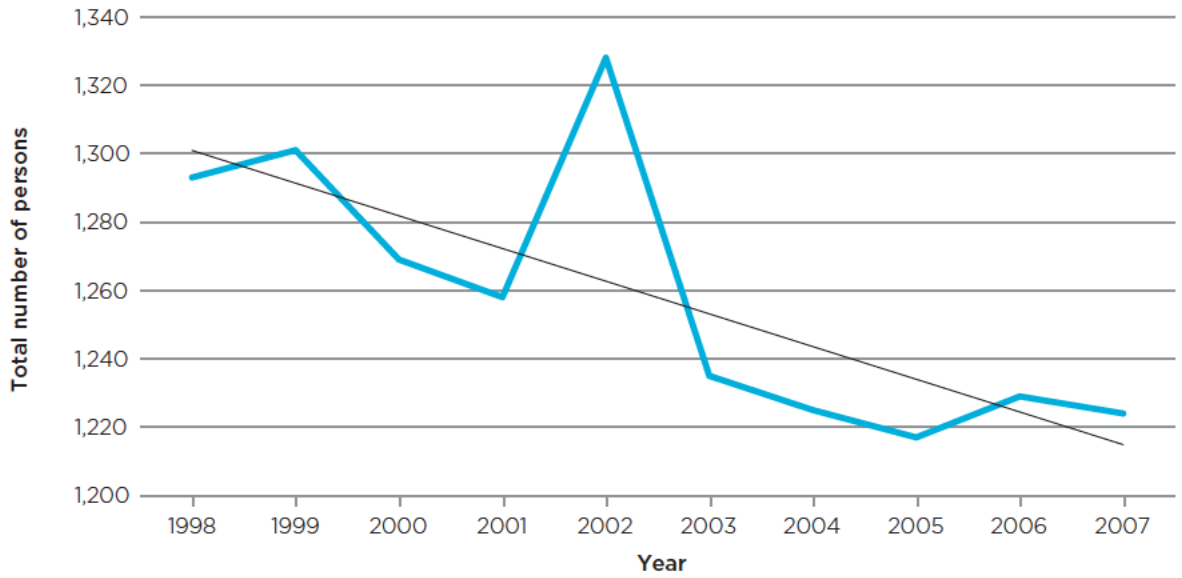
Table 9: Trends in alcohol-attributable deaths

	Males	Males	Females	Females	Persons	Persons
Year	Number	Rate per 100,000 population	Number	Rate per 100,000 population	Number	Rate per 100,000 population
1998	967	32.5	326	9.7	1,293	20.6
1999	984	32.6	317	9.2	1,301	20.3
2000	945	30.7	324	9.2	1,269	19.5
2001	967	30.8	292	8	1,258	18.9
2002	975	30.6	353	9.6	1,328	19.6
2003	903	28	332	8.8	1,235	18
2004	909	27.8	316	8.2	1,225	17.6
2005	887	26.7	331	8.4	1,217	17.2
2006	902	26.8	327	8.2	1,229	17.1
2007	860	24.9	365	8.9	1,224	16.6

Source: NSW Ministry for Health 2011.[25]

Graph 2 below demonstrates the decrease in the total number of alcohol-attributable deaths between 1998 and 2007.

Graph 2: Alcohol-attributable deaths



Treatment episodes where alcohol was the principal drug of concern (2001-02 to 2010-11)

There was a ten per cent increase in treatment episodes where alcohol was the principal drug of concern between 2001-02 and 2010-11. When examining trends in alcohol treatment episodes per 100,000 people residing in NSW, treatment episodes increased by 1 per cent. The proportion of all drug and alcohol treatment episodes which involved alcohol as the principal drug of concern increased from 42.7 per cent to 50.6 per cent over the same period. Table 10 below provides an overview of the number of treatment episodes where alcohol was the principal drug of concern, the treatment episodes per 100,000 NSW residents and the percentage of all alcohol and other drug treatment episodes where alcohol was the principal drug of concern.

Table 10: Trends in treatment episodes where alcohol was the principal drug of concern

Year	Alcohol treatment episodes total (No.)	Total (% of all treatment episodes)	Persons per 100,000 population
2001-02	16,291	42.7	245.8
2002-03	16,841*	42.1	252.4
2003-04	17,068*	41.2	254.5
2004-05	17,342*	41.5	256.7
2005-06	18,313*	43	268.7
2006-07	16,623	45	241.4
2007-08	20,338	49.3	291.5
2008-09	17,476	51.0	247.2
2009-10	18,576	53.9	260.0
2010-11	17,895*	50.6	248.1

*Estimated totals calculated from percentage of alcohol treatment episodes of the total number of treatment episodes.

Graph 3 below demonstrates the increase in the total number of treatment episodes where alcohol is the principal drug of concern between 2001-02 and 2010-11.

Graph 3: Treatment episodes where alcohol is the principal drug of concern

Alcohol-related non-domestic assaults (2002-03 to 2011-12)

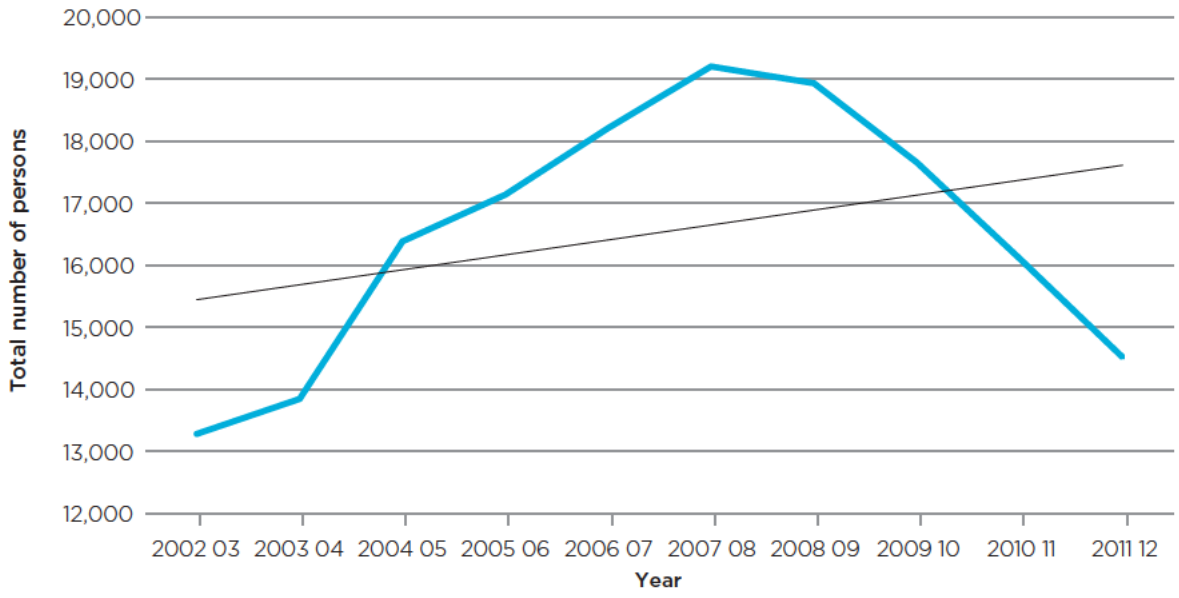
Alcohol-related non-domestic assaults have increased by nine per cent in NSW between 2002-03 and 2011-12 from 13,281 to 14,518. When examining trends in alcohol-related assaults per 100,000 people residing in NSW, overall alcohol-related assaults increased by one per cent from 199.0 to 199.1. Table 11 below provides an overview of the number of alcohol-related assaults for all persons and per 100,000 NSW residents between 2002-03 and 2011-12.

Table 11: Trends in alcohol-related domestic assaults

Year	Total number of persons	Persons per 100,000 population
2002-03	13,281	199.0
2003-04	13,845	206.4
2004-05	16,383	242.5
2005-06	17,135	251.4
2006-07	18,208	264.5
2007-08	19,200	275.2
2008-09	18,930	267.8
2009-10	17,655	247.1
2010-11	16,106	223.3
2011-12	14,518	199.1

Graph 4 below demonstrates the increase in the number of alcohol-related non-domestic assaults between 2002-03 and 2011-12.

Graph 4: Alcohol-related non-domestic assaults



Alcohol-related domestic assaults (2002-3 to 2012-13)

Alcohol-related domestic assaults have increased by 37 per cent in NSW between 2002-03 and 2011-12 from 5,151 to 10,079. When examining trends in alcohol-related domestic assaults per 100,000 people residing in NSW, alcohol-related domestic assaults increased by 25 per cent from 110.5 to 138.3. Table 12 below provides an overview of the number of alcohol-related assaults for all persons and per 100,000 NSW residents between 2002-03 and 2010-11.

Table 12: Trends in alcohol-related domestic assaults

Year	Total number of persons	Persons per 100,000 population
2002-03	7,373	110.5
2003-04	8,420	125.5
2004-05	10,432	154.4
2005-06	10,907	160.0
2006-07	11,447	166.3
2007-08	11,190	160.4
2008-09	11,946	169.0
2009-10	11,161	156.2
2010-11	10,649	147.7
2011-12	10,079	138.3

Graph 5 below demonstrates the increase in the number of alcohol-related domestic assaults between 2002-03 and 2011-12.

Graph 5: Alcohol-related domestic assaults

Alcohol-related assaults on police (2002-03 to 2011-12)

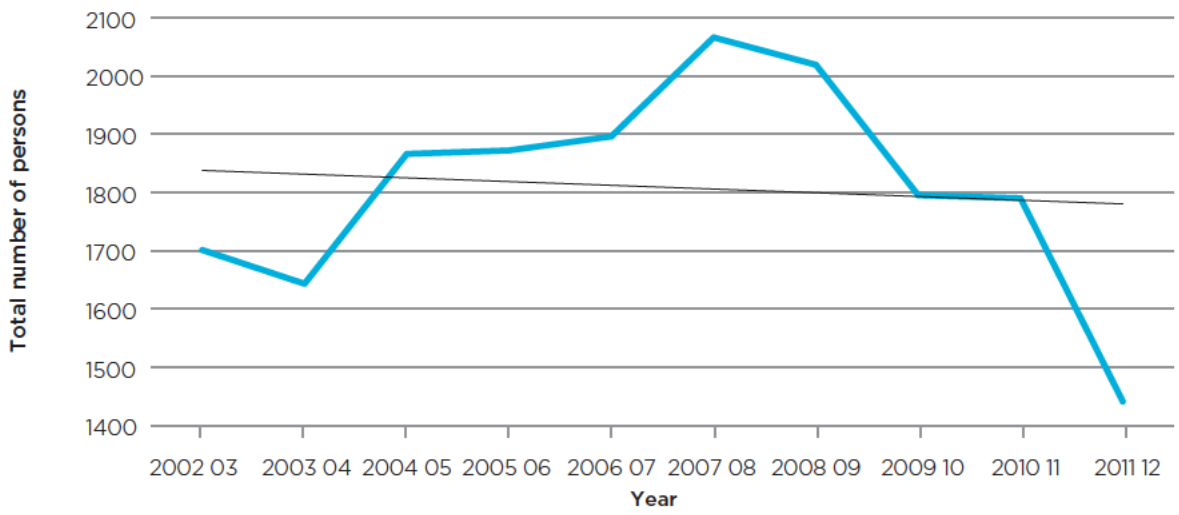
Alcohol-related assaults on police have declined by 15 per cent in NSW between 2002-03 and 2011-12 from 1701 to 1441. When examining trends in alcohol-related assaults on police per 100,000 people residing in NSW, alcohol-related assaults on police have declined by 22 per cent from 25.5 to 19.8. Table 13 below provides an overview of the number of alcohol-related assaults for all persons and per 100,000 NSW residents between 2002-03 and 2010-11.

Table 13: Trends in all alcohol-related assaults on police

Year	Total number of persons	Persons per 100,000 population
2002-03	1,701	25.5
2003-04	1,643	24.5
2004-05	1,866	27.6
2005-06	1,872	27.5
2006-07	1,896	27.5
2007-08	2,066	29.6
2008-09	2,019	28.6
2009-10	1,795	25.1
2010-11	1,790	24.8
2011-12	1,441	19.8

Graph 6 below demonstrates the decrease in the number of alcohol-related assaults on police between 2002-03 and 2011-12.

Graph 6: Alcohol-related assaults on police



All alcohol-related assaults (domestic, non-domestic and on police) (2002-03 to 2011-12)

All alcohol-related assaults were examined to determine the trend across domestic assaults, non-domestic assaults and assaults on police. Overall alcohol-related assaults have increased by 17 per cent in NSW between 2002-03 and 2011-12 from 17,500 to 26,038.

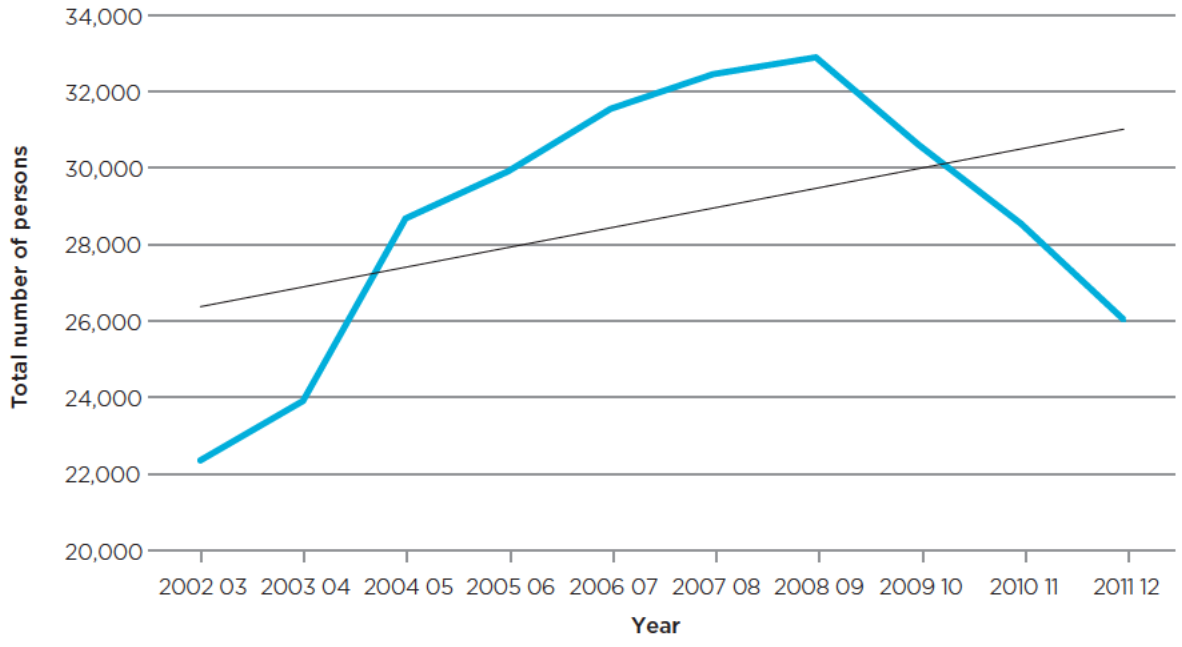
When examining trends in all alcohol-related assaults per 100,000 people residing in NSW, alcohol-related assaults increased by seven per cent from 264 to 357.2. Table 14 below provides an overview of the number of alcohol-related assaults for all persons and per 100,000 people between 2002-03 and 2010-11.

Table 14: Trends in all alcohol-related assaults

Year	Total number of persons	Persons per 100,000 population
2002-03	22,355	335.0
2003-04	23,908	356.5
2004-05	28,681	424.5
2005-06	29,914	438.9
2006-07	31,551	458.2
2007-08	32,456	465.3
2008-09	32,895	465.3
2009-10	30,611	428.4
2010-11	28,545	395.8
2011-12	26,038	357.2

Graph 7 below demonstrates the decrease in the number of all alcohol-related assaults between 2002-03 and 2011-12.

Graph 7: All alcohol-related assaults



Alcohol-related road accidents (2001 to 2010)

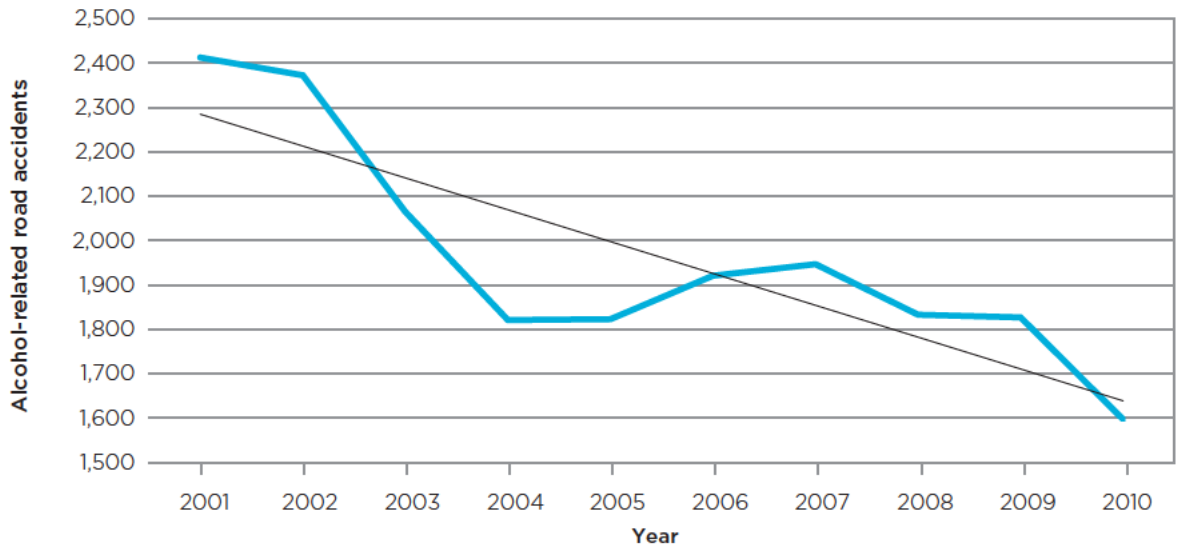
Road accidents that involved alcohol have declined by 34 per cent between 2001 (2,413) and 2010 (1,597). When examining trends in all alcohol-related road accidents per 100,000 people residing in NSW, alcohol-related road accidents declined by 39 per cent from 36.5 to 22.3. Table 15 below provides an overview of the number of alcohol-related road accidents for all persons and per 100,000 people between 2001 and 2010.

Table 15 Trends in all alcohol-related road accidents

Year	Alcohol-related road accidents	Persons per 100,000 population
2001	2,413	36.5
2002	2,373	35.7
2003	2,065	30.9
2004	1,821	27.1
2005	1,823	26.9
2006	1,921	28.1
2007	1,947	28.1
2008	1,833	26.1
2009	1,827	25.7
2010	1,597	22.3

Graph 8 below demonstrates the decrease in the number of all alcohol-related road accidents between 2001 and 2010.

Graph 8: Alcohol-related road accidents



Discussion

While the 2003 Summit provided a valuable opportunity for people to come together to discuss alcohol interventions and policy, this study demonstrates that the recommendations arising from the Summit and the actions taken in the ten years following the Summit did not contribute to a reduction in alcohol-related harms. This is evidenced by the increase in the number of people being affected by alcohol-related harms for five of the eight indicators. This study concludes that there were three primary explanations for this:

1. Many of the recommendations arising from the Summit were not evidence-based.
2. The Government's response to the Summit's recommendations was not well resourced, actions were not prioritised and there was no ongoing political leadership in progressing the Summit's outcomes.
3. The alcohol industry was significantly involved in the Summit proceedings, which is reflected in the rhetoric included in many of the recommendations and the Government's Outcomes Paper.

Each of these is described in greater detail in the following sections.

1. Many of the recommendations arising from the Summit were not evidence-based.

The study clearly shows that the majority of alcohol-harm prevention recommendations made at the Summit were not supported by a strong evidence-base. Strategies that focused on areas with little or no supporting evidence of their effectiveness, such as awareness raising, liquor accords, education and RSA, made up over half of all prevention recommendations made.

It is not surprising then that the subsequent action by Governments following the Summit reflected this also, with much of the Government action occurring in areas where there was little of no evidence to support their effectiveness for reducing alcohol-related harms.

The evidence-base for effective alcohol policy interventions is clear. Policies and interventions which target the availability of alcohol, the price of alcohol, brief interventions and drink driving are all considered to be most effective in reducing alcohol-related harms. However, these strategies have largely not been adopted by the NSW Government, with the exception of drink driving strategies where successful strategies have resulted in continued reductions in road fatalities. The example of the drink driving interventions with the combination of sustained regulation, enforcement and public education demonstrates how the implementation of evidence-based policies can result in reductions in alcohol-related harms.

2. The Government's response to the Summit's recommendations was not well resourced, actions were not prioritised, and there was no ongoing political leadership in progressing the Summit's outcomes.

The NSW Government did not articulate a plan for resourcing the implementation of the Summit recommendations, resulting in the Outcomes Paper arising from the Summit focusing heavily on strategies that were already in existence and the extension of these strategies. Haber et al stressed

the importance of resourcing the recommendations from the Summit in an article published in the Medical Journal of Australia

> The outstanding achievement of the Alcohol Summit so far has been returning alcohol control policy to the public health agenda. The resulting policy changes have the capacity to achieve considerable future benefits for the community. However, it is critical that the NSW government maintains its focus on this field and injects new resources to ensure that the Alcohol Summit leads to tangible outcomes.[27]

In addition to resourcing, Haber et al also suggest that the 'NSW Government maintains its focus' on the alcohol policy agenda. This did not occur, with the NSW Government not maintaining pressure to ensure that activities were undertaken. This is particularly important in the alcohol policy field where the public discourse on alcohol is partly informed by alcohol industry interests who often call for policies that are not evidence-based and do not have the greatest impact in reducing alcohol-related harms.

The NSW Government response to the Summit also did not prioritise the actions to be progressed leading on from the Summit. The Outcomes Paper arising from the Summit, provided a response to each of the recommendations, but did not discuss the evidence-base supporting the recommendations or the need for a staged approach to address the 318 recommendations. This resulted in the Outcomes Paper highlighting many short-term activities that were not sustained that therefore could not contribute to ongoing awareness raising or behaviour change.

It can be argued that if the NSW Government prioritised recommendations based upon the strength of the evidence supporting them that greater reductions in alcohol-related harms would have occurred over the ten year period. The NSW Government should consider the extensive evidence-base on effective interventions to reduce alcohol-related harms when developing policy priorities in the future.

To progress alcohol policy, strategies need to be well-resourced, prioritised, and focus must be maintained by political leaders on the issue. Without these factors, other influences will dominate the policy discussion, leaving little room for evidence-based policy reforms that will reduce alcohol-related harms.

3. The alcohol industry was significantly involved in the Summit proceedings, which is reflected in the rhetoric included in many of the recommendations and the Government's Outcomes Paper.

Both the Interim Report and Outcomes Report from the 2003 Alcohol Summit specify the need for "Partnerships with the industry". The very first 'Government Commitment" listed in the Interim Report is that

> the Government is committed to working with the alcohol industry to reduce alcohol abuse and the damage it causes. A partnership approach will be adopted so industry and Government can work together to continue to manage the supply of alcohol and encourage its responsible use.[28]

The Outcomes Paper also describes the need for partnerships with the alcohol industry, stating that

> Industry involvement is crucial to reducing the level of alcohol abuse. The Government consulted closely with the industry prior to and during the Summit and will continue to do so.[29]

The Outcomes Paper even mentions the need for the industry to be involved in the development of education, a practice that still continues in NSW to this day.

Commentary by leading alcohol researchers in the Medical Journal of Australia on discussions at the Alcohol Summit acknowledged the challenges of having the alcohol industry present in policy discussions, stating that "at times, the debate became quite confrontational" and "representatives of the alcohol beverage industry denied developing products designed to appeal to under-age drinkers". Representatives of the alcohol industry also "advocated retaining self-regulation of alcohol advertising" and "expressed a strong interest in developing voluntary partnerships with health and community groups, but argued that funding should be drawn from existing alcohol taxes".[30]

The challenge of determining the extent to which Governments should consult with the industry is ongoing and Governments across Australia still consult with the alcohol industry freely to inform the development of alcohol harm-reduction policies. This is against the World Health Organisation's advice which is that

> Any interaction [with the alcohol industry] should be confined to discussion of the contribution the alcohol industry can make to the reduction of alcohol-related harm only in the context of their roles as producers, distributors and marketers of alcohol, and not in terms of alcohol policy development or health promotion.[31]

It is now well accepted in public health literature that the alcohol industry has vested interest and should not be involved in the development of alcohol policy and programs. A recent article by Moodie in *The Lancet* provided clear recommendations to Governments on engagement with the alcohol industry and other industries representing 'unhealthy commodities', stating that "Unhealthy commodity industries should have no role in the formation of national and international policy for non-communicable diseases" and "Discussions with unhealthy commodity industries should be with the government only and have a clear goal of evidence-based approaches by government."[32]

Arguably one of the weakest recommendations to arise from the Summit was for "The liquor industry to set aside a percentage of its advertising budget for harm minimisation programs". This recommendation led to the development of DrinkWise, an alcohol industry funded social aspects organisation. DrinkWise has received over $5 million in Commonwealth Government funding and has been criticised by public health academics and organisations for supporting alcohol policies that are ineffective,[33] and delaying the introduction of an effective alcohol warning label regime by implementing weak 'consumer information labels' on alcohol products.

The NSW Government should adopt WHOs advice on engagement with the alcohol industry and not involve the alcohol industry in alcohol policy development. There should be an acknowledgement that the alcohol industry's vested interest in the outcomes of alcohol policy, as producers and retailers, is to promote and sell their products.

Conclusion

In future the NSW Government should ensure that evidence-based policy is at the centre of alcohol policy development. The majority of alcohol-related harms are increasing or at best remaining stable both in absolute terms and relative to the NSW population. This is despite the fact that we know more about evidence-based alcohol policy than ever before.

In NSW the number of liquor licences has increased from 13,705 in 2005-06 to 15,686 in 2011-12, representing an increase of 14.5 per cent.[34] In 2010 there were 369 people aged over 18 years per licensed premise. This increase in licensed premises is concerning because there is now substantial evidence which demonstrates that when alcohol is made more available, the associated harms increase. Recent Australian research on the association between alcohol outlet density and health impacts found that there was a strong association between reported assaults and the density of on-licence and off-licence premises.[35] There was also a strong association between domestic violence and the density of packaged liquor outlets.[36]

The evidence-base of effective alcohol policy is also available from experience with policy changes in NSW. For example the Newcastle trading hour restrictions, which introduced a 3am closing time and 1am lockout (later moving to 3:30am and 1:30am respectively), resulted in a 35 per cent reduction in night-time non-domestic assaults requiring police attention and a 50 per cent reduction in night-time street offences.[37]

In order to gain a clearer understanding of consumption and changes to consumption as a result of policy changes, better data on both alcohol-related harms and consumption is also needed in NSW. In 1996 the High Court ruled that state and territory imposed levies were excise duties and therefore illegal under the Australian Constitution. The NSW Government stopped collecting sales data at this time despite the value of the data in informing alcohol policy development. The collection of sales data provides a more detailed picture of what people are drinking, including beverage type and amount per postcode or region. The NSW Government should recommence the collection of sales data immediately.

To introduce evidence-based policy, simply having the evidence on what is effective is not sufficient. The Government must first acknowledge the need to address the supply of alcohol. This will require the Government to 'reframe' the alcohol policy conversation in NSW from one with a focus on the problem of a few, to that which emphaises the need for population-based interventions. It also requires the Government to place a greater emphasis on consultation with public health experts and the community, rather than the alcohol industry.

This study highlights a valuable lesson to Government regarding the development of alcohol policy and demonstrates how detrimental it can be to support and implement ineffective policies. NSW can not afford to delay the introduction of evidence-based alcohol policy any further, if they intend to reduce alcohol-related harms.

Appendix 1: Prevention recommendations, policy area and government response

Recommendation Number**	Recommendation*	Policy area	Government response
1.1	Safe and responsible drinking needs to be further encouraged at all levels through: • partnerships between the government (local, state and commonwealth), alcohol industry and communities • the use of positive messages • coordinated and sustained programs • the involvement of community leaders and role models • the direct engagement of communities • the development of an annual Alcohol Awareness Week.	Awareness raising	SOME ACTION TAKEN
1.3	A Government taskforce is established for a Government coordinated centrally themed and consistent campaign to coordinate the messages about socially responsible alcohol use.	Awareness raising	NO PROGRESS MADE
1.4	Safe drinking guidelines and practices should be promoted and publicised including: • National Health & Medical Research Council (NHMRC) guidelines particularly at the local level • consideration should be given to how alcohol companies can promote safe drinking levels, for example incorporating straightforward messages on alcohol product labels • liquor accords should be strengthened and there should be more community based involvement in their development • major public and community events to promote safe drinking practices.	Awareness raising	NO PROGRESS MADE

Recommendation Number**	Recommendation*	Policy area	Government response
1.5	Existing programs, services and networks be built on to address alcohol issues at a local level. These could include: • Community Drug Action Teams (CDATs) to address alcohol issues where they are not already doing so. Establish new CDATs across the State as necessary and establish effective collaboration with liquor law regulators. • explore the role of 'Schools as Community Centres' • existing services such as General Practitioners, local councils, libraries, schools and community centres • sports clubs and associations • existing events such as Big Day Out, New Year's Eve celebrations.	Awareness raising	SOME ACTION TAKEN
1.6	In recognition of the important role that the media plays, as a credible provider of information: • further engage and fully brief key media personnel on alcohol harms • support the introduction of 'media guidelines for reporting alcohol issues' based on the Mental Health Guidelines and with reference to the Australian National Council on Drugs (ANCD) • target popular culture media, such as soaps, to influence story lines about alcohol • in order to better engage the media, establish an index of statistics to measure the success or otherwise of progress in combating alcohol abuse.	Awareness raising	SOME ACTION TAKEN
1.7	The Advertising Code does not encourage socially irresponsible drinking and work to find a way to incorporate NHMRC guidelines into the Code.	Promotions and marketing	NO PROGRESS MADE
1.8	The NSW Government should work collaboratively with industry to explore ways of incorporating socially responsible messages into advertising sponsorship and promotion and the NSW Government will form an Alcohol Task Force to closely monitor the operation of the self-regulatory Alcohol Advertising Code and reserves its right to make recommendations concerning a mandatory Advertising Code and/or a restriction and/or a ban on alcohol advertising.	Promotions and marketing	NO PROGRESS MADE
1.9	Recognising the integral and positive role that sport plays in many communities: • support interventions in sporting clubs and associations that promote increased compliance with responsible service of alcohol policies and practices • strongly urge more sporting clubs to become involved in the Good Sports accreditation program • engage sponsors of sporting events and high profile sport identities in promoting safe drinking practices and healthy lifestyles • address dangerous levels of drinking at sporting events through responsible service of alcohol.	Awareness raising	SOME ACTION TAKEN

Recommendation Number**	Recommendation*	Policy area	Government response
1.10	Recognising the important role that parents play as a role models and sources of information for young people: • increase awareness of parents/carers about the supply of alcohol to underage young people • provide parents/carers with practical tools to manage parties and other events safely • encourage parents/carers to model responsible drinking behaviour and promote safe consumption within the family setting • allocate resources for peer support programs for parents • use schools as a vehicle to reach parents and young people.	Awareness raising	SOME ACTION TAKEN
1.11	To meet the needs of young people: • provide young people with information on safe drinking practices, legal issues and potential harms that may arise from drinking • involve young people in developing options and strategies so that messages and services are appropriate • allocate resources for peer support programs for youth. That the Commissioner for Children and Young People be involved in all initiatives relating to young people.	Awareness raising	SOME ACTION TAKEN
1.13	No mechanism currently exists for dealing with the erroneous activities of those producers of alcohol products that are not signed up to the alcohol advertising Code of Practice. With the development of new, low-cost media such as the Internet comes an increased risk of non-compliant advertising. Working Group 1 recommends that a retailer alerts system be developed for Australian retailers highlighting breaches of the new agreed Code, including those breaches pertaining to Internet advertising. Upon issuance of an Alert, retailers would be encouraged to remove offending products from sale until the breaches of the Code are rectified. Licensing authorities should take into account a licensee's compliance with retailer alerts when they come to consider applications for license renewal.	Promotions and marketing	NO PROGRESS MADE
2.8	Control of the economic and physical availability of alcohol can be effective in preventing alcohol misuse and harms in specific situations. Further consideration of these measures in NSW should be undertaken to ensure that existing research, investigation and strategies are optimised and additional effective strategies are not overlooked.	Availability	NO PROGRESS MADE

Recommendation Number**	Recommendation*	Policy area	Government response
2.9	There should be a national public inquiry into alcohol taxation that should consider the health, economic, social and community costs and benefits of current and proposed alcohol excise and taxation measures (eg greater price incentives for low alcohol products).	Price	SOME ACTION TAKEN
2.10	The liquor industry should be required to set aside a percentage of its advertising budget for harm minimisation programs.	Awareness raising	SOME ACTION TAKEN
2.12	It should be recognised that alcohol is consumed in a variety of environments, such as licensed premises, sporting venues, special events and the home. Effective prevention of harms from excessive alcohol consumption will encompass a range of strategies tailored to the specific circumstances of each of these environments. These strategies should: • promote the safe use of alcohol through local community agreements • involve the stricter enforcement of laws regarding the responsible service of alcohol • continue and expand responsible service of alcohol training to include all staff, paid or volunteer, working in licensed premises, venues, special events, sports clubs or any other location in which alcohol is sold • review and promote current reporting measures available to communities to be able to report breaches of RSA (include modified training to community members on RSA and breaches) • encourage better management of public events in relation to alcohol promote awareness of the potential harms of underage drinking • promote awareness of host responsibilities in relation to alcohol including normalising peoples' choices not to consume alcohol • clarify the role of police in supervising private parties.	RSA	SOME ACTION TAKEN

Recommendation Number**	Recommendation*	Policy area	Government response
2.16	Alcohol abuse prevention strategies in Indigenous communities should be community-based and community-owned. These strategies may be achieved by: • developing and using local leadership and Indigenous workers at all stages of programs • implementing programs which build capacity within local communities to work on their own solutions • targeting resources for communities to conduct their own alcohol summits in partnership with Local Governments • ensuring the accessibility and appropriateness of mainstream services to the community through consultation with local Indigenous groups • researching local Indigenous issues to inform the direction and suitability of local strategies • ensuring a sustainable framework which reflects the impact of alcohol on Indigenous communities through skill building and workforce development, continuous evaluation and funding • recognising that these are complex problems that do not have simple solutions • proactively target recruitment strategies to increase the number of female Aboriginal community liaison officers and the number of female and male Aboriginal police officers in NSW Police • establishing specialist alcohol resource units to support community based action.	Awareness raising	SOME ACTION TAKEN
2.18	Peer-facilitated alcohol forums for young people which initiate and support action at the local level should be developed and evaluated.	Awareness raising	NO PROGRESS MADE
2.23	Strategies and support need to be developed to assist families to look at the areas where they can have a positive impact on reducing the potential harms caused by alcohol including: • making informed decisions with their teenagers about end of year celebrations and the supply of alcohol for parties • providing information to their teenagers about alcohol and its effects • building resilience in their teenagers • education campaigns similar to those for seat belt use and skin cancer • parenting skills programs • the development of a parent education program that links to drug education programs in schools to more effectively involve parents in educating their children about alcohol use and misuse. This could be achieved through a core group of experts from relevant government agencies, non-government agencies (including those with personal experience of alcohol abuse) and media and advertising organisations.	Awareness raising	SOME ACTION TAKEN

Recommendation Number**	Recommendation*	Policy area	Government response
2.25	The acceptability of inappropriate alcohol use at sporting events, by both participants and spectators, should be challenged through: • providing opportunities for training to strengthen the administration and culture of sports organisations, including increased compliance of responsible service of alcohol and legal responsibilities for sports clubs, workers and volunteers • improving the management of large sports events including restricting the sale of alcohol and improving the physical environment before, during and after the event • encouraging high profile sports people to promote non-drinking and responsible alcohol use • reviewing alcohol sponsorship of motor sports and under age events.	Awareness raising	SOME ACTION TAKEN
2.29	All schools should aim to: • involve young people in the planning, implementation and evaluation of alcohol education • promote the social and emotional wellbeing of children and young people by implementing programs and practices that address the risk and protective factors related to alcohol misuse • provide accurate and credible information about alcohol and alcohol use to students beginning in primary school and based on the principles for effective drug education • provide road safety education which focuses on the relationship between alcohol and road trauma • provide access to referral and other appropriate support services for young people experiencing alcohol related problems • ensure students are encouraged to remain at school by providing programs, structures and curriculum that engage students and are relevant to their needs • provide support at key transition points in schooling, particularly Year 6 to Year 7 and beyond school • develop appropriate strategies to encourage young people to celebrate special celebrations including end of year functions safely.	Education	SOME ACTION TAKEN
2.30	Support the establishment of Schools as Community Centres in appropriate areas to act as a hub where parents can be assisted in accessing a range of services to improve their parenting skills and other family supports.	Education	SOME ACTION TAKEN

Recommendation Number**	Recommendation*	Policy area	Government response
3.2	Given that a major barrier to treatment is a lack of knowledge about and acceptance of the dangers of alcohol, a range of education and information campaigns, including mass media campaigns, be developed to promote awareness of the risks associated with different levels of drinking. The major purpose of these campaigns be to reduce the cultural acceptance of high levels of drinking and to encourage people to seek interventions. General campaigns be also framed to target specific groups, i.e. youth.	Awareness raising	SOME ACTION TAKEN
3.3	The NSW Health Department, in consultation with the Australian Professional Society on Alcohol and Drugs, the Chapter of Addiction Medicine (RACP), the College of Nursing, other professional bodies and relevant tertiary institutions investigate the development of an appropriate means to facilitate professional education and training about alcohol (and other drugs) for generalist health workers and non-government organisations and to provide more advanced training for specialist drug and alcohol workers.	Brief intervention	SOME ACTION TAKEN
3.4	On-going training be provided to generalist health and community workers in early identification of alcohol-related problems and provision of brief interventions.	Brief intervention	NO PROGRESS MADE
3.5	Support and training be provided to General Practitioners with the aim of enhancing both their identification of alcohol-related problems and the interventions provided by them. This program would be provided by multiple disciplines and would involve both Government and Non-Government agencies.	Brief intervention	NO PROGRESS MADE
3.17	Provide training to frontline health workers in brief intervention. This should be a mandatory component of training for all primary health care workers and should be aimed at both aboriginal and non aboriginal workers.	Brief intervention	NO PROGRESS MADE
3.22	Improve young people's knowledge of services by taking young people on school excursions to local services so they meet the workers face to face and therefore feel more comfortable contacting them or create opportunities for youth services to visit schools and provide information, for example, a 'Service Expo'.	Awareness raising	NO PROGRESS MADE
4.17	Utilising the infrastructure provided by Families First and other early intervention programs provide integrated interventions, which target alcohol problems at all stages of the life cycle, inclusive of Foetal Alcohol Syndrome. Consideration be given to the appropriate establishment of Drug and Alcohol Early Childhood Nurses.	Early intervention	NO PROGRESS MADE
4.22	Work should be undertaken with professional bodies representing pharmacists to pursue an increased role for pharmacists with identification and referral for alcohol related problems.	Awareness raising	SOME ACTION TAKEN

Recommendation Number**	Recommendation*	Policy area	Government response
4.24	Given our responsibility for prevention and evidence based approaches and the equivocal research base regarding the benefits of drug education, that drug education approaches be rigorously evaluated for their preventative benefits prior to the commitment of resources to them.	Education	NO PROGRESS MADE
4.25	Staff of human service agencies, Aboriginal Community Controlled Health Services and other NGOs should be provided with appropriate training and education opportunities to enhance earlier identification of alcohol abuse issues and increased understanding of the responses and care pathways that these individuals require to achieve healthy outcomes. Recruitment, Retentions and Development of staff for these agencies should be approached strategically from a whole of Government perspective.	Early intervention	SOME ACTION TAKEN
5.1	The Summit recognises that employers and employees have obligations under the NSW Occupational Health and Safety legislation to manage the risks associated with alcohol in the workplace. It calls on the relevant government agencies, agreed and recognised experts in alcohol policies, employer groups and unions to form a working party to jointly recommend appropriate action which ensures that employers and employees are provided with clear guidance on managing those workplace risks. This must take into account their occupational health and safety, industrial relations and privacy obligations, personal responsibility, procedural fairness and access to rehabilitation and counselling services.	Early intervention	SOME ACTION TAKEN
5.2	Educate young people in prevention of problems arising from acute alcohol use and what to do if things go wrong and how to look after each other. Request the Department of Education to review the Personal Development Health and Physical Education syllabus to ensure adequate coverage of information on standard drink sizes and basis first aid. It was noted that other working groups have a similar resolution and that the Special Resolutions Group may amend a resolution to eliminate ambiguity and promote consistency.	Education	SOME ACTION TAKEN
5.3	NSW Police investigate the feasibility of random breath testing on waterways and report to the Minister for Police as soon as possible.	Drink driving counter-measures	COMPLETED
5.4	Support for the NSW Water Safety Task Force in its education campaigns for parents and carers particularly of children in the 0-5 years of age range. This should highlight the risks of drowning whilst supervisors are entertaining, and the need to heighten understanding of the dangers of alcohol consumption associated with aquatic activities.	Awareness raising	SOME ACTION TAKEN
5.5	A Country Road Summit to be held in early 2004 involving relevant Government and non-Government stakeholders to address the rising road toll in country NSW and to provide input regarding relevant resolutions from the alcohol Summit.	Awareness raising	COMPLETED

Recommendation Number**	Recommendation*	Policy area	Government response
5.9	The Roads and Traffic Authority and the Police establish a task force, with appropriate consultation with young people i.e. under 25 to consider the appropriateness of 0.00 Blood Alcohol Content (BAC) for L and P Plate drivers and report to the Minister for Roads as soon as possible.	Drink driving counter measure	COMPLETED
5.10	Mandatory alcohol interlocks in all new vehicles to be referred to the Minister at the Australian Transport Council for investigation.	Drink driving counter measure	SOME ACTION TAKEN
5.14	The Ministry of Transport to investigate the options for avoiding drink driving by improving access to alternative forms of transport including community or club based shuttle services, taxi vouchers or encouraging people to stay overnight.	Other	NO PROGRESS MADE
5.15	The Department of Health review the effectiveness of the "drink safe program" conducted by Northern Rivers Area Health Service and Police.	Other	COMPLETED
5.16	The Department of Gaming and Racing to explore with industry ways to decrease the risks of falls from people exiting licensed premises. Reference should be made to the Australia Hotels Association, occupational health & safety audit of licensed premises, the Department of Health's work on falls prevention and the role of alcohol in those falls.	Other	NO PROGRESS MADE
5.17	The Roads and Traffic Authority to examine ways to improve road safety outcomes for people engaging in drink walking.	Other	SOME ACTION TAKEN
6.2	Parenting support be provided to identified vulnerable families as a preventive measure for abuse of alcohol and other drugs.	Other	SOME ACTION TAKEN
6.4	Education be provided on responsible use of alcohol and the consequences of irresponsible use of alcohol. This should: 6.4.1 acknowledge that alcohol is a drug with potentially deleterious effects; 6.4.2 be in developmentally (age) appropriate modules; 6.4.3 support those who choose not to drink alcohol; 6.4.4 commence from an early (primary school) age; 6.4.5 engage both parents and children and use both school and home settings eg Fact Packs; 6.4.6 be targeted to Indigenous and culturally and linguistically diverse groups in culturally effective ways; 6.4.7 be targeted to specific gender groups (eg adolescent males) where appropriate; 6.4.8 be universally accessible in NSW; 6.4.9 include easily accessible information on where to get help.	Education	SOME ACTION TAKEN

Recommendation Number**	Recommendation*	Policy area	Government response
6.11	Promoting and supporting positive relationships and connections between young people, their friends, their schools and their communities reduces harmful risk taking behaviour including a reduction in harm caused by alcohol and other drugs. Develop increased support and coverage of programmes that support positive youth development (such as Better Futures).	Early intervention	SOME ACTION TAKEN
6.12	As an alternative to high risk alcohol consumption, enhance low cost, accessible, safe entertainment and recreation opportunities for young people.	Other	SOME ACTION TAKEN
6.13	Explore whether further use of the Parental Responsibility Act and liquor licensing accords could assist with minimising risk to children and young people.	Early intervention	SOME ACTION TAKEN
6.14	Explore innovative ways to address high risk alcohol drinking such as binge drinking by young people including consideration of establishing safe, supervised venues where responsible use of alcohol can occur.	Awareness raising	NO PROGRESS MADE
6.20	That the New South Wales Government provide funding and support for effective implementation of the Aboriginal and Torres Strait Islander Substance Abuse Plan.	Other	COMPLETED
6.21	As pregnancy is the first critical developmental phase of life, guidelines be developed for progressing healthy pregnancy with regard to alcohol, tobacco and other drug use.	Early intervention	NO PROGRESS MADE
7.13	Responsible service of alcohol training be extended in scope and content to include: a. mandatory training for the BYO sector with emphasis on service as well as sale of alcohol b. handling of difficult patrons and complaints by managers and supervisors c. dealing with those who move from bar to bar in large premises, from venue to venue and the sale or provision of alcohol to minors by adults.	RSA	SOME ACTION TAKEN
7.18	The NSW Government undertake a review of the level and type of training available in the Higher Education Sector on drug education and prevention and, in particular that appropriate training in this area be included in all NSW pre- service and in-service teacher education programs.	Education	NO PROGRESS MADE
7.23	The NSW Government revise training strategies of teachers and counsellors to enable them to recognise alcohol abuse.	Early intervention	SOME ACTION TAKEN
7.24	Have specialist youth staff who know about alcohol e.g. adolescent mental health workers, not generalist counsellors.	Early intervention	SOME ACTION TAKEN

Recommendation Number**	Recommendation*	Policy area	Government response
7.28	The Government provide training to frontline health workers in brief intervention. This should be a mandatory component of training for all primary health care workers and should be aimed at both aboriginal and non-Aboriginal workers.	Brief intervention	NO PROGRESS MADE
7.37	Training for Aboriginal Health Workers needs to consider brief intervention; training in holistic assessment; and identifying treatment and dependency with appropriate time away from work to train, with appropriate remuneration and back filling of positions.	Brief intervention	SOME ACTION TAKEN
8.3	A public education campaign be conducted and information provided to patrons at licensed premises to change drinking behaviour.	Awareness raising	SOME ACTION TAKEN
8.4	Licensing laws be amended to introduce an offence for being intoxicated on licensed premises (in line with the new definition of intoxication which is able to be gauged by direct observation).	RSA	COMPLETED
8.5	In addition to the current offence of being intoxicated on licensed premises, there should be an offence of attempting to enter licensed premises whilst intoxicated and after having been refused entry to those premises.	RSA	COMPLETED
8.6	Regular inspections of licensed premises by police officers are needed, and where appropriate DGR inspectors, or other authorised persons, who make observations and provide feedback to licensees on the applications of the principles of RSA by them and their staff.	Enforcement	NO PROGRESS MADE
8.8	Standardisation of, and stricter criteria, for acceptable identification is required – licensed venues should ascertain age by reference only to a drivers licence, Government Proof of Age Card, or a passport.	Enforcement	SOME ACTION TAKEN
8.9	The age limit for proof of age cards should be removed and the card should distinguish between under 18 year olds and over 18 year olds.	Enforcement	COMPLETED
8.10	Increase the penalty notice only for the offence of supply alcohol to a minor on licensed premises be increased from $550 to $2,500.	Enforcement	SOME ACTION TAKEN
8.11	Initiatives should be undertaken to educate against the provision, in a licensed premise, of alcohol to minors by adults (other than the licensee) and there should be signage to this effect in licensed premises.	Enforcement	COMPLETED
8.12	A whole-of-government education campaign is required on the issues of parental and secondary supply of alcohol to underage persons.	Awareness raising	SOME ACTION TAKEN
8.13	NSW Police produced Safe Party Kit should be funded with a view to a wider distribution to parents across the state, and the Kit should be adaptable to ensure that it is appropriate to a diverse range of community groups.	Awareness raising	SOME ACTION TAKEN

Recommendation Number**	Recommendation*	Policy area	Government response
8.14	Police participation on Community Drug Action Teams state-wide on developing safe party kits.	Other	SOME ACTION TAKEN
8.15	State-wide rollout is recommended of education campaigns such as Supply Means Supply on the secondary supply of alcohol conducted by NSW Police, Central Coast Health and the Department of School Education on the Central Coast, and such campaigns should be adaptable to ensure that they are appropriate to a diverse range of community groups.	Awareness raising	NO PROGRESS MADE
8.17	A preliminary evaluation of young people's knowledge of the current fine for drinking illegally in an Alcohol Free Zone be conducted, and whether they consider an increase in the penalty would deter drinking in such zones.	Other	COMPLETED
8.20	An offence be Introduced for a patron who purchases liquor for an intoxicated person on licensed premises and supplies liquor to them on those licensed premises. Penalties equivalent to those applying to a licensee or employee are appropriate	RSA	COMPLETED
8.22	The NSW Government review the alcohol laws concerning minors in relation to penalties for purchasing, possession and consumption of alcohol so as to protect minors from the influence of alcohol and binge drinking.	Other	SOME ACTION TAKEN
8.23	The following recommendations contained in the submission of Mr David Amarti, Chairperson of the Licensing Court of NSW and Chairperson Liquor Administration Board were noted: • Secondary supply - A good plan of management of licensed premises, and appropriate conditions on a licence, such as prohibition at major sporting venues of sales of more than 4 drinks at anyone time to a person, can be used in an attempt to reduce secondary sale practice. The requirements should continue. • Minors - Police need to be instructed to consider the issue of penalty notices or Court Attendance Notices to adults detected providing alcohol to minors in private homes, particularly where parties get out of hand and it becomes apparent to police that the adult hosts have provided alcohol to minors.	Other	NO PROGRESS MADE
8.24	Accords should be mandatory and enforceable, with a state-wide regime of local liquor accords underpinned by legislation which highlights their role in decreasing alcohol-related crime and anti social behaviour.	Liquor Accords	SOME ACTION TAKEN

Recommendation Number**	Recommendation*	Policy area	Government response
8.25	This should be achieved in consultation with industry and the community, by extending the existing provisions of the liquor laws to make participation in liquor accords compulsory and to enable the police or the Director of Liquor and Gaming or a local consent authority to make application to the Court for the compulsory establishment of a liquor accord in a nominated area for the compulsory participation in that accord by all licensed premises.	Liquor Accords	NO PROGRESS MADE
8.26	A best practice liquor accord model should be developed, which can be customised to fit local circumstances and involves a mechanism for arbitration.	Liquor Accords	SOME ACTION TAKEN
8.27	To implement roll-out of the best practice accord model, and improve the operation of accords generally, in partnership with the Liquor Industry a workshop should be held to develop a three-year strategy for accords which can be customised for application locally.	Liquor Accords	SOME ACTION TAKEN
8.28	Funding be provided for an accord secretariat/support function.	Liquor Accords	COMPLETED
8.29	Liquor accords to include community and local government consultation, involvement and cooperation with Aboriginal people from the local community, especially in areas with a significant Aboriginal populations.	Liquor Accords	COMPLETED
8.30	Supermarkets, bottle shops and other retail outlets which sell alcohol to participate in mandatory liquor accords especially in rural areas.	Liquor Accords	NO PROGRESS MADE
8.31	Accords should consider a "lockout" for new patrons.	Liquor Accords	COMPLETED
8.32	Accords should consider patron entry number restrictions.	Liquor Accords	NO PROGRESS MADE
8.33	An evaluation be conducted of the impact of current 24 hour trading in all licensed premises.	Liquor Accords	NO PROGRESS MADE
8.34	Consideration be given to strengthening the conditions for 24 hour licensed venues, both on application for granting a license and when being considered by an accord.	Liquor Accords	SOME ACTION TAKEN
8.35	Taxi industry representatives, bus co-operatives and the like be brought together to discuss a uniform approach to the provision of transport from late night entertainment venues, including better coordination of services in the early hours and the security of drivers etc.	Other	NO PROGRESS MADE
8.36	Mandatory security personnel training on responsible service of alcohol and conflict resolution.	RSA	COMPLETED

Recommendation Number**	Recommendation*	Policy area	Government response
8.37	Require premises to retain and maintain a mandatory incident register accessible to police at all times.	RSA	COMPLETED
8.38	Require 24 hour premises to provide CCTV monitoring at major access and exit points. Recorded material to be retained for a minimum of one month and be made available to police at all times.	Other	NO PROGRESS MADE
8.39	Require varied trading hour venues with entertainment to have sufficient security personnel.	Other	NO PROGRESS MADE
8.40	Takeaway alcohol facilities, including Good Friday trading, must be considered by local accords in line with local concerns.	Liquor Accords	SOME ACTION TAKEN
8.41	Whole -of-government and community discussion is required concerning the practicality and appropriateness of adopting varying "dry" options in selected areas (not necessarily just in relation to Aboriginal communities).	Availability	SOME ACTION TAKEN
8.42	A specific focus should be adopted on alcohol related issues and isolated rural communities – with a view to utilising Community Justice Groups and/or Working Parties in cooperation with a whole of government effort coordinated by the Cabinet Office to discuss, develop and then trial a package of initiatives in one or more remote towns. For example, Brewarrina, Engonia or Wilcannia could be used as a pilot case for Summit initiatives.	Availability	SOME ACTION TAKEN
8.43	Liquor accords to include community consultation, involvement and cooperation with Aboriginal people from the local community, especially in areas with a large Aboriginal population.	Liquor Accords	SOME ACTION TAKEN
8.52	Increase Police and Gaming and Racing Licensing activities.	Enforcement	NO PROGRESS MADE
8.54	Increase funding for night patrols in areas where they are required and ensure they operate all night.	Other	NO PROGRESS MADE
8.55	Consideration be given in accords to the banning of glass based containers in areas and/or circumstances where there is a clear link between supply, consumption and alcohol-related crime and violence.	Liquor Accords	COMPLETED
8.56	Through the Getting It Together Scheme, explore and identify issues of drinking patterns or settings among young people and adults of culturally and linguistically diverse backgrounds to develop strategies with relevant community groups to reduce alcohol-related incidents.	Awareness raising	NO PROGRESS MADE
8.76	That Local Area Commands should have specialist licensing officers who are fully trained in the intricacies of the liquor law.	Enforcement	NO PROGRESS MADE

Recommendation Number**	Recommendation*	Policy area	Government response
9.28	That the Taree and Ballina Streetbeat Programs should be adopted as models for community patrols. These include outreach youth services involving two youth workers, a vehicle and the support of a late night youth drop-in centre 2 nights per week.	Other	NO PROGRESS MADE
9.31	Initiatives such as the Safer Times (Pubsafe) should be implemented in conjunction with Local Government to encourage licensed premises to ensure that the venue and its surrounds are safe for women.	Other	NO PROGRESS MADE
10.1	Multi-faceted programs should be developed which would: • educate and encourage parents and other adults to resist supplying alcohol to minors • provide clear, easy to understand information on the requirements of the liquor laws to the public • promote the benefits of moderate alcohol consumption, and the dangers of heavy or high risk drinking • implementation of television advertising using shock tactics, to discourage young people from drinking alcohol and/or decreasing young people drinking at excessive and dangerous levels. Program components should target young people, Aboriginal communities, ethnic communities, women, rural and remote communities, as well as the broader population. Program components should target young people, Aboriginal communities, ethnic communities, women, rural and remote communities, as well as the broader population.	Awareness raising	NO PROGRESS MADE
10.2	There should be an extension of the current mandatory training requirements as follows: • all liquor licensees, serving staff and security officers should be required to undertake responsible service of training when taking up employment in the liquor industry • this training should be updated on a periodic basis every three or four years • RSA training should be sensitive to the special issues relating to Aboriginal and culturally diverse communities, and should be developed with appropriate input from representatives of those communities.	RSA	COMPLETED
10.3	Specific strategies should be developed to address drink spiking, including: • encouraging licensed premises to adopt those preventative measures found to be effective in combating drink spiking, including alcohol, particularly where there is a greater potential for drink spiking to occur, for example, in nightclubs. • a public awareness campaign highlighting the issue of drink spiking	Awareness raising	SOME ACTION TAKEN

Recommendation Number**	Recommendation*	Policy area	Government response
10.4	There should be enhancements and extensions of the current liquor accords program to: • encourage venue operators to develop local accords, in consultation with community stakeholders such as chambers of commerce and progress associations, and Aboriginal and ethnic community leaders in communities with a high percentage of those people • provide licensing authorities with the power to require participation of licensed venues in local accords on a case by case basis • provide effective support and resources to local accords to ensure their continuation • establish a mechanism for reviewing and evaluating liquor accords, and disseminating information to all accords about measures that have been found to be successful.	Liquor Accords	SOME ACTION TAKEN
10.6	Communities with a high percentage of Aboriginal people should be consulted over using restrictions on alcohol supply as a harm minimisation measure, and legislative and administrative practices should be established to ensure that any such restrictions that are directed and supported by Aboriginal communities can be put in place.	Availability	SOME ACTION TAKEN
10.9	Recruit Aboriginal and multicultural licensing officers who are locally or regionally based, within the Department of Gaming and Racing, who can undertake spot random checks of local alcohol related licensing issues outside of core (9 to 5) working hours.	Enforcement	NO PROGRESS MADE
10.10	Establish a two-way information line that callers can use to get information about local liquor licensing matters, and where callers can raise concerns about the impact of alcohol misuse/abuse on their local community.	Enforcement	NO PROGRES MADE
10.12	Improve training and increase resourcing of liquor licensing police.	Enforcement	SOME ACTION TAKEN

* This information was taken verbatim from the *2003 NSW Summit on Alcohol Abuse Communiqué*.
**The recommendation number has been adopted by the *2003 NSW Summit on Alcohol Abuse Communiqué*.

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Foundation for Alcohol Research & Education

Foundation for Alcohol Research and Education

10 point plan to reduce alcohol-related harms in NSW

August 2012

Foreword

Alcohol-related violence has become front page news over recent weeks. Tragic events have mobilised the community, ignited media interest and put pressure on the State Government to act to reduce alcohol-related harms.

The O'Farrell Government now finds itself at the cross-roads. Before it, lies an opportunity, born from tragedy, to introduce a comprehensive plan to reduce alcohol-related harms across the state and for all the people of New South Wales.

It is a complex issue, but importantly, this is not a problem without solutions.

It is an issue that needs to be tackled with courage and conviction, but significantly, it's one in which the community stand united. An overwhelming majority of NSW adults believe more needs to be done to reduce the harms caused by alcohol.

Since 2001 my organisation, the Foundation for Alcohol Research and Education (FARE) has been working to prevent the harmful use of alcohol in Australia. For over ten years FARE has played a leading role in alcohol policy reform and made a significant contribution to alcohol research.

FARE's 10 Point Plan to Reduce Alcohol Related Harms in NSW represents a complete solution for the people and communities of NSW; a comprehensive plan based on the current evidence-base and best practice of what works to reduce alcohol-related harms.

I urge the Premier to look further than the problems of Kings Cross, to consult and consider stakeholders, and to embrace evidence-based solutions that are guaranteed to reduce alcohol-related harms and to improve the lives, and the health and safety of the people of NSW.

FARE stands ready to lend its support to NSW Government and community efforts to take meaningful action.

Michael Thorn, Chief Executive, FARE

The ten point plan

1. Wind back late night trading hours

FARE proposes that the NSW Government legislate to introduce a 12 month statewide trial of the reduction of trading hours based on the Newcastle alcohol restrictions, including:

i. a common 3.00am closing time for all pubs and clubs with extended trading license conditions across NSW;
ii. lockouts at all extended trading licensed premises from 1.00am; and
iii. the trial should be independently evaluated to ascertain the social, health, crime and economic effects of these trading controls. The data collection requirements for this independent evaluation should be in place from the commencement of the 12 month trial.

2. Impose a moratorium on late night trading

FARE proposes that the NSW Government adopt a state-wide moratorium that prevents new liquor licenses from trading after midnight.

3. Make late night licensed premises contribute to the costs of alcohol-related harms

FARE proposes that the NSW Government introduce a risk-based licensing fee system that offsets and attributes the cost to Government and the community of administering and managing the impact of alcohol use and misuse on the community.

4. Control the density of licensed premises

FARE proposes that the NSW Government:

i. establish and enforces saturation zones in areas that are identified as already having large numbers of liquor licences including the City of Sydney; and
ii. introduce cumulative impact and cluster control policies for the determination of new liquor licenses.

5. Prevent the harmful discounting and promotion of alcohol

FARE proposes that the NSW Government strengthens the *Liquor Act 2007 (NSW)* to prohibit the harmful discounting and promotion of alcohol products, and ensure that these measures are enforced.

6. Enforce responsible service of alcohol requirements

FARE proposes that the NSW Government:

i. introduce measures to better enforce RSA requirements in licensed venues throughout NSW, including Compliance Officers visiting licensed premises outside of regular business hours.
ii. introduce requirements for OLGR and the NSW Police to publically report on compliance activities relating to the Liquor Act 2007, the number of venues inspected and their location, the times of day that these venues are inspected and the number of identified breaches of compliance.
iii. prohibit the sale of shots, mixed drinks with more than 30ml of alcohol and ready mixed drinks stronger than five per cent alcohol by volume after 10.00pm;
iv. prohibit the sale of more than four drinks to any patron at one time and a requirement to provide free water stations on every bar; and
v. prohibit the sale of alcohol mixed with energy drinks after midnight.

7. Give people a say on the availability of alcohol in their community

FARE proposes that the NSW Government:

i. extend the provisions for consultation processes set out in reg.11 of the Liquor Regulation 2008 to include the need for public consultation on new liquor licence applications; and
ii. establish a service to support people and organisations that wish to raise concerns regarding new liquor licence applications.

8. Introduce appropriate transport and crowd management options in high density areas

FARE proposes that the NSW Government:

iii. examine areas with high density of outlets and develop late night transport and crowd management plans; and
iv. consider public transport operating times when issuing liquor licenses.

9. Further the evidence-base for alcohol-related policies through improved data collection

FARE proposes that the NSW Government:

i. resume the collection and publication of alcohol sales data in NSW and makes this data available to the National Alcohol Sales Data Project and other relevant agencies and research bodies; and
ii. work collaboratively to improve processes for the collection and coding of alcohol harms data including data from ambulance services, hospitals and police.

10. Measure, evaluate and improve

FARE proposes that the NSW Government develop an evaluation framework for the assessment of alcohol-related policy reforms and undertakes or funds independent evaluations of them as they are implemented.

Contents

Introduction

- **80 per cent of people from New South Wales (NSW) believe that Australia has a problem with alcohol and 77 per cent think that more needs to be done to address alcohol-related harms.**
- **34 per cent of people from NSW have been affected by alcohol-related violence.**
- **Alcohol has never been more readily available in NSW with one liquor licence for every 470 people.**
- **The excessive availability of alcohol is a significant contributor to alcohol-related harms, with increases in liquor outlets and increases in trading hours both being factors.**

The NSW Government should implement a comprehensive evidence-based plan to address alcohol-related harms that targets the heart of the problem, being the excessive availability of alcohol. This is such a plan.

The overwhelming majority of people from NSW believe that Australia has a problem with alcohol (80 per cent), and that more needs to be done to address alcohol-related harms (77 per cent).[1] Despite this, they do not conceive that these problems will be addressed anytime soon, with 76 per cent believing that alcohol-related problems will worsen, or at best remain the same over the next five to ten years.[2]

The people of NSW know all too well that the harms from alcohol can have devastating effects, with 34 per cent having been affected by alcohol-related violence. The harms from alcohol not only affect the drinker, but also impact on people in the broader community. An internationally renowned Australian study commissioned by FARE found that 367 people die each year in Australia because of someone else's drinking. There are also 70,000 victims of alcohol related assaults including 24,000 victims of domestic violence.[3]

When tragic alcohol-related incidents occur in the community, there is often significant pressure on governments to respond. This can sometimes results in the development and implementation of ad-hoc and incomplete policy responses that do not address the core of the problem, being, the availability, affordability and promotion of alcohol. The NSW Government now has an opportunity to demonstrate leadership by implementing a comprehensive plan of action that is based on the current evidence-base and best practice of what truly works to address alcohol-related harms.

The availability of alcohol is a significant contributor to alcohol-related harms and in NSW alcohol has never been more readily available. There is one liquor licence for every 470 people in NSW. Increased availability of alcohol, both through the increased numbers of outlets and longer trading hours, contributes to alcohol-related violence and harms. Pubs and clubs are often the focus of policies to reduce alcohol-related harms. However, increases in take-away alcohol outlets also contribute to violence and domestic violence rates.[4] Take-away alcohol is also often considerably cheaper than alcohol purchased at pubs and clubs, with wine being available for as cheap as 25 cents per standard drink. The greater availability of cheap take-away alcohol has led to a culture of pre-loading where people consume alcohol before visiting licensed premises.

FARE has prepared a plan of action for the NSW Government which includes ten evidence-based solutions to reduce alcohol-related harms. The plan acknowledges that no single strategy will reduce alcohol-related harms, and so instead a range of evidence-based strategies are required to achieve the best possible outcomes.

FARE acknowledges that in addressing alcohol-related harms, there is a role for Commonwealth, state,

territory, and local governments. The Commonwealth Government should take a leadership role on issues such as pricing and promotion and should also be working with jurisdictions to implement best-practice availably measures.

The role for the NSW Government is also clear. Liquor licensing, planning and transport are the responsibility of state and territory governments and changes to these policy areas can result in significant reductions in alcohol-related harms. The NSW Government must now act immediately to implement a comprehensive and evidence-based plan to address alcohol-related harms.

The detail

1. Wind back late night trading hours

Research on the relationship between the trading hours of licensed premises and alcohol-related harm has consistently demonstrated that increased trading hours are associated with increased harms.[5] Recent restrictions introduced in the NSW city of Newcastle demonstrate how even modest reductions in the trading hours of licensed venues can substantially reduce alcohol-related harms.

In 2008, as a result of escalating local concern about alcohol-related violence, the NSW Liquor Administration Board imposed a number of restrictions on 14 licensed premises in Newcastle. The most notable of these restrictions was the imposition of a lockout from 1.00am for 14 hotels, and bringing forward closing times. Closing times were changed to 3.00am for the 11 premises that were previously licensed to trade until 5.00am and to 2:30am for the three premises that had previously been licensed to trade until 3.00am. The lock out was later moved to 1:30am and the closing time to 3:30am following a legal challenge by the licensed premises and as a result of an out-of-court agreement with NSW Police.

An evaluation carried out in the 12 months following the introduction of these restrictions in Newcastle found that there was a 37 per cent reduction in alcohol-related harms when compared to a control site.[6] This equates to a reduction of 33 assaults per quarter. The evaluation also found that there was no geographic displacement to the nearest late night district of Hamilton[7]. This reduction in harms was not only sustained, but improved. A further study three years after the restrictions were introduced found a 35 per cent reduction in night-time non-domestic assaults requiring police attention and a 50 per cent reduction in night-time street offences.[8]

FARE proposes that the NSW Government legislate to introduce a 12 month statewide trial of the reduction of trading hours based on the Newcastle alcohol restrictions, including:

i. a common 3.00am closing time for all pubs and clubs with extended trading license conditions across NSW;
ii. lockouts at all extended trading licensed premises from 1.00am; and
iii. the trial should be independently evaluated to ascertain the social, health, crime and economic effects of these trading controls. The data collection requirements for this independent evaluation should be in place from the commencement of the 12 month trial.

2. Impose a moratorium on late night trading

Much of the harm that results from alcohol misuse on licensed premises occurs after midnight. It is estimated that close to 70 per cent of police assaults are alcohol-related and 60 per cent of nurses have recently experienced violence in the workplace, with an estimated half of these attributed to alcohol or drugs.[9] This demonstrates that the problem is late night trading. Consequently steps should be taken to no longer allow any further liquor outlets to extend their trading beyond midnight.

In 2009, the Queensland (QLS) Government introduced a moratorium on applications for extended hours between 12.00am and 5.00am. The Queensland Government stated that these measures were introduced because *'the community is increasingly worried about the level of alcohol-fuelled violence out there on our streets, not just the amount of violence but the increasing severity of it.'*[10] The moratorium precludes new licensed premises or types of licensed premises (e.g. late trading premises) being opened in a specified area.

The moratorium applies to all extended trading hours application currently before the Queensland Office of Liquor Gaming Regulation. The moratorium was originally in place for 12 months and has now been extended until December 2013.

FARE proposes that the NSW Government adopt a state-wide moratorium that prevents new liquor licensees from trading after midnight.

3. Make late night licensed premises contribute to the costs of alcohol-related harms

The additional stress that alcohol-related incidents place on our police and emergency service workers late at night results in substantial costs to the community. Alcohol-related crime is estimated to cost Australia $1.7 billion, with over $740 million alone spent on policing, and alcohol-related ambulance service usage is estimated to cost $80 million annually.[11] It is also apparent that there are costs to the health system, transport, local government and other government services that spill over from the use and misuse of alcohol. These costs should not be borne by taxpayers and ratepayers.

Risk based licensing (RBL) fees are a structure based on a range of factors that may increase a venue's risk of facilitating harms such as increased trading hours and high occupancy levels. The rationale for the introduction of these measures is that those who incur the costs pay the costs. RBL fees can also be sued to pay for late nigh transport options and crowd control strategies. RBL fees have been introduced in a number of jurisdictions in Australia including the Australian Capital Territory (ACT), QLD, and Victoria, and are currently under consideration in the Northern Territory. In announcing the new risk-based licensing scheme in QLD, the Government stated that the policy 'is about ensuring the industry contributes to the costs of alcohol-related harm and crime – those costs should not be a burden taxpayers have to shoulder'.[12]

The ACT Government's rationale for introducing RBL is for liquor licensing fees to recoup the policing costs caused by alcohol-related violence in entertainment precincts, with individual venues required to pay fees commensurate with their likely risk and scope of alcohol-related harm. For example, in December 2010, the ACT introduced a model of RBL which sets liquor licensing fees for "on-premise licenses" based on premise trading hours, occupancy level, and amount of liquor purchased, each of which have been shown to correlate with levels of alcohol-related harm.

Initial analysis of the impacts on RBL fees by ACT Policing indicated that in 2011 there had been a 17 per cent reduction in alcohol-related arrests, a 6 per cent reduction in alcohol-fuelled assaults and a 9.67 per cent decrease in the number of people taken into custody for being intoxicated, when compared to 2010.[13]

FARE proposes that the NSW Government introduce a risk-based licensing fee system that offsets and attributes the cost to Government and the community of administering and managing the impact of alcohol use and misuse on the community.

4. Control the density of licensed premises

Research has consistently found an association between alcohol outlet density and negative alcohol-related outcomes.[14] [15] Recently in Victoria, an analysis was undertaken of the effects of licensed outlet density on several measures including assault, domestic violence, chronic harms and high risk drinking in young people. The analysis found there was a strong association between reported assaults and all three outlet types, general licences, on-licence and off-licence.[16] A 10 per cent increase in general licence rates in an area increased rates by 0.6 per cent, while a 10 per cent increase in off licence rates increased assault rates by 0.8 per cent.

International studies have shown that increased outlet density has also been linked to higher rates of road traffic accidents, drink driving or being a passenger of a drink driver, robbery, homicide, suicide (both attempted and completed), child maltreatment, deviant adolescent behaviours, sexual offences and sexually transmitted infections.[17]

There are too many licensed venues in NSW. In 2010-11 there were a total of 15,115 liquor licenses in NSW.[18] This equates to approximately one licence for every 470 people in the state. This density of licensed premises is most apparent in the city of Sydney, where there are currently 2,205 licensed venues; of which 287 can trade 24 hours a day and 666 trade after midnight.[19] The large number of licensed venues and late night trading hours is concerning as the evidence clearly indicates that a large number of outlets and increased trading hours results in greater harms.

The City of Sydney currently has a liquor freeze in place for precincts in the Sydney Local Government Area (LGA) with active night-time economies. This freeze prevents further liquor licenses (both on- and off-licenses) being granted for areas with high density and associated alcohol-related problems. Given that, according to a recent study's calculations, the introduction of one extra alcohol outlet per hectare in the Sydney LGA would result in an additional 4.5 assaults per year,[20] this action by the City of Sydney is relevant, timely and commendable. However, this is just a short-term solution to a long-term problem. While the freeze is in place there is a need for consideration of longer-term solutions to curb alcohol-related violence by limiting the density of alcohol outlets.

There are a number of policies that can be implemented to control the number of licensed outlets. Two of these policies are introducing "saturation zones" and "cluster controls". "Saturation zones" impose limitations on the provision of new licenses in areas where it has been identified there are a high density of licenses. While "cluster controls" prohibit new liquor licenses for premises within a specified distance of existing licensed premises or other amenities (e.g. schools, hospitals, churches or places of religious worship).[21]

Since 2005, local authorities in England and Wales (typically a council or borough) have been able to establish "saturation zones" within their licensing policies where no new licensed premises are permitted.[22] These "saturation zones" are determined on the basis of existing outlet density levels and crime data including domestic violence statistics. The establishment of "saturation zones" and the basis for these zones is at the discretion of the individual local authority, but is not enacted in the *National Licensing Act*. Also, licence applicants have the right to appeal if they apply for a licence in a saturation zone and are refused.

"Cluster controls" are another policy measure that is designed to reduce alcohol-fuelled violence that results from the over-abundance of pubs and clubs. There are many examples of "cluster controls" internationally, for example in England and Wales, Paris and New York. New York has enacted "cluster controls" through their *Alcohol Beverage Control Act*. Since 1993 the legislation has included the "500 foot" (150 metres) rule which prohibits new on-premises licenses being issued within a 500 foot radius of three or more existing licenses.[23] The rationale for such a measure is to ameliorate the potentially negative cumulative impact of areas that have high outlet density on public health, violence and crime. Similarly in Paris under the *Code de La Sante Publique* (public health legislation), there are protected areas within which new liquor licenses are prohibited if they are within 75 metres of a licensed premise of the same category.[24]

FARE proposes that the NSW Government:

i. establish and enforces saturation zones in areas that are identified as already having large numbers of liquor licences including the City of Sydney; and
ii. introduce cumulative impact and "cluster control" policies for the determination of new liquor licenses.

5. Prevent the harmful discounting and promotion of alcohol

Evidence clearly shows that low alcohol prices result in high alcohol consumption and alcohol-related harms. The most significant government intervention to address low alcohol prices is tax and the establishment of minimum pricing policies. The Commonwealth Government is best placed to set the alcohol taxation rates at levels that minimise the harms caused by alcohol. However, there is also a role for states and territories to regulate the pricing of alcohol by using their powers to intervene to prevent excessive discounting and promotion of alcohol products.

The *Liquor Act 2007 (NSW)* currently allows for the Director of Liquor and Gaming to 'restrict or prohibit an activity or promotion in a specific venue if the Director believes that the activity or promotion':

- involves the provision of alcohol in 'non-standard measures that encourage irresponsible drinking and is likely to result in intoxication';
- 'involves free drinks, or extreme discounts or discounts of a limited duration, that creates an incentive for patrons to consume liquor more rapidly than they otherwise might'; or
- 'encourages irresponsible, rapid or excessive consumption of liquor'.

While these regulations exist alcohol is too frequently discounted, promoted in activities like 'happy hours' and sold in a way that encourages people to consume alcohol more rapidly (e.g. 'shots' or 'bombs') and harmfully. Often such restrictions are only imposed once a venue has been reprimanded following complaints arising from alcohol-fuelled incidents. The *Liquor Act 2007 (NSW)* should go further and prohibit these activities, appropriately enforce them to ensure that they do not continue to occur.

FARE proposes that the NSW Government strengthens the *Liquor Act 2007 (NSW)* to prohibit the harmful discounting and promotion of alcohol products, and ensure that these measures are enforced.

6. Enforce responsible service of alcohol requirements

All staff that work in a licensed premises in NSW are required to hold a Responsible Service of Alcohol (RSA) Certificate. RSA includes a range of responsibilities for licensees and people working in licensed venues including providing water and food to patrons, not serving alcohol to intoxicated persons and the service of alcohol in measures that reduce the risk of rapid consumption. Penalties exist in the Liquor Act 2007 (NSW) for some areas of RSA such as the provision of alcohol to intoxicated persons, where a staff member can be fined up to $11,000 if found doing so.[25]

For RSA practices to be effective, they need to be enforced and promoted. Without appropriate enforcement mechanisms, RSA measures have limited impact on the behaviour of people working in licensed venues and do not reduce alcohol-related harms.[26] In NSW RSA requirements are currently enforced by the NSW Police and Compliance Officers at the Office of Liquor Gaming and Racing (OLGR). There is currently no legislative obligation for licensed premises to report on the compliance actions of OLGR or the NSW Police in undertaking their compliance activities.

A recent audit of licensed premises in Kings Cross found that there was a large disparity between the number of people that were refused service due to intoxication and the number of people being vacated from premises because of intoxication.[27] This supports contentions that people continue to be served alcohol until they are heavily intoxicated and are then thrown out onto the streets.

While this audit was carried out in Kings Cross, this situation is replicated in other licensed premises across the state and NSW and indeed the country. This is in part a result of the lack of enforcement of RSA requirements. A further example of this is the sale and marketing of alcoholic products that encourage rapid and excessive consumption of alcohol and increases the speed to intoxication.

These products include those designed to be consumed quickly such as 'shots', and those that include excessive amounts of alcohol, for example 'doubles' and some Ready-To-Drink beverages (RTDs). These products also contribute to the culture of 'drinking to get drunk' by encouraging the rapid consumption of alcohol to intoxication. Restricting the sale of products with the highest alcohol content will result in patrons at licensed premises having to select a product of lower alcohol content, resulting in a decline in the amount of pure alcohol consumed.

In addition to these alcohol products, alcohol mixed with energy drinks are becoming a major concern in the Australian community. FARE's 2012 Annual Alcohol Poll found that 16 per cent of adult Australians have consumed alcohol mixed with energy drinks, and is highest among people aged 18-24 years, with 49 per cent of this age group reporting this. There are three main harms associated with mixing alcohol and energy drinks, including that:[28]

- Energy drinks have been shown to mask the effects of intoxication. This can result in increased risky behaviours such as drink driving and even alcohol poisoning.
- Alcohol and energy drinks are diuretics and can cause dehydration. In extreme cases, this can result in death which has been demonstrated by the reported deaths from energy drink consumption after playing sport.
- Mixing stimulants and depressants send mixed messages to the nervous system. This is because caffeine increases the heart rate and blood pressure, while alcohol has the opposite effect.

Internationally there have been moves to restrict the sale of alcohol and energy drinks and to increase awareness of the harms associated with these products, including a ban of the promotion of alcohol combined with energy drinks at sporting events in Ireland,[29] and the prohibition of the consumption of energy drinks in Denmark.[30]

RSA requirements assist licensed premises to provide a safe environment. However this does not occur if these are not appropriately enforced or policed. This enforcement cannot be left to licensed premises alone, but needs to be undertaken by Government to ensure that licensees are meeting their obligations under RSA.

FARE proposes that the NSW Government

i. introduce measures to better enforce RSA requirements in licensed venues throughout NSW, including Compliance Officers visiting licensed premises outside of regular business hours.
ii. introduce requirements for OLGR and the NSW Police to publically report on compliance activities relating to the Liquor Act 2007, the number of venues inspected and their location, the times of day that these venues are inspected and the number of identified breaches of compliance.
iii. prohibit the sale of shots, mixed drinks with more than 30ml of alcohol and ready mixed drinks stronger than five per cent alcohol by volume after 10.00pm;
iv. prohibit the sale of more than four drinks to any patron at one time and a requirement to provide free water stations on every bar; and
v. prohibit the sale of alcohol mixed with energy drinks after midnight.

7. Support communities to have greater control over the availability of alcohol in their community

Members of the general public and people working in areas that are directly affected by alcohol use and misuse should have the opportunity to comment on and raise concerns regarding applications for new licensed premises. However, the onus of proof often lies solely with the community member of organisations demonstrating that a licence application will negatively affect their neighbourhood, rather than on the potential licensee to demonstrate that their premise will do no harm.

The *Liquor Act 2007 (NSW)* includes a requirement for liquor licence applicants to prepare a Community Impact Statement and consult with community representatives such as local councils, police, health services and community organisations to 'seek a range of views and possible concerns'.[31] They are also required to prepare a notification to occupiers of nearby premises.

This process differs from the requirements included in the *Liquor Act 1982 (NSW)* which called for prospective licensees to advertise to give notice of their impact statements in local and state-wide newspapers. This process also differs from that of other jurisdictions, such as Victoria where a licence applicant must provide notice of their application and invite objectors to lodge any concerns with the relevant authority.[32]

While provisions for consultation exist to a limited extent in NSW, the data and evidence requirements to support submissions are often extensive and require expertise in research and legal areas. Relevant services, as well as members of the general public, do not usually have the resources at their disposal to gather the data needed to prepare submissions. This can result in warranted concerns being overlooked.

Greater opportunity for consultation with the general community should be a requirement of new liquor licence applicants. This consultation process should be well publicised and people should be given a reasonable period of time to make submissions. Furthermore, support should be offered by the relevant authority in the collection of data to support any submissions raising such complaints.

FARE proposes that the NSW Government:

i. extend the provisions for consultation processes set out in reg.11 of the Liquor Regulation 2008 to include the need for public consultation on new liquor licence applications; and
ii. establish a service to support people and organisations that wish to raise concerns regarding new liquor licence applications.

8. Introduce appropriate transport and crowd management options in high density areas

Transport availability in and around areas with a high density of licensed premises is a key challenge in the City of Sydney and in other areas across NSW. In Sydney, 58 per cent of people are not satisfied with access to public transport at night and want more bus and rail services.[33] Furthermore, the taxi industry has called for more public transport options due to the size of crowds late at night, arguing that taxis should not be the major mover in the high density areas.[34]

One of the key problems with public transport is that many licensed venues are open long after public transport stops operating. When public transport options are not made available, increasing numbers of people are forced to remain on the streets for longer periods of time, and competition for available transport can increase conflict and disorder.[35]

The experience of competing for limited resources in a crowded environment can be frustrating at the best of times, but within contexts in which the majority of people are likely to be in some way intoxicated, the risk of 'negative' outcomes can be heightened.[36] High density areas can be 'hot-times' for crime, as it is generated by circumstances in which crowds are brought together in largely uncontrolled environments where intoxication is common.

The World Health Organization (WHO) encourages the provision of alternative transportation, including public transport until after the closing time for licensed premises, as a strategy to the reduce alcohol-related harms.[37] Transport options should be varied and made available up until and after licensed premises have ceased trading.

FARE proposes that the NSW Government:

i. examine areas with high density of outlets and develop late night transport and crowd management plans; and
ii. consider public transport operating times when issuing liquor licenses.

9. Collect data on alcohol sales, consumption and harms

Collection of data on alcohol consumption and harms is vital to building the evidence-base for policies that are proven to reduce alcohol-related harms. However there are significant gaps in the collection of alcohol-related data in NSW. For example, NSW is one of three Australian states or territories that do not collect wholesale alcohol sales data. NSW Government Agencies have repeatedly recommended that the NSW Government collect and make sales data available to researchers, law enforcement organisations and public health professionals. This information will provide us with the most accurate picture of what Australians drink, which in turn enables researchers and policy makers to develop, implement and track the progress of evidence-based alcohol policies.[38]

WHO recommends that to provide a more comprehensive picture of alcohol consumption, well-conducted population level surveys need to be complemented by alcohol sales data.[39] Alcohol consumption for NSW is available through population level surveys such as the *National Drug Strategy Household Survey*. However, while national estimates of per capita consumption (which is primarily based on tax system data) are available, NSW specific data cannot be extricated from this.

Further data is also required on alcohol-related harms. Data on alcohol-related harms comes from a number of sources including police data, hospital data and ambulance data. This information needs to be effectively coded and recorded for evaluations to appropriately determine the impact of policies on changes in alcohol consumption and also changes in alcohol-related harms.

FARE proposes that the NSW Government:

i. resume the collection and publication of alcohol sales data in NSW and makes this data available to the National Alcohol Sales Data Project and other relevant agencies and research bodies; and
ii. work collaboratively to improve processes for the collection and coding of alcohol harms data including data from ambulance services, hospitals and police.

10. Measure, evaluate and improve

Evaluation processes should form an integral part of the implementation of any alcohol-related policies. Without an appropriate evaluation framework in place, the efficacy of trials and policy initiatives cannot be properly assessed. This results in a loss of valuable information that could be used to assess the effectiveness of a new policy and to guide future policy directions.

Data collection is a fundamental tool in the evaluation process. Strong reliable data enables a more complete analysis of the impacts of alcohol policies on the relevant outcome measures. One correlate of alcohol-related harm is per capita consumption, which is best measured by alcohol sales data.

As Don Weatherburn, the Director of the NSW Bureau of Crime Statistics and Research (BOCSAR) recently said 'If you want to avoid going round in circles, base your policies on evidence and evaluate what you do'. In this case the evidence is clear – we just need to act on it.[40]

FARE proposes that the NSW Government develop an evaluation framework for the assessment of alcohol-related policy reforms and undertakes or funds independent evaluations of them as they are implemented.

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About the Foundation for Alcohol Research and Education

The Foundation for Alcohol Research and Education (FARE) is an independent charitable organisation working to prevent the harmful use of alcohol in Australia. Our mission is to help Australia change the way it drinks by:

- helping communities to prevent and reduce alcohol-related harms
- building the case for alcohol policy reform and
- engaging Australians in conversations about our drinking culture.

Over the last ten years FARE has invested more than $115 million, helped 750 organisations and funded over 1,400 projects addressing the harms caused by alcohol misuse.

FARE is guided by the World Health Organisation's *Global Strategy to Reduce the Harmful Use of Alcohol*[1] for addressing alcohol-related harms through population-based strategies, problem-directed policies, and direct interventions.

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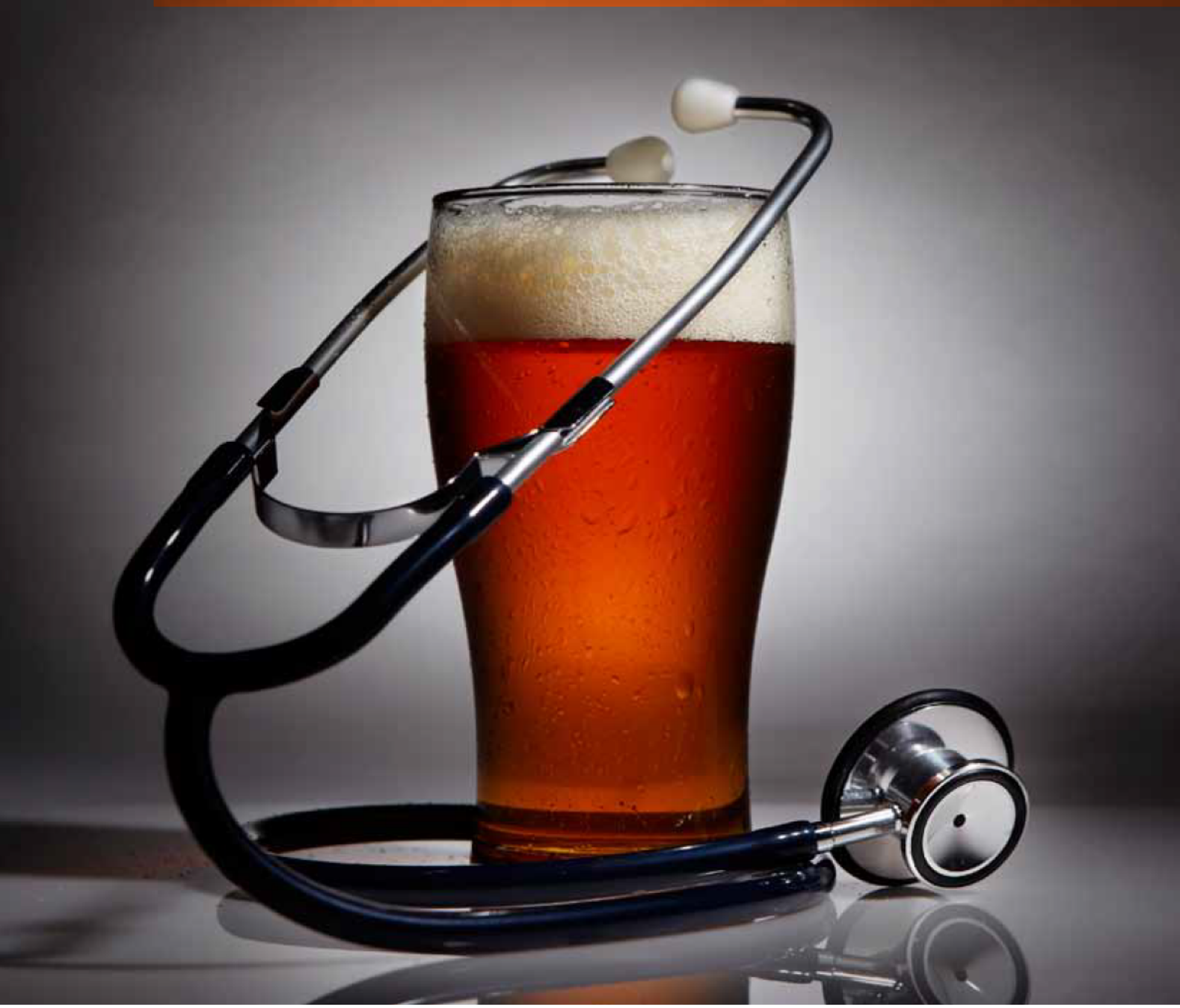
Alcohol's burden of disease in Australia



Caroline Gao, Rowan Ogeil and Belinda Lloyd • July 2014

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About Turning Point

Turning Point was established in 1994, amalgamated with public health provider, Eastern Health in October 2009 and is formally affiliated with Monash University.

Turning Point promotes the health and wellbeing of individuals and communities living with, and affected by alcohol and other drug-related harms. As an organisation, Turning Point aspires to be a world leading treatment and research centre in the drug and alcohol field by:

- creating thriving service delivery, research and development cultures that produce the best poss ble knowledge
- applying research to promote change and contribute to policy making
- building our community capacity through strategic relationships, partnerships and collaborations

About the Foundation for Alcohol Research and Education (FARE)

The Foundation for Alcohol Research and Education (FARE) is an independent, not-for-profit organisation working to stop the harm caused by alcohol. Alcohol harm in Australia is significant. More than 5,500 lives are lost every year and more than 150,000 people are hospitalised making alcohol one of our nation's greatest preventative health challenges.

For over a decade, FARE has been working with communities, governments, health professionals and police across the country to stop alcohol harms by supporting world-leading research, raising public awareness and advocating for changes to alcohol policy. In that time FARE has helped more than 750 communities and organisations, and backed over 1,400 projects around Australia.

For further information visit FARE's website: www.fare.org.au

About The Victorian Health Promotion Foundation (VicHealth)

A world-first health promotion foundation, VicHealth focuses on promoting good health and preventing chronic disease. We pinpoint and prevent the negative influences of ill health and champion the positive influences of good health. Our pioneering work includes creating and funding world-class interventions; conducting vital research to advance Victoria's population health; producing and supporting public campaigns to promote a healthier Victoria; and providing transformational expertise and insights to government. We work with all levels of government, across political parties and communities, and a range of sectors across health, sports, research, education, the arts and media.

Alcohol's burden of disease in Australia

Caroline Gao, Rowan Ogeil and Belinda Lloyd • July 2014

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* The authors consider that the first two authors should be regarded as joint first authors.

TABLE OF CONTENTS

SUMMARY

Burden of Disease (BoD) estimates based on current health and alcohol consumption data are integral in conceptualising the impact of alcohol on the Australian community. Such estimates are needed to assess changing trends of harm in the community related to drinking, and enable comparison of the burden of alcohol across different diseases and injuries. The present report utilises the most up to date methodology for estimating alcohol-related harm and beneficial effects and includes data on consumption statistics for Australia in 2010. This includes application of the latest methods to determine alcohol consumption distribution in population and compensation for underreporting of alcohol consumption in national surveys, and for the first time reports jurisdictional differences in both alcohol consumption and alcohol-related harms across all Australian states and territories. The main findings presented in this report are outlined below.

Alcohol Consumption

- The estimated per capita adult alcohol consumption in Australia in 2010 was 10.42L, with Victoria, South Australia (SA) and New South Wales (NSW) having per capita consumption estimates of less than 10 litres, and Western Australia (WA) and the Northern Territory (NT) having the highest estimates of greater than 12 litres per person per year.
- The recorded level of alcohol consumption for Australian adults has been consistently around 10 litres per capita per year for the past decade. Different trends are evident for different alcoholic beverages, with beer and spirit consumption decreasing since 2007-2008 and wine and cider levels increasing since 2007-2008.

Burden of alcohol attributable diseases in Australia

- There were 5,554 deaths attributable to alcohol in 2010, including 3,467 male deaths and 2,087 female deaths.
- There were 157,132 hospitalisations attributable to alcohol in 2010, including 101,425 for males and 55,707 for females.
- In males, injuries were responsible for the highest proportion of alcohol-related deaths (36%), followed by cancers (25%) and digestive diseases (16%). For females the highest proportion of alcohol-attributable deaths was for cardiovascular diseases (34%) followed by cancers (31%) and injuries (12%).
- Injuries and neuropsychiatric diseases were categories responsible for a substantial proportion of alcohol-related hospitalisations, each being greater than 10% of all alcohol-attributable hospitalisations for 2010.
- The jurisdiction with the highest proportion of alcohol-related deaths for both males and females was the NT with the proportion approximately three times greater than the national average, while Victoria had the lowest proportion of deaths attributable to alcohol for both men and women.
- Beneficial effects due to alcohol consumption were estimated for cardiovascular disease and diabetes, with the majority of benefit in both males (90%) and females (72%) being in the cardiovascular disease category.
- Alcohol was estimated to be responsible for 136,982 Disability Adjusted Life Years (DALYs) in males and 51,556 DALYs in females during 2010. Injuries were responsible for the greatest number of DALYs in males (38%), while cancers were responsible for the greatest number of DALYs in females.
- Alcohol was estimated to cause 84,945 Years of Life Lost (YLL) in Australian men and 35,223 YLL in Australian women in 2010. Injuries were responsible for the greatest proportion of YLL in males (45%), while cancers were responsible for the greatest proportion of YLL in females (39%).
- Alcohol was estimated to cause 52,036 Years of Life lived with a Disability (YLD) in Australian men and 16,334 YLD in Australian women in 2010. Neuropsychiatric diseases in both males and females were responsible for the greatest proportion of YLD being greater than 60%.

This report provides a quantification of the burden of disease and injury in Australia for 2010.Such estimates may form the basis for a future cost of illness study to assess how current funding is allocated to tackling alcohol-related burden in the Australian health care system, and how to determine better estimates for future funding. Given the differences between jurisdictions with respect to alcohol consumption and estimated burden, future work should continue to extend this type of analysis to provide estimates that are relevant to sub-populations, and to support policy responses at jurisdictional and national levels.

ABBREVIATIONS

ABS:	Australian Bureau of Statistics
ACT:	Australian Capital Territory
AAF:	Alcohol Attributable Fraction
AIHW:	Australian Institute of Health and Welfare
AUS:	Australia
BoD:	Burden of Disease
BAC:	Blood Alcohol Concentration
CRA:	Comparative Risk Analysis
DALYs:	Disability Adjusted Life Years
ERP:	Estimated Residential Population
EU:	European Union
g:	grams
GBD:	Global Burden of Disease
HIV:	Human Immunodeficiency Virus
IARC:	International Agency for Research and Cancer
ICD-10:	International Statistical Classification of Diseases and Related Health Problems 10th Edition
IHD:	Ischaemic Heart Disease
MMDS:	Medical Mortality Data System
MVA:	Motor vehicle accidents
NCIS:	National Coroners Information System
NDSHS:	National Drug Strategy Household Survey
NHMRC:	National Health and Medical Research Council
NON-MVA:	non-motor vehicle accidents
NSW:	New South Wales
NT:	Northern Territory
PCA:	Per Capita Consumption of Alcohol
QLD:	Queensland
RR:	Relative Risk
SA :	South Australia
SES :	Socioeconomic Status
VIC :	Victoria
WA:	Western Australia
WHO:	World Health Organization
YLD:	Years of Life lived with Disability
YLL:	Years of Life Lost

CHAPTER 1

Introduction

Burden of disease studies crucially depend on estimates of Relative Risk (RR) of particular diseases and causes of death at different levels of drinking in the population. Estimates of RR are usually based on systematic reviews and meta-analyses of the global literature, which is predominantly composed of studies from high-income countries including Australia. A new round of such analyses has been carried out as part of the current Gates Foundation-funded Global Burden of Disease (GBD) estimates. The relevant alcohol meta-analyses have been completed and most are already published (an overview for 2010 analysis of chronic harms is in Rehm et al. [1]. and for injuries see Taylor et al. [2]).

A series of previous burden studies have been undertaken to estimate alcohol- and drug-caused morbidity and mortality in Australia, and to provide Alcohol-Attributable Fractions (AAFs) which represent an indirect measure of mortality and morbidity due to alcohol use as relevant to Australia (see Table 1).

Table 1. Previous studies estimating the number of lives lost and number of hospital separations due to alcohol in Australia

Authors [Reference]	Year(s) of alcohol consumption data used & data source where noted	Estimated Number of Lives Lost	Estimated Number of Hospital Separations
Holman *et al.* [3]	1986 1983 – National Heart Foundation Risk factor Prevalence Survey (nb. ages 25-64)	5,360	76,467
English *et al.* [4]	1992	3,660	71,593
Donath *et al.* [5]§	1996-1999	2,990	31,092
Ridolfo & Stevenson [6]	1998 1995- National Health Survey, 1997 Survey of Mental Health & Wellbeing; 1998 NDSHS	3,271	71,422

§ Data for Victoria only

The most recent Australian specific data regarding alcohol disease burden comes from analysis undertaken by Begg et al [7], where fourteen risk factors including alcohol were examined, and together accounted for 32.2% of the total BoD and injury in Australia. Tobacco was responsible for the greatest disease burden in Australia (7.8% of total), and alcohol was responsible for the greatest BoD in males under 45 years old (8.1% of total for this age group).

Begg et al [7] characterised burden in their analysis using the summary Disability Adjusted Life Years (DALYs) measure. DALYs are used by the World Health Organization for health monitoring purposes, by the World Bank and in scientific studies including the Global Burden of Disease study [8] and the most recent alcohol-attributable burden of disease in Europe [9]. Begg et al [7] reported that alcohol affected males in Australia (76% of alcohol DALYs) to a much greater degree than females (24% of alcohol DALYs). Alcohol abuse (918 deaths, 0.7% of the total and 34,116 DALYs, 1.3% of the total), suicide (553 deaths, 0.4% of the total and 12,245 DALYs, 0.5% of the total) and road traffic accidents (396 deaths, 0.3% of the total and 11,121 DALYs, 0.4% of the total) contributed two-thirds of the harm attributed to alcohol.

Arriving at AAFs for Australia requires data on distribution of amounts and patterns of drinking in the population. The most recent detailed national survey data on alcohol consumption is from the 2010 National Drug Strategy Household Survey (NDSHS), which is available as a base for the development of updated estimates. The following analyses in this report use mortality data and morbidity data (from the National Hospitals Minimum Dataset) for 2010.

There is a need for a new BoD study in Australia because:

1. The most recent study of alcohol in the Burden of Disease (BoD) by Begg et al [7] is a decade old, estimating alcohol consumption based on 2003 data. Furthermore, the estimate calculated in this study where alcohol contributed a net 2.3% of DALYs is substantially lower than the estimates for New Zealand of 7.4% [10], Europe 10.2% [9] and Canada of 9.3% [11].
2. Previous analyses of alcohol use have estimated consumption using national estimates provided by the Australian Bureau of Statistics (ABS). The present report estimates consumption using the latest methodology [9] incorporating consumption figures from jurisdictions where available and applying these to estimates of alcohol-related burden where appropriate (see Chapter 2).

CHAPTER 2
Methodology

When assessing burden, AAFs are applied to determine the proportion of harms attributable to alcohol. AAFs can be estimated using population alcohol consumption patterns and RRs, which are commonly measured in meta-analyses assessing causal health outcomes for alcohol exposure [16]. Some conditions identified within International Statistical Classification of Diseases and Related Health Problems 10th Edition (ICD-10) are wholly attributable to alcohol such as alcohol cardiomyopathy, and in these cases the AAF equals 1 (see Table 2). In many other disease and injury categories, alcohol has been identified as a component (or partially attributable cause) in the causal relationship and in these cases the AAF is a fraction less than 1. Some sub-disease categories wholly attributable to alcohol were not isolated from their main disease category (e.g. alcohol liver cirrhosis is assigned the same AAF with other liver cirrhosis). This is because RRs were estimated for the main disease category in meta-analyses.

For some diseases only the average volume of alcohol consumption is important in determining the risk for a drinker. For example cancers are directly related to average volume alcohol consumption. Therefore, the greater volume of alcohol consumed, the greater the risk of cancer. Other disease states are more complex than cancer because the RR is not always direct and depends on other factors (such as drinking patterns). For example light and moderate levels of alcohol consumption lead to a decrease in the risk of ischaemic heart disease, but only for some groups such as older adults [12-14], and only if this volume of light-moderate consumption is not coupled with occasional known heavy drinking periods, colloquially known in Australia as "binges" [15]. In calculating AAFs of some diseases and injuries, drinking patterns were also taken into account.

The approach we used to calculate AAFs for partially alcohol-attributable diseases and injuries included the following steps:

1. Modelling consumption distributions (using the NDSHS).
2. Obtaining Relative Risk (RR) functions for different diseases and injuries and calculating AAFs for mortality and morbidity.
3. Calculating alcohol-attributable mortality and morbidity.

AAFs were calculated separately by sex and three age groups (15-34, 35-64 and 65+), given the differences in alcohol consumption within a population based on these factors. The proportion of ex-drinkers is also considered within the calculation of BoD, given that some people have given up drinking alcohol for health-related reasons, but are still at increased risk for some alcohol-related diseases [16]. The following sections of this report present data relevant to alcohol-related mortality and morbidity for Australians aged 15+. The present analysis excluded those younger than 15 because alcohol-related fatalities in this age group are rare [17].

Data

Five data sources were used in this report. Cause of death data, National Hospital Morbidity data, NDSHS, estimated residential population (ERP) from ABS, apparent per capita consumption of alcohol (PCA) from ABS and PCA in Western Australia (WA), Northern Territory (NT) and Queensland from the National Alcohol Sales Project [18].

Deaths

In Australia, the state and territory Registrars of Births Deaths and Marriages record all deaths in Australia certified by a medical practitioner or a

coroner. These data are then provided to ABS to translate to ICD-10 code and compile in the National Causes of Death Database. The ABS uses the Medical Mortality Data System (MMDS) to automate code underlying and associated causes of death from death certificates with supplements from the National Coroners Information System (NCIS).

Alcohol-related causes of death data in year 2010 was requested from ABS, aggregated by age group, gender, state and ICD-10 conditions as listed in Table 2. Numbers between one and four were randomised in the data extraction. Underlying causes and associated causes were both provided in this dataset. In this report only underlying causes were used in the analysis. Total number of deaths by gender and state for Australians aged 15+ in 2010 is downloaded from ABS directly[1].

Errors and ill-defined causes existed in the death data introduced by incomplete records, misreported cause of death, and processing errors of ICD-10 code translation. "Garbage code redistribution" is commonly adopted in global and Australian BoD studies to reduce these errors [7, 19]. "Garbage codes" refer to ICD codes for ill-defined or residual categories of major disease groups (e.g. cardiovascular diseases) that do not provide meaningful information on underlying disease or injury causes of death[2]. However this method was not adopted in this study, as most of those ill-defined ICD-10 categories are either not of sufficient influence to the diseases used in the analysis, or occur in categories which contain only a low number of cases. Deaths caused by birth conditions were not provided by ABS due to confidentiality reasons, hence they were not included in the analysis.

[1] 3302.0-Deaths, Australia, 2010, available at: http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3302.02010?OpenDocument
[2] Definition from the GBD Glossary. Available at: http://www.ncbi.nlm.nih.gov/books/NBK11818/

Table 2. Disease categories and the source of Relative Risk (RR) relationship with alcohol consumption

Condition	ICD-10 code	Source of RR	2010 Global BoD ICD-10 code
Cancers			
Breast cancer	C50	[20]	C50, D0.5-D05.9, D48.6
Colon cancer	C18	[20]	C18-C21, D01.0-D01.3, D37.3-D37.5 (Colon and Rectum cancer combined and rectum cancer risk is applied in this group)
Larynx cancer	C32	[20]	C32, D02.0, D38.0
Liver cancer	C22	[20]	C22, D01.5, D37.6
Oesophagus cancer	C15	[20]	C15-C159, D00.1
Oral cavity and pharynx cancer	C00-C14	[20]	C00-C13
Rectum cancer	C19-21	[20]	-
Cardiovascular diseases			
Alcohol cardiomyopathy‡	I42.6		Not included
Cardiac arrhythmias	I47-I49	[21]	I48 (atrial fibrillation and flutter)
Haemorrhagic stroke†	I60-I62, I69.0, I69.1, I69.2	[22]	I60-I62, I69.0-I69.2, I67.4
Hypertensive disease	I10-I15	[23]	I11(hypertensive heart disease)
Ischaemic heart disease	I20-I25	[24]	I20-I25
Ischaemic stroke	I63-I67, I69.3	[22]	I63, I65-I67(except I67.4), I69.3
Conditions arising before birth			
Fetal alcohol syndrome‡	Q86.0		Not included
Fetus and newborn affected by maternal use of alcohol‡	P04.3		Not included
Maternal care for damage to foetus from alcohol‡	O35.4		Not included
Low birth weight	P05-P07	[25]	Not included
Digestive diseases			
Alcoholic gastritis	K29.2		Not included
Liver Cirrhosis	K70, K73-K74	[26]	I85, K70, K71.7, K72.1-K72.9, K73-K74, K75.2-K75.9, K76.6-K76.7, K76.9
Pancreatitis	K85, K86.0, K86.1	[27]	K85-K86.9
Diabetes			
Diabetes mellitus (Type 2)	E11-E14	[28]	E10-E13 (except E10.2, E11.2, E12.2, E13.2) (Type 1 and Type 2 diabetes combined)

Condition	ICD-10 code	Source of RR	2010 Global BoD ICD-10 code
Infectious and parasitic diseases			
HIV	B20-B24	[29, 30]	B20-B24, C46-C46.9, D84.9
Lower respiratory infections	J10-J22	[31]	J09-J11, J13, J14, J12.1, J12 (except J12.1), J15-J22, J85, P23
Tuberculosis	A15-A19, B90	[32]	A15-A19, B90, P37.0
Injuries			
MVA	§	[2]	V01-V04, V06, V09, V10-V19, V20-V29, Y85.0, V30-V79, V87.2-V87.3, V80, V82 (road injuries)
Drowning	W65-W74	[2]	V05, V81, V83-V86, V88.2, V88.3, V91, V93-V98, W00-W19, V90, V92, W65-W74, X00-X19, X46-X47, X48, X40, X43-X44 W32-W34, W24-W31, W45,W46, Y40-Y84, Y88, X20-X29, W53-W64, W21, W39, W44, W49-W52, W75-W99, X50-X58, X70, X76-X77, X72-X74, X68, X71, X75, X78-X83, X60-X67, X69, X93-X95, X99, X85-X92, X96-X98, Y00-Y08, X30-X39, Y36, Y89.1, Y35, Y89.0
Falling	W00-W19	[2]	
Fires	X00-X09	[2]	
Poisonings	X40-X44, X46-X49, Y10-Y14, Y16-Y19	[2]	
Poisoning and exposure to alcohol‡	T51.0, T51.1, T51.8, T51.9, X45, X65, Y15	[2]	
Self-inflected injury	X60-X64, X66-X84, Y87.0	[2]	
Violence	X85-Y09, Y87.1	[2]	
Other unintentional injuries	Rest of V-series and W20-W64, W75-W99, X10-X39, X50-X59, Y40-Y86, Y88, and Y89	[2]	
Other intentional injury	Y35	[2]	
Other injures with unknown intent	Y20-Y34	[2]	
Neuropsychiatric diseases			
Epilepsy	G40-G41	[33]	G40-G41
Mental and behavioural disorders due to use of alcohol‡	F10		F10, X45, Q86.0
Other alcohol-induced neuropsychiatric conditions‡	G62.1, G31.2, E24.4, G72.1		Not included
Others			
Excess alcohol blood levels‡	R78.0		Not included
Evidence of alcohol involvement determined by blood alcohol level‡	Y90		Not included
Problems related to lifestyle alcohol use‡	Z72.1		Not included

§ V02.1–V02.9, V03.1–V03.9, V04.1–V04.9, V09.2, V09.3, V12.3–V12.9, V13.3–V13.9, V14.3–V14.9, V19.4–V19.6, V20.3–V20.9, V21.3–V21.9, V22.3–V22.9, V23.3–V23.9, V24.3–V24.9, V25.3–V25.9, V26.3–V26.9, V27.3– V27.9, V28.3–V28.9, V29.4–V29.9, V30.4–V30.9, V31.4–V31.9, V32.4–V32.9, V33.4–V33.9, V34.4–V34.9, V35.4–V35.9, V36.4–V36.9, V37.4–V37.9, V38.4–V38.9, V39.4–V39.9, V40.4–V40.9, V41.4–V41.9, V42.4–V42.9, V43.4–V43.9, V44.4–V44.9, V45.4–V45.9, V46.4– V46.9, V47.4–V47.9, V48.4–V48.9, V49.4–V49.9, V50.4–V50.9, V51.4–V51.9, V52.4–V52.9, V53.4–V53.9, V54.4–V54.9, V55.4–V55.9, V56.4–V56.9, V57.4–V57.9, V58.4–V58.9, V59.4–V59.9, V60.4–V60.9, V61.4–V61.9, V62.4–V62.9, V63.4–V63.9, V64.4–V64.9, V65.4– V65.9, V66.4–V66.9, V67.4–V67.9, V68.4–V68.9, V69.4–V69.9, V70.4–V70.9, V71.4–V71.9, V72.4–V72.9, V73.4–V73.9, V74.4–V74.9, V75.4–V75.9, V76.4–V76.9, V77.4–V77.9, V78.4–V78.9, V79.4–V79.9, V80.3–V80.5, V81.1, V82.1, V83.0–V83.3, V84.0–V84.3, V85.0– V85.3, V86.0–V86.3, V87.0–V87.8, V89.2

‡ Diseases wholly attributable to alcohol (AFF=1)

† Include haemorrhagic and other non-ischaemic stroke

Hospital admissions

An alcohol-related patient level dataset was provided by the Australian Institute of Health and Welfare (AIHW) from the National Hospital Morbidity Database (NHMD). The NHMD is a unit level record dataset including patient admission records in all public and private hospitals (acute or psychiatric), and private free standing day hospital facilities. Public sector hospitals not within the jurisdiction of a state or territory health authority were not included. The dataset used in the current project includes all hospital statistical separations in Australia admitted in 2010. Principal diagnoses, other primary diagnoses, external causes, in addition to age, sex and residential state of the patient were provided for each statistical separation.

Where circumstance of the fatality (e.g. car crash) overwrite the nature of the injury (e.g. brain injury) in the underlying cause of death from hospital morbidity data, principal diagnoses were coded as the nature of injury, and the circumstances of the injury were coded in external causes. For example a patient may fall from a bed (W06) and injure their fingers (S60.0). The principal diagnosis should be coded as injury of fingers (S60.0), and the external cause should be coded as a fall (W06). Hence secondary data cleaning was carried out to manually recode external causes (listed in Table 2) to the principal diagnosis. All injuries were categorised to be motor vehicle accidents (MVA) or non-motor vehicle accidents (NON-MVA) to be consistent with the international alcohol BoD methodology [9, 34].

National Drug Strategy Household Surveys (NDSHS)

NDSHS are national stratified random household surveys that have been conducted every three years since 1985, and routinely collect alcohol and drug use information of Australian residents aged 14 years and over (age 12 from 2010). The surveys have previously used face-to-face interview, 'drop and collect' of self-completed booklets and computer assisted telephone interviewing methodologies, though only the 'drop and collect' method was used in 2010. The analysis for the present study used data from the 2010 NDSHS with the absolute person weight.

Prevalence of lifetime abstainers (those who had never have a full serve of alcohol), former drinkers and drinkers were calculated using questions E1 ("Have you ever tried alcohol?"), E2 ("Have you ever had a full serve of alcohol?") and E5 ("Have you had an alcoholic drink of any kind in the last 12 months"). Alcohol consumption quantities of respondents were estimated using the graduated-quantity-frequency questions (E17)[3]. Missing data in the E17 questions were back-filled with the frequency question[4] and the quantity question[5]. When more than 365 drinking days were given by the sum of the graduated-quantity-frequency questions, higher drinking quantities were used in overlapped periods. For example, if a respondent reported drinking 3-4 standard drinks every day and 7-10 standard drinks monthly, the total drinking quantity in the responding year was calculated as:

8.5 standard drinks × 12 days + 3.5 standard drinks × (365 days − 12 days).

Years of Life Lost (YLL) and Years of Life Lost Due to Disability (YLD)

Unit record cause of death data in 2010 has not been released by the ABS due to a currently operating review process of relevant legislation. Hence the YLL summary measure cannot be estimated directly from the deaths data. In the meantime disease prevalence data are also not available. Hence YLL and YLD for Australia for the present study were obtained from the 2010 Global BoD study[6]. There is a mismatch of ICD-10 codes used for some disease categories between the alcohol BoD study and the Global BoD study (see Table 2).

[3] Question E17-"Please recode how often in the last 12 months you have had each of the following number of standard drinks in a day?" with "20 or more standard drinks a day, 11-19 standard drinks a day... Less than 1 standard drinks a day, None" against "Every day, 5-6 days a week...About 1 day a month, Less often, Never"

[4] Question E7 -"In the last 12 months, how often did you have an alcoholic drink of any kind?"

[5] Question E15-"On a day that you have an alcoholic drink, how many standard drinks do you usually have?"

[6] Available at: http://www.healthmetricsandevaluation.org/search-gbd-data

Missing data

Deaths and hospitalisations occurring due to pre-birth conditions were not provided by the ABS and AIHW due to confidentiality reasons. Hence, these conditions are not included in the present study. Principal diagnoses were missing in approximately 0.4% of all hospitalisation records (suppressed to protect confidentiality). Most of these records were treated as missing data, except records including injuries in external causes which were re-coded to injuries.

Population estimates

Estimated Resident Population (ERP) by age, gender and state were obtained from ABS[7].

Alcohol consumption

ABS estimated apparent PCA based on state and territory alcohol sales data until 1996 when most states and territories stopped collecting alcohol sales data. PCA was then estimated using national wholesale data, which reflects alcoholic beverages available for consumption rather than those consumed. In WA, the NT and Queensland, the National Alcohol Sales Data Projects continued to report PCA is based on alcohol sales data [18], which are more accurate estimations.

[7] 3101.0-Australian Demographic Statistics, available at: http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3101.0Jun%202013?OpenDocument

Modelling Consumption Distributions

Alcohol consumption x in a population has been found to be best modelled using a gamma distribution [35], as follows:

$$f(x;k,\theta) = \frac{x^{k-1}}{\int_0^{\infty} x^{k-1}e^{-x}dx}\theta^{-k}e^{-\frac{x}{\theta}}. \quad (1)$$

Where k is the shape parameter and θ is the scale parameter. k and θ can be calculated using the mean consumption, μ, and the standard deviation of consumption, σ:

$$\theta = \frac{\sigma^2}{\mu}, \quad (2)$$

$$k = \frac{\mu^2}{\sigma^2}. \quad (3)$$

A linear relationship has also been found between the mean and the standard deviation of consumption [35]. Therefore, knowing the average PCA, the distribution of alcohol consumption in a drinking population can be estimated. In this study, we divided the total population into 6 age and gender groups: male 15-34, male 35-64, male 65+, female 15-34, female 35-64, and female 65+. We assumed that in each age and gender group the consumption pattern followed a gamma distribution with a linear relationship between the mean and the standard deviation of consumption, as follows:

$$\sigma_{men} = 1.171\,\mu_{men}, \quad (4)$$

$$\sigma_{women} = 2.258\,\mu_{women}. \quad (5)$$

The differences in alcohol consumption among age and gender groups were measured using self-report data collected as part of the 2010 NDSHS. However, national surveys have been found to underestimate true alcohol consumption in a population by as much as 30-70% when compared with sales or taxation data [9]. Therefore, survey data alone should not be used to estimate levels of consumption without adjustment [36]. Underreporting occurs if those surveyed provide lower estimates of their true actual consumption, and because high alcohol consumers in the community such as the homeless or those institutionalised are excluded or are reluctant to participate.

In this study, we uplifted estimated PCAs from NDSHS using the national apparent PCA (average of two financial years: 2009-2010 and 2010-2011)[8]. In Western Australia, Northern Territory and Queensland the uplifted PCAs were corrected using available data in financial year 2009/2010 [18]. To be consistent with the algorithms used in the Global Burden of Disease (GBD) 80% of per capita consumption of alcohol was used as the standard to account for alcohol that was bought but not consumed [17]. The distribution of alcohol consumption in each state, age and gender group was then generated with corrected average alcohol consumption in the population group.

[8] 43070DO001-Apparent Consumption of Alcohol, Australia, 2011-12 released 18/09/2013, available at: http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/4307.0.55.0012011-12?OpenDocument

Deriving Alcohol-Attributable Fractions

AAFs for chronic diseases (except ischemic heart disease) and respiratory infectious diseases

AAFs were calculated as the fraction of risk attributable to alcohol among all risks using prevalence of lifetime abstainer ($P_{abstainer}$), former drinker (P_{former}), RR of former drinker (RR_{former}), consumption distribution of current drinker and RRs for causing diseases at different consumption level, see below:

$$AAF = \frac{P_{abstainer}+P_{former}RR_{former}+\int_0^{150} P_{drinker}(x)\,RR_{drinker}(x)\,dx-1}{P_{abstainer}+P_{former}RR_{former}+\int_0^{150} P_{drinker}(x)\,RR_{drinker}(x)\,dx}, \quad (6)$$

Where $P_{drinker}(x)$ is the prevalence of current drinkers consuming x grams of alcohol daily (following the gamma distribution described above), $RR_{drinker}(x)$ is the RR for drinkers drinking x grams of alcohol daily compared with abstainers, and RR_{former} is the RR for former drinkers compared with abstainers (sources of RRs are listed in Table 2). We assumed that the maximum daily consumption was 150 g/day, and the RR of a former drinker is independent from drinking behaviour of the former drinker.

AAF for ischemic heart disease

The protective effect for ischemic heart disease is known to be influenced by both average consumption of alcohol and the presence of "binge drinking" behaviours [37]. In this study, the proportion of binge drinkers (defined as at least one binge drinking occasion of 5+ standard drinks per month) was obtained from the NDSHS, and the protective effect for this population is omitted. The AAFs for non-binge drinking populations was calculated similar to other chronic conditions with the maximum daily consumption set as 50 g/day.

AAFs for injuries

Both average alcohol consumption and drinking patterns were considered for calculating AAFs for injuries. The calculation was as follows:

$$AAF = \frac{P_{abstainer}+P_{former}+P_{non-binge}RR_{non-binge}+P_{binge}RR_{binge}-1}{P_{abstainer}+P_{former}+P_{non-binge}RR_{non-binge}P_{non-binge-risk}+P_{binge}RR_{binge}P_{binge-risk}}, \quad (7)$$

The prevalence of non-binge drinking occasions among drinkers, $P_{non\text{-}binge}$, was calculated as :

$$P_{non-binge} = P_{drinker}(1 - P_{binger}P_{binge/day}), \quad (8)$$

Where P_{binger} is the prevalence of binge drinkers and $P_{binge/day}$ is the probability of a binge drinker binge drinking in a day. Similarly, P_{binge} the prevalence of binge drinking occasions among drinkers and can be calculated as follows:

$$P_{binge} = P_{drinker}P_{binger}P_{binge/day}. \quad (9)$$

Relative risks for non-binge drinking, $RR_{non\text{-}binge}$, and binge drinking, RR_{binger}, were calculated as follows:

$$RR_{non-binger} = (RR_{average} - 1)\,P_{non-bingedays} + 1, \text{ and} \quad (10)$$

$$RR_{binger} = (RR_{average} - 1)\,P_{bingedays} + 1. \quad (11)$$

$RR_{average}$ is RR for non-binge average drinking and was calculated using the average alcohol consumption for drinkers in non-binge drinking occasions. $P_{non\text{-}bingedays}$ and $P_{bingedays}$ are the proportions of a given day during which a person's non-binge drinking or binge drinking is at risks. $P_{non\text{-}bingedays}$ and $P_{bingedays}$ were calculated based on the alcohol metabolism rates [34] using average alcohol consumption for non-binge drinking occasions and binge drinking occasions.

AAF for HIV

Alcohol consumption was modelled by calculating the fraction of alcohol, as a risk factor, contributing to the non-adherence to antiretroviral therapy [38].

$$\text{AAF} = \frac{P_{abstainer}+P_{drinker}RR_{drinker}-1}{P_{abstainer}+P_{drinker}RR_{drinker}} \cdot \frac{P_{adher}+P_{na}RR_{na}-1}{P_{adher}+P_{na}RR_{na}} \cdot P_{treat\_death} \cdot \quad (12)$$

Here $RR_{drinker}$ is the RR of non-adherence due to alcohol consumption for drinkers. RR_{na} is the RR of mortality for those who are not adhering compared with those who are, P_{adher} is the proportion of patients adhering to treatment, and P_{na} is the proportion of patients adhering less than 95% of the time. P_{treat_death} is the proportion of deaths of patients undergoing treatment.

Time course analysis

This report utilised methodology in common with recent Comparative Risk Analysis (CRA) studies in Europe and North America (see [9, 11]), whereby alcohol-attributable burden was calculated as if the consequences of that consumption are immediate. For many diseases, including chronic conditions such as liver cirrhosis [39], this assumption holds true. However, for cancers the effect of alcohol consumption can only be seen after an extended period of time, and for other conditions research on time-lag effects are scant [40]. However, it is important to consider alcohol's contribution to cancer related mortality given that 5% of all cancers in Australia are attributable to long-term alcohol use [41], and also for completeness in estimating alcohol-related burden. As with similar studies conducted in Europe, it is important to note that in interpreting alcohol's effect on mortality and morbidity of diseases, the calculations used in this report assumed uniform exposure to alcohol for at least the previous two decades.

Measuring Alcohol-Attributable BoD

Five indicators were used to measure alcohol-attributable BoD in this report including deaths, hospitalisations, YLL due to premature mortality, YLD and DALYs. It is important to note that totals included in results for all indicators may not reflect a sum of all of the individual numbers, this is because rounding errors can be introduced by calculating the proportion of burden due to alcohol consumption.

Number of deaths attributable to alcohol

The number of deaths attributable to alcohol for different diseases and injuries was calculated by age, gender and state using the estimated AAF for the disease times numbers of deaths identified as primarily caused by the disease (underlying cause). Number of deaths attributable to alcohol was not reported in categories where total number of deaths was less than five.

Number of hospitalisations attributable to alcohol

Unit-level hospital separation records were used to calculate alcohol-attributable hospitalisations by gender, age and state using estimated AAFs for different disease and injury types. When the total number of hospitalisations caused by a disease was less than five, alcohol-attributable hospitalisations were not reported.

Rates per 100,000 population

Both crude and age standardised rates per 100,000 population were calculated separately for men and women in different states using STATA 12. Crude rates include population age differences, which reflect the prevalence of a disease, whereas standardised rates remove the effect of age, enabling comparison of alcohol-attributable burden across different jurisdictions. Standardised rates were calculated using direct standardisation methods in STATA 12. The 2010 Australia ERP was set as the standard population. Rates were not provided when there were fewer than five cases in a disease category.

Proportion attributable to alcohol

The proportion of incidents (deaths or hospitalisations) attributable to alcohol in Australia (by gender and state) was calculated using the total number of incidents (by gender and state), not the total number of incidents caused by conditions listed in Table 2. However, the proportion of incidents attributable to a disease category (e.g. cancers), was calculated using total number of incidents caused by diseases in the disease category listed in Table 2. For example, the proportion of neuropsychiatric diseases attributable to alcohol includes all 1) mental and behavioural disorders due to use of alcohol, 2) epilepsy and 3) other alcohol-induced neuropsychiatric conditions attributable to alcohol. It does not mean that it is an alcohol-attributable proportion for all types of neuropsychiatric diseases. Other neuropsychiatric disease such as Parkinson's disease and polyneuropathies were not included.

YLL

YLL measures the potential years that the person could have lived without premature death. This estimation combines the number of deaths and death ages to indicate potential social and economic consequences of mortality [42].

$$\mathrm{YLL} = \sum_{i=0}^{\infty} N_{deaths}(i)\, L(i). \tag{13}$$

Here N_{deaths} is the number of deaths at age i, and $L(i)$ is the global life expectancy at age i (see [19]).

YLD

YLD is the measurement of equivalent 'healthy' years lost due to disability caused cases of disease or injury in the baseline year, which is calculated as follows:

$$\mathrm{YLD} = N_{prevalence} W_{disease}, \tag{14}$$

Where $N_{prevalence}$ is the number of prevalent cases of a disease and $W_{disease}$ is the disability weight for the disease.

DALYs

DALYs add together YLL and YLD directly, and as such provide a summary measure that incorporates all years of life lost whether to premature mortality, or to living with a disability.

$$\mathrm{DALYs} = \mathrm{YLL} + \mathrm{YLD} \tag{15}$$

CHAPTER 3

Key Indicators of Alcohol Consumption

Background

Harmful alcohol use is risky for both the individual drinker and for others (e.g. people may be involved in a motor vehicle accident or be the victim of violent behaviour that is fuelled by alcohol). Indeed, a study by Laslett et al. [43] reported that 28.5% of a national telephone sample of Australian adults had been harmed by someone known to them in the previous 12 months and alcohol was involved, while 69.8% were adversely affected by a stranger's drinking to any degree in the past year [43].

WHO estimated that per capita consumption of alcohol for persons aged 15+ was 10.0L per year in 2005 [44]. The estimates provided for Australia in this analysis were comparable, with an estimated 10.42L of alcohol consumed per person per year, with males consuming significantly more (14.40L) than females (6.50L), and an overall stable per-capita consumption in Australia between the years 2001 and 2005 [45].

In addition to considering the amount of alcohol consumed, patterns of drinking which reflect the frequency and circumstances of alcohol consumption and the proportion of people who drink to intoxication should be considered [45]. On the summary pattern of drinking score, measured on a scale from 1 (least risky) to 5 (most risky), Australia is given a score of 2, similar to comparable countries including New Zealand and Canada [45]. Heavy episodic drinking is important when considering alcohol-related harms given that it leads to increased levels of serious injury and health problems. WHO estimated that 11.5% of drinkers engage in heavy episodic drinking, defined as 60 grams or more of pure alcohol at least once weekly, and that 9.9% of Australian male drinkers and 2.6% of Australian female drinkers engage in this pattern of drinking [45].

Results

Measures of alcohol consumption

In deriving indicators which reflect consumption habits of Australian drinkers, drinking status was classified in this report as:

1) **Current drinkers:** people who have consumed at least one full serve of alcohol in the previous 12 months (defined as a drink which contains 10g of pure ethanol, such as a 30mL serve of spirits (40% alc. vol), a 100mL serve of white wine (11.5% alc. vol), or 375mL of mid-strength beer (3.5% alc. vol)[9].

2) **Former drinkers:** people who have consumed alcohol in the past, but not in the previous 12 months.

3) **Lifetime abstainers:** people who have never consumed a full serve of alcohol.

Volume of alcohol consumption

The following tables describe key alcohol consumption data for Australians aged 15+. These data were extracted from the 2010 NDSHS dataset [46], and display the proportion of drinkers in the previous year who drank various quantities of alcohol, as well as those who abstained from alcohol or did not drink alcohol in the previous 12 months[10].

[9] Comparative Tables of 'standard drinks' available at: http://www.nhmrc.gov.au/_files_nhmrc/file/your_health/healthy/alcohol/std-drinks-large.jpg

[10] This differs from the NDSHS report (question E28) which includes in the calculation of drinking status the question: "At the present time do you consider yourself? A non-drinker; an ex-drinker;..... a binge drinker".

Table 3. Prevalence of alcohol consumption for men (15+)

State	Abstainers	Former drinkers	0-40g	40-60g	60-100g	>100g	>4 standard drinks per day	>4 standard drinks once‡
NSW	10.96%	6.76%	69.82%	7.34%	3.52%	1.60%	12.46%	47.33%
VIC	10.78%	7.79%	70.56%	5.93%	3.42%	1.52%	10.87%	48.50%
QLD	6.30%	7.12%	70.78%	8.92%	4.18%	2.70%	15.81%	56.76%
SA	8.63%	8.36%	70.31%	8.29%	2.43%	1.98%	12.70%	48.14%
WA	7.07%	6.83%	70.99%	7.54%	5.59%	1.98%	15.11%	54.43%
TAS	3.99%	5.60%	76.95%	7.50%	4.73%	1.22%	13.45%	51.12%
NT	6.82%	6.60%	64.78%	11.12%	6.40%	4.27%	21.79%	59.46%
ACT	6.71%	4.83%	78.25%	5.44%	3.79%	0.99%	10.21%	54.66%
Total (AUS)	9.14%	7.15%	70.61%	7.40%	3.82%	1.88%	13.10%	50.63%
EU*	5.0%	6.1%	62.1%	10.8%	10.9%	5.2%	N/A	N/A

* For Comparison with Rehm et al. (2012) Alcohol consumption, alcohol dependence and attributable burden of disease in Europe. CAMH: Canada.

‡ Drank >4 standard drinks at least once in year 2010

Table 4. Prevalence of alcohol consumption for women (15+)

State	Abstainers	Former drinkers	0-20g	20-40g	40-60g	>60g	>4 standard drinks per day	>4 standard drinks once‡
NSW	16.18%	9.53%	64.87%	6.75%	1.74%	0.93%	2.66%	28.64%
VIC	15.12%	9.00%	65.89%	6.30%	2.08%	1.62%	3.69%	28.77%
QLD	10.18%	10.04%	67.88%	8.14%	2.44%	1.33%	3.76%	35.05%
SA	12.40%	9.95%	68.55%	5.85%	2.47%	0.78%	3.26%	30.25%
WA	11.01%	8.31%	69.33%	7.28%	1.81%	2.26%	4.07%	33.97%
TAS	7.88%	10.38%	73.47%	6.01%	2.01%	0.24%	2.25%	29.56%
NT	8.27%	6.70%	69.04%	8.93%	4.36%	2.69%	7.05%	41.36%
ACT	8.33%	6.93%	75.86%	7.22%	0.86%	0.80%	1.66%	34.89%
Total (AUS)	13.53%	9.36%	66.86%	6.91%	2.04%	1.30%	3.34%	30.83%
EU*	9.50%	8.50%	59.10%	13.60%	5.20%	4.10%	N/A	N/A

* For Comparison[9]

‡ Drank >4 standard drinks in one occasion at least once in year 2010

Table 3 and Table 4 show that for both males and females the highest proportions of abstainers were in NSW and Victoria, and the lowest levels of abstainers were in Tasmania. The proportion of males who consumed more than 4 standard drinks per day on average varied from 10.21% to 21.79%, with a national figure of 13.10%. The proportion of females in this group was lower than for males, and varied from 1.66% in the ACT to 7.05% in the NT. The proportion of the population who consumed over 4 standard drinks in one occasion at least once was about 51% in men and 31% in women, which were much higher than the proportions drinking 4 standard drinks per day on average.

Table 3 and Table 4 also show figures from the most recent study conducted in the European Union (EU) by Rehm et al. [9] for comparison. The proportion of males and females who are lifetime abstainers is higher in Australia than in the EU, while the levels of former drinkers are comparable. Greater proportions of males in the EU drink 40-100g of alcohol compared with Australian males. There was a greater proportion of females in Australia who reported drinking 0-20g per year compared to the EU, while levels of 20-40, 40-60g and >60g were lower in Australian females.

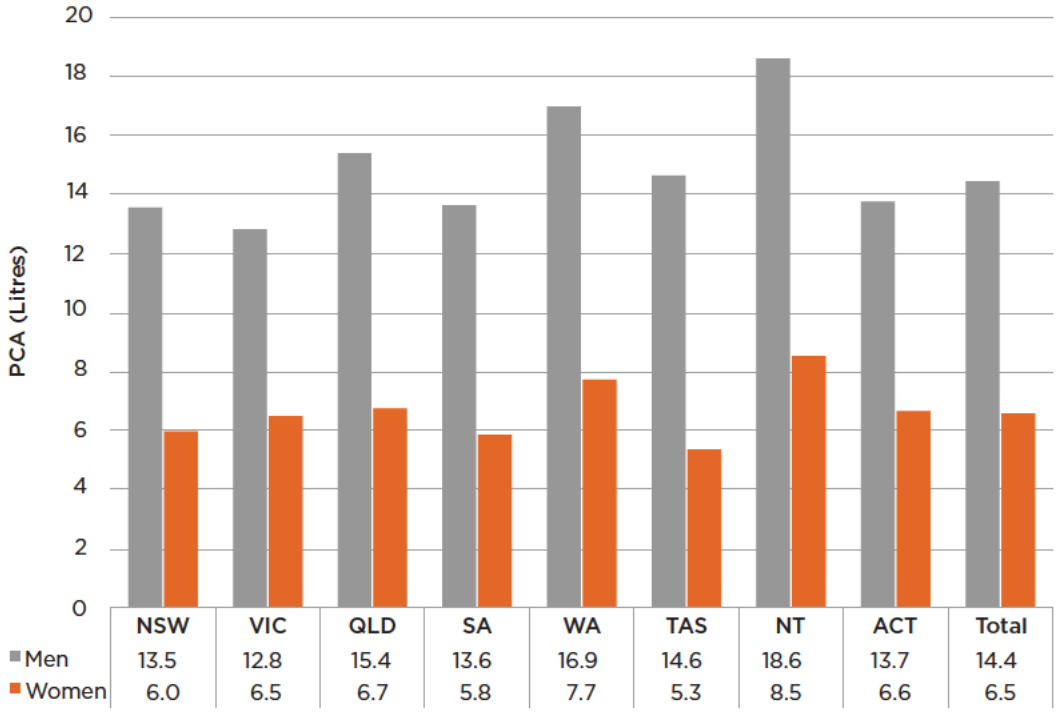
Mean annual PCAs were estimated using the 2010 NDSHS dataset for Australians aged 15+ displayed below in Table 5. Estimated PCAs from NDSHS varied from 5.20L per person per year in Victoria to 8.31L per person per year in the NT. As shown in Table 5, up-lifted and corrected PCAs are approximately 1.8 times higher compared with mean PCAs estimated using NDSHS. Differences between jurisdictions can be noted in Table 5 and Figure 2 below.

Table 5. Estimated adult alcohol consumption

State	Mean PCA (litres pure alcohol)*	Up-lifted PCA (litres pure alcohol)	Corrected PCA (litres pure alcohol) ‡
NSW	5.25	9.68	9.68
VIC	5.20	9.59	9.59
QLD	6.49	11.97	11.03
SA	5.22	9.62	9.62
WA	6.56	12.10	12.37
TAS	5.38	9.91	9.91
NT	8.31	15.32	13.73
ACT	5.51	10.16	10.16
Total (AUS)	5.65	10.42	10.42

* PCA estimated from NDSHS (2010) [46]
‡ Corrected using sales data from ABS figures and from sales data available for three states: QLD, WA, NT [18]

Figure 1. Estimated adult PCA (corrected) by gender and state



	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
Men	13.5	12.8	15.4	13.6	16.9	14.6	18.6	13.7	14.4
Women	6.0	6.5	6.7	5.8	7.7	5.3	8.5	6.6	6.5

Figure 2. Consumption of alcohol by persons aged 15+ in Australian jurisdictions

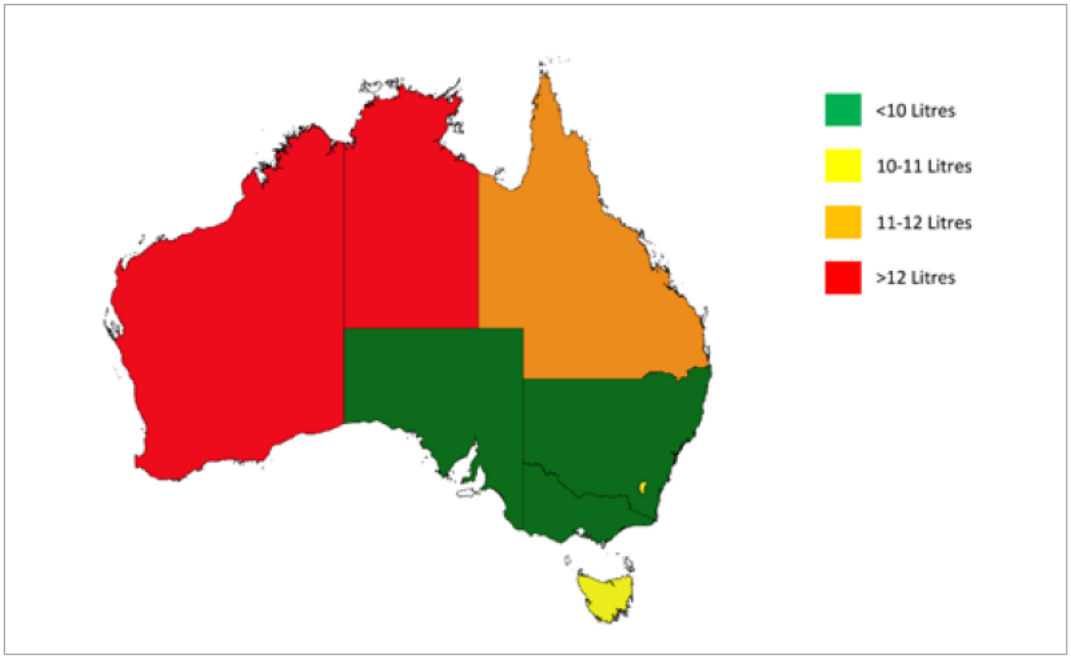


Figure 2 indicates differences in the annual PCA between different Australian jurisdictions once values have been corrected. Victoria, SA and NSW had the lowest PCA, while WA and the NT had the highest PCA, being >12 L per person per year.

Trends in national consumption over time

Recorded alcohol consumption for Australian adults has been consistent around the 10L per year per capita level for the past decade (see Figure 3). Different trends can be seen for the different types of alcohol, with beer and spirit consumption decreasing since 2007-2008 and wine and cider levels increasing during the same period.

Heavy drinking occasions

Consuming multiple alcoholic drinks on a single occasion has been associated with many diseases and illnesses independent of a person's demographic, Socioeconomic Status (SES) characteristics, drug use, psychiatric condition or overall alcohol intake [47]. While national guidelines differ regarding recommended limits to reduce harms associated with drinking [48], the National Health and Medical Research Council (NHMRC) recommends that healthy Australian adults consume no more than 4 standard drinks on a single occasion to minimise short-term (acute) harms [49]. Heavy drinking occasions have also been associated with detrimental outcomes for particular sections of the community such as young males [50, 51], and cancels out any protective effects of light-moderate drinking in older adults [16].

Table 6 and Table 7 show that although about 50% of male respondents and 70% of female respondents aged 15+ reported never consuming over four standard drinks in a single occasion, 19% of male respondents reported consuming more than four drinks at least once per week, and >12% of female adults consumed more than four standard drinks monthly.

Figure 3. Consumption of alcohol by persons aged 15+ in Australia

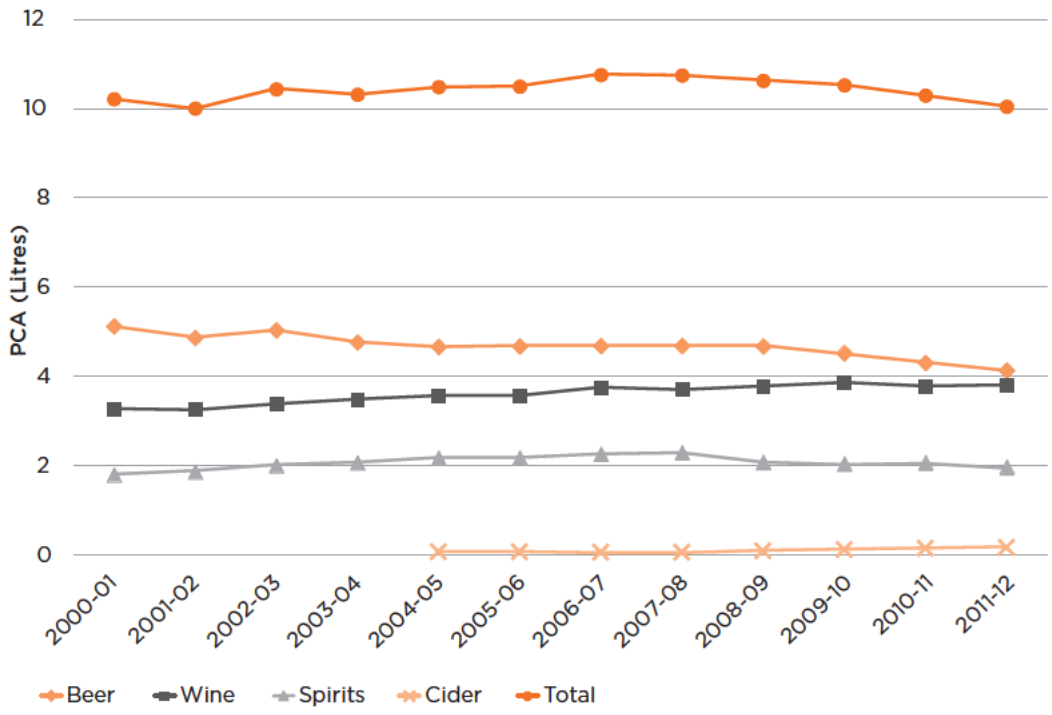


Table 6. Frequency of drinking more than four standard drinks at a time for men (15+)

State	Everyday	5-6 days a week	3-4 days a week	1-2 days a week	2-3 days a month	About 1 day a month	Less often	Never	Do not know
NSW	3.38%	2.36%	3.82%	8.79%	8.67%	11.82%	6.72%	52.67%	1.77%
VIC	2.38%	1.85%	3.97%	7.92%	11.85%	11.76%	7.37%	51.50%	1.40%
QLD	4.40%	3.16%	4.96%	9.18%	13.22%	13.72%	6.25%	43.24%	1.88%
SA	2.70%	2.65%	3.19%	10.09%	9.40%	13.02%	5.85%	51.86%	1.24%
WA	4.43%	3.55%	2.56%	11.46%	11.21%	13.06%	6.86%	45.57%	1.31%
TAS	3.77%	1.94%	5.77%	10.45%	10.79%	10.65%	7.66%	48.88%	0.10%
NT	7.50%	3.28%	5.63%	11.26%	11.06%	15.24%	4.67%	40.54%	0.83%
ACT	2.55%	2.01%	4.49%	8.81%	12.66%	14.91%	8.52%	45.34%	0.71%
Total (AUS)	3.43%	2.53%	3.98%	9.08%	10.83%	12.46%	6.77%	49.37%	1.55%

Table 7. Frequency of drinking more than four standard drinks at a time for women (15+)

State	Everyday	5-6 days a week	3-4 days a week	1-2 days a week	2-3 days a month	About 1 day a month	Less often	Never	Do not know
NSW	0.89%	0.33%	0.61%	3.72%	5.30%	8.77%	6.81%	71.36%	2.20%
VIC	0.61%	0.93%	1.20%	3.51%	5.74%	8.63%	6.82%	71.23%	1.34%
QLD	1.08%	0.55%	1.11%	4.35%	7.73%	10.50%	7.97%	64.95%	1.77%
SA	0.57%	0.46%	0.82%	3.47%	6.34%	9.90%	7.51%	69.75%	1.18%
WA	1.08%	0.36%	1.17%	5.03%	6.66%	9.48%	8.28%	66.03%	1.91%
TAS	0.00%	1.11%	0.46%	1.75%	6.21%	10.41%	7.98%	70.44%	1.63%
NT	0.90%	1.39%	2.28%	7.25%	8.22%	12.45%	7.74%	58.64%	1.13%
ACT	0.00%	0.75%	0.29%	2.68%	9.09%	10.52%	9.22%	65.11%	2.34%
Total (AUS)	0.82%	0.57%	0.94%	3.88%	6.21%	9.33%	7.31%	69.17%	1.77%

CHAPTER 4

Overall Burden of Alcohol-Attributable Diseases in Australia

Background

Alcohol use is involved as a causal or component factor in more than 200 ICD-10 3-digit disease codes, with increased reported lifetime use associated with poorer outcomes [45, 52]. In the recent GBD, Lim et al. [8] estimated that there were 2.7 million deaths attributable to alcohol. This figure represents a rise in the number of deaths calculated during the 1990 GBD study which estimated that 1.9 million deaths were attributable to alcohol worldwide [8].

Results

Deaths and hospitalisations

This chapter presents data on the estimated number of alcohol-attributable deaths and hospitalisations in Australia in 2010. Table 8 shows that in males 3,467 deaths were attributable to alcohol and 101,425 hospitalisations, while in women there were 2,087 deaths and 55,707 hospitalisations. Table 8 also shows that there are gender differences in the conditions responsible for the highest proportion of deaths. In males, injuries were responsible for the highest proportion of alcohol-related deaths (36%), followed by cancers (25%) and digestive diseases (16%). However, in females the highest proportion of alcohol-attributable deaths was for cardiovascular diseases (34%) followed by cancers (31%) and injuries (12%). This table also shows that for hospitalisations in both males and females that injuries and neuropsychiatric diseases were the only categories responsible for more than 10% of alcohol-attributable hospitalisations.

Table 9, Figure 4 and Figure 5 display proportions of total deaths and hospitalisations in Australian men and women (15+) in each state attributable to alcohol in 2010. Figure 4 shows that 4.7% of deaths in Australian men were attributable to alcohol, while 3.0% of deaths in females were attributable to alcohol. The jurisdiction with the highest proportion of deaths for both sexes was the NT, approximately 3 times greater than the national average, while Victoria had the lowest proportion of deaths attributable to alcohol for both men and women. Figure 5 shows that 2.5% of hospitalisations in men and 1.2% in women were alcohol-attributable, with the highest proportion in the NT and the lowest in SA.

Table 8. Alcohol-attributable deaths and hospitalisations in Australia in 2010

Conditions	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
Detrimental effects				
Cancers	861 (25%)	642 (31%)	5,175 (5%)	5,002 (9%)
Cardiovascular diseases	436 (13%)	708 (34%)	7,115 (7%)	3,558 (6%)
Digestive diseases	549 (16%)	237 (11%)	6,726 (7%)	2,970 (5%)
Infectious and parasitic diseases	123 (4%)	123 (6%)	4,990 (5%)	3,704 (7%)
Injuries	1,239 (36%)	256 (12%)	47,189 (47%)	17,779 (32%)
Neuropsychiatric diseases	258 (7%)	122 (6%)	30,231 (30%)	22,695 (41%)
Total	3,467 (100%)	2,087 (100%)	101,425 (100%)	55,707 (100%)
Beneficial effects				
Cardiovascular diseases	359 (90%)	429 (72%)	9,382 (91%)	11,460 (78%)
Diabetes	39 (10%)	169 (28%)	897 (9%)	3,159 (22%)
Total	398 (100%)	598 (100%)	10,279 (100%)	14,620 (100%)

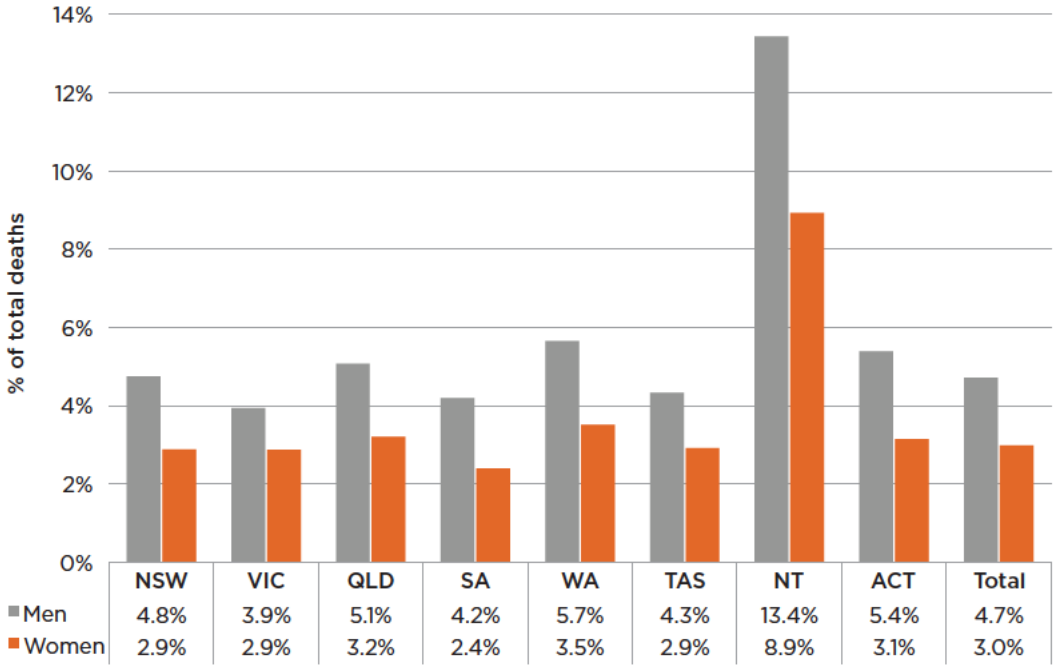
* Percentage of all alcohol-related deaths or hospitalisations.

Table 9. Alcohol-attributable deaths and hospitalisations by state in Australia in 2010

States	Deaths (%*)			Hospitalisations (%*)		
	Men	Women	Total	Men	Women	Total
NSW	1,157 (4.8%)	680 (2.9%)	1,837 (3.8%)	31,464 (2.6%)	16,688 (1.2%)	48,152 (1.9%)
VIC	706 (3.9%)	509 (2.9%)	1,214 (3.4%)	23,718 (2.1%)	15,663 (1.3%)	39,381 (1.7%)
QLD	728 (5.1%)	415 (3.2%)	1,143 (4.2%)	22,207 (2.6%)	11,767 (1.2%)	33,974 (1.9%)
SA	268 (4.2%)	157 (2.4%)	426 (3.3%)	7,222 (2.3%)	3,338 (1.0%)	10,560 (1.6%)
WA	384 (5.7%)	208 (3.5%)	592 (4.7%)	11,699 (2.6%)	5,749 (1.2%)	17,448 (1.9%)
TAS	92 (4.3%)	62 (2.9%)	155 (3.6%)	1,695 (3.5%)	941 (1.8%)	2,636 (2.6%)
NT	84 (13.4%)	32 (8.9%)	116 (11.8%)	1,864 (4.1%)	843 (1.5%)	2,708 (2.7%)
ACT	48 (5.4%)	25 (3.1%)	73 (4.3%)	1,556 (3.3%)	718 (1.6%)	2,273 (2.5%)
Total (AUS)	3,467 (4.7%)	2,087 (3.0%)	5,555 (3.9%)	101,425 (2.5%)	55,707 (1.2%)	157,132 (1.8%)

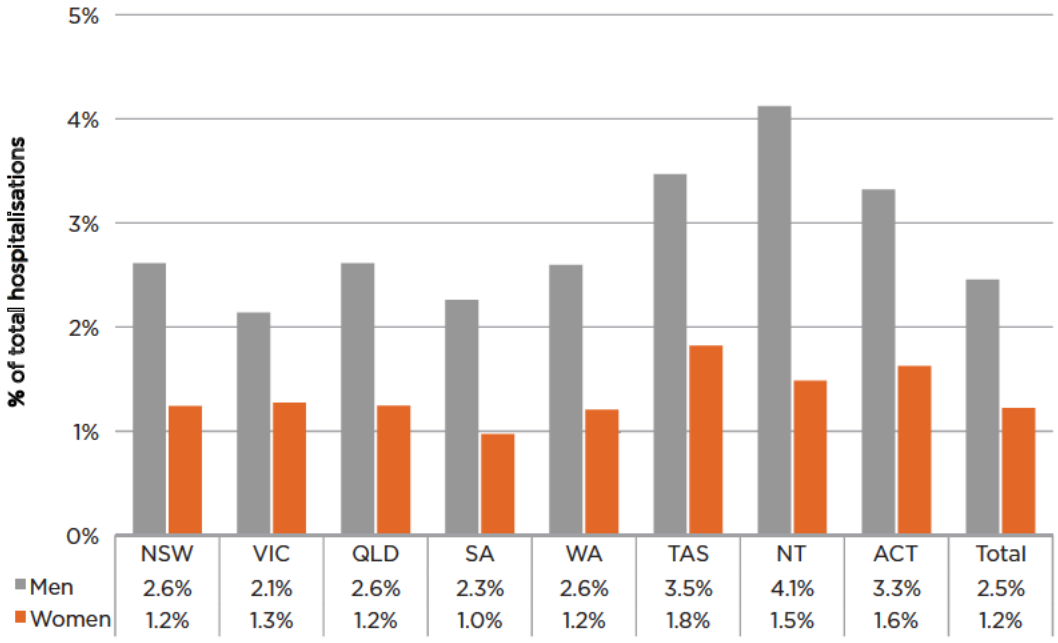
* Percentage of all deaths or hospitalisations.

Figure 4. Proportion of deaths in men and women attributable to alcohol by state in Australia in 2010



	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
Men	4.8%	3.9%	5.1%	4.2%	5.7%	4.3%	13.4%	5.4%	4.7%
Women	2.9%	2.9%	3.2%	2.4%	3.5%	2.9%	8.9%	3.1%	3.0%

Figure 5. Proportion of hospitalisations in men and women attributable to alcohol by state in Australia in 2010



	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
Men	2.6%	2.1%	2.6%	2.3%	2.6%	3.5%	4.1%	3.3%	2.5%
Women	1.2%	1.3%	1.2%	1.0%	1.2%	1.8%	1.5%	1.6%	1.2%

YLL, YLD and DALYs

The following tables present data on alcohol-attributable YLL, YLD and DALYs by disease type for both men and women in Australia in 2010. Table 10 displays that for men; injuries were responsible for the highest proportion of YLLs (45%) and DALYs (38%), while neuropsychiatric diseases had the highest proportion of YLDs (69%). For women, cancers had the highest proportion of YLLs (39%) and DALYs (29%), while neuropsychiatric diseases were responsible for the highest proportion of YLDs (65%). Table 11 displays that there were: 27,378 YLL to alcohol in men and 11,679 in women; 16,670 YLDs to alcohol in men and 5,239 in women; and 44,048 DALYs to alcohol in men and 16,917 in women. Table 11 also presents the breakdown of these summary measures by different jurisdictions. NSW with its large population had the highest number of each summary measure.

Figure 6 displays the summary measures of YLL, YLD and DALYs attributable to alcohol in both men and women in Australia in 2010. This figure shows that alcohol was attributable for more harm in males compared with females.

Table 10. Alcohol-attributable YLL, YLD and DALYs by disease type in Australia in 2010

Disease	YLL (%*)		YLD (%*)		DALYs(%*)	
	Men	Women	Men	Women	Men	Women
Cancers	18,434 (22%)	13,804 (39%)	544 (1%)	1,386 (8%)	18,977 (14%)	15,190 (29%)
Cardiovascular diseases	6,372 (8%)	8,365 (24%)	1,784 (3%)	637 (4%)	8,156 (6%)	9,002 (17%)
Digestive diseases	9,818 (12%)	2,729 (8%)	247 (0%)	83 (1%)	10,065 (7%)	2,812 (5%)
Infectious and parasitic diseases	2,267 (3%)	1,573 (4%)	435 (1%)	237 (1%)	2,702 (2%)	1,810 (4%)
Injuries	38,547 (45%)	6,307 (18%)	13,144 (25%)	3,349 (21%)	51,691 (38%)	9,656 (19%)
Neuropsychiatric diseases	9,508 (11%)	2,445 (7%)	35,883 (69%)	10,642 (65%)	45,391 (33%)	13,087 (25%)
Total	84,945 (100%)	35,223 (100%)	52,036 (100%)	16,334 (100%)	136,982 (100%)	51,556 (100%)

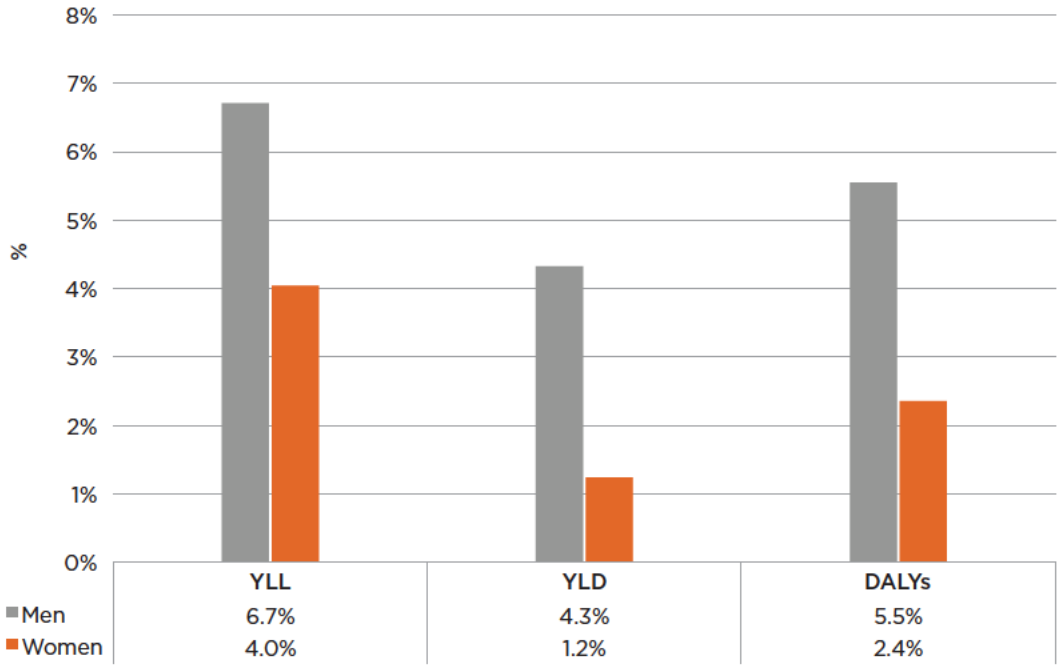
* Percentage of all alcohol-related YLL, YLD and DALYs.

Table 11. Alcohol-attributable YLL, YLD and DALYs by state type in Australia in 2010

States	YLL (%*)			YLD (%*)			DALYS (%*)		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
NSW	27,378 (12.7%)	11,679 (7.9%)	39,057 (10.7%)	16,670 (19.5%)	5,239 (8.6%)	21,908 (15.0%)	44,048 (14.6%)	16,917 (8.1%)	60,965 (12.0%)
VIC	18,965 (11.6%)	8,240 (7.4%)	27,205 (9.9%)	12,445 (19.2%)	4,087 (8.8%)	16,531 (14.9%)	31,410 (13.8%)	12,326 (7.8%)	43,736 (11.3%)
QLD	17,921 (13.9%)	7,199 (8.6%)	25,120 (11.8%)	10,648 (20.7%)	3,261 (9.3%)	13,909 (16.1%)	28,570 (15.9%)	10,460 (8.8%)	39,030 (13.1%)
SA	6,332 (12.3%)	2,603 (7.2%)	8,935 (10.2%)	3,806 (18.9%)	1,176 (8.0%)	4,983 (14.3%)	10,138 (14.2%)	3,779 (7.4%)	13,918 (11.4%)
WA	10,209 (15.4%)	3,830 (9.0%)	14,039 (12.9%)	5,791 (21.7%)	1,781 (9.9%)	7,572 (16.9%)	16,000 (17.2%)	5,611 (9.3%)	21,610 (14.1%)
TAS	1,845 (11.3%)	857 (7.7%)	2,702 (9.9%)	1,198 (18.8%)	360 (8.0%)	1,557 (14.3%)	3,043 (13.4%)	1,217 (7.8%)	4,260 (11.1%)
NT	991 (18.0%)	302 (11.3%)	1,293 (15.8%)	631 (26.7%)	167 (12.8%)	798 (21.7%)	1,621 (20.6%)	469 (11.8%)	2,091 (17.6%)
ACT	1,303 (13.4%)	514 (8.2%)	1,817 (11.3%)	849 (21.3%)	263 (9.5%)	1,111 (16.5%)	2,152 (15.7%)	777 (8.6%)	2,929 (12.8%)
Total (AUS)	84,945 (12.9%)	35,223 (8.0%)	120,168 (10.9%)	52,036 (19.9%)	16,334 (8.9%)	68,370 (15.4%)	136,982 (14.9%)	51,556 (8.2%)	188,538 (12.2%)

* Percentage of all YLL, YLD and DALYs.

Figure 6. Proportion YLL, YLD and DALYs in men and women attributable to alcohol in Australia in 2010



CHAPTER 5

Cancers

Background

Many studies of different designs and within different populations have shown that there is an increased risk of some types of cancer following alcohol consumption. Five percent of all cancers in Australia had been attributed to long-term alcohol use [41].

In 2007 the International Agency for Research on Cancer (IARC) monograph working group concluded that there was sufficient evidence for the carcinogenicity of alcohol, and subsequently classed alcoholic beverages as carcinogenic in humans [53]. The working group established that there was sufficient evidence for a causal link between alcohol consumption and cancers of the: oral cavity, pharynx, larynx, oesophagus, liver, colon, rectum and breast cancer in females and that there was a lack of carcinogenicity in renal-cell and non-Hodgkin's lymphoma. Alcohol was also believed to be a risk factor for stomach and lung cancer, however confounding effects of smoking and dietary habits could not be excluded [16].

A summary section of relevant cancers are provided in the following paragraphs, and reference to relevant articles, meta-analyses and reviews are given in Table A2.

Colorectal cancer

In 2007 the IARC monograph working group concluded that there was sufficient evidence for the carcinogenicity of alcohol and reported that there is an increased risk of colorectal cancers by 1.4 in those who consume on average 50g of alcohol per day [53]. Meta-analyses have determined that there are causal relationships between alcohol consumption and cancer of the colon and rectum [20, 54]. For example, Cho et al. [54] determined that there was an increased risk for colorectal cancer in those with an alcohol intake of 30+g per day for both males and females, with no clear differences between different alcoholic beverage types. Moskal et al. [55] reported that there were stronger associations between alcohol and colorectal cancers in men compared with women, with overall RR increased following doses of >25g/week. More recent research suggested that there are increased risks even in light-moderate drinkers [56].

Cho et al. [54] suggested that acetaldehyde, one of the metabolism products of alcohol, may be the responsible factor in colorectal carcinogens. Alcohol is an antagonist of methyl-group metabolism and may cause carcinogenicity by affecting DNA directly. Alcohol may also act indirectly through a variety of mechanisms including immune suppression, delay of DNA repair, induction of liver procarcinogens, or by changing bile acid composition.

Breast cancer

Epidemiological studies and meta-analyses have shown a consistent link between alcohol consumption and breast cancer [53] with the population attributable risk among drinkers in the USA and UK estimated to be 1.6% and 6% [57]. A significant dose-response relationship has been identified showing an increased risk of breast cancer in women consuming the equivalent of 3 or more drinks per day compared with abstainers [58]. A pooled analysis of more than 50 studies showed that those who consumed on average 50g of alcohol per day had a relative risk of 1.5 compared with non-drinkers [59]. Other analyses have determined that a significant dose-response relationship exists for even low-moderate levels of alcohol intake [58, 59] (increased breast cancer risk following consumption levels as low as 5.0 to 9.9g per day [60]).

Relevant biological mechanisms which link alcohol and breast cancer have been discussed in numerous articles [57, 61]. Alcohol may affect levels of oestrogen [61] or the P450 enzyme resulting in increased risk

for breast cancer. Additionally, alcohol may increase the production of insulin-like growth factors (IGF) thereby stimulating the development or growth of breast cancer in women [62].

Liver cancer

A large number of case control and cohort studies have provided evidence that alcohol consumption is an independent risk factor in the development of liver cancer [4, 63-65]. As noted by the IARC monograph working group, cirrhosis and other liver diseases often occur before the cancer manifests, and patients with these disorders often decrease their alcohol consumption making the effect of alcohol on liver cancer difficult to quantify [53].

Alcohol is metabolised by the enzyme alcohol dehydrogenase in the liver leading to the generation of acetaldehyde and free radicals that bind rapidly to numerous cellular targets, including components of cell signalling pathways and DNA. In addition to direct DNA damage, acetaldehyde depletes glutathione, an antioxidant involved in detoxification [66].

Oesopogeal, mouth, nasopharynx and oropharynx cancers

Strong trends in risk have been reported for cancers of the oral cavity, oesophoagus and larynx [20]. In the developed world, alcohol is one of the main risk factors for oral, pharyngeal, and esophageal cancers [67]. There are differences in the strengths of association between alcohol and these cancer types, possibly due in part to the extent of physical contact between alcohol and the relevant tissue [68]. Daily consumption of 50g of alcohol is associated with a 2-3 times greater risk of these cancers in drinkers compared to non-drinkers [53]. More information on the relative risks at each site have been detailed elsewhere [67, 68].

Results

The following tables present information on the number and proportions of alcohol-attributable cancer deaths and hospitalisations in Australia in 2010, and then give a breakdown by state and territory. Table 12 shows that there were 861 male and 642 female cancer deaths attributable to alcohol, and 5,175 male and 5,002 female hospitalisations for cancer attributable to alcohol. Table 11 also shows that for male deaths, cancers of the oral cavity and pharynx (30% of alcohol-related cancers), and those of the oesophagus (29%) were responsible for the highest proportion of alcohol-related cancer deaths. In contrast, for Australian women, breast cancer constituted the highest proportion, being responsible for >50% of all alcohol-attributable cancer deaths. A similar pattern was evident for alcohol-related hospitalisations in Australian men and women, with these aforementioned cancer-types associated with the greatest burden on the hospital system. Summary data on the mortality and morbidity of each of these conditions is presented in Table 12.

Table 12. Number and percentage of alcohol-attributable cancers deaths and hospitalisations in Australia in 2010

Disease	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
Breast cancer	-	349 (54%)	-	3,239 (65%)
Colon cancer	64 (7%)	71 (11%)	544 (11%)	607 (12%)
Larynx cancer	64 (7%)	7 (1%)	385 (7%)	35 (1%)
Liver cancer	131 (15%)	48 (7%)	395 (8%)	98 (2%)
Oesophagus cancer	247 (29%)	53 (8%)	1,000 (19%)	194 (4%)
Oral cavity and pharynx cancer	257 (30%)	52 (8%)	2,170 (42%)	460 (9%)
Rectum cancer	98 (11%)	63 (10%)	681 (13%)	369 (7%)
Total	861 (100%)	642 (100%)	5,175 (100%)	5,002 (100%)

* Percentage of total alcohol-attributable cancers deaths or hospitalisations

Table 13 shows the number and standardised rate of alcohol-attributable cancer deaths and hospitalisations by different jurisdiction in 2010. This table shows that for Australian men there is a rate of 9.8 per 100,000 population for alcohol attributable cancer deaths, and a standardised rate of 58.7 for hospitalisations. For women, the rate of both of these outcomes was smaller, with a standardised rate of 7.1 for alcohol-related cancer deaths and a rate of 55.4 for hospitalisations. Table 13 also shows that there was marked variation between the different states and territories. For both men and women the standardised rate for alcohol-attributable cancer deaths was highest in the NT and Tasmania. In contrast, the rate of alcohol-attributable hospitalisations for men was highest in Queensland, followed by the NT, while for women the rate was the highest in the ACT followed by Queensland.

Table 13. Number and rate of alcohol-attributable cancers deaths and hospitalisations by state in 2010

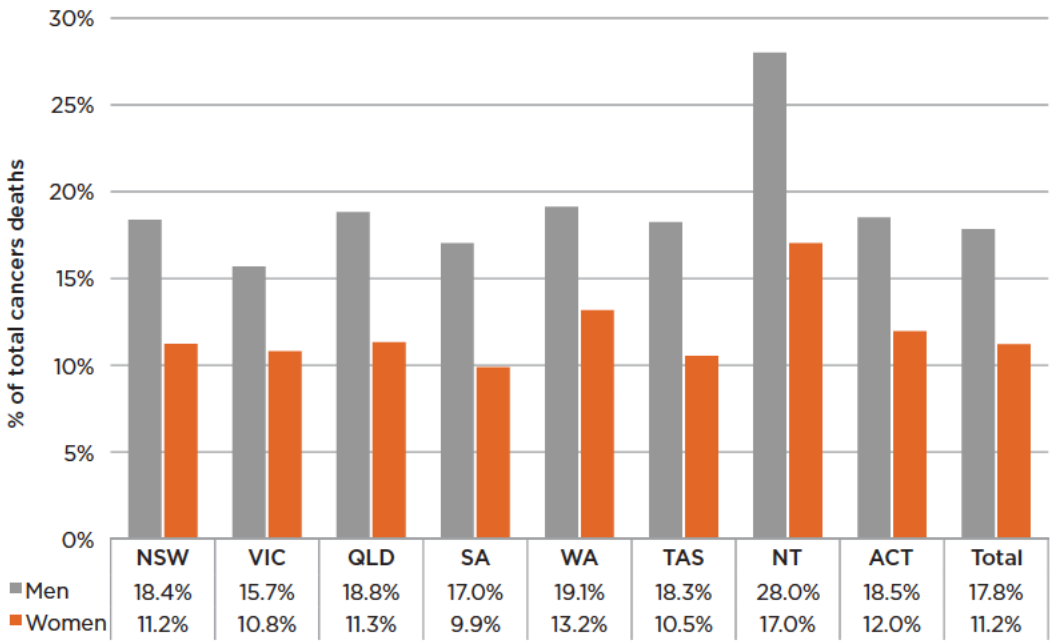
State	Deaths (rate*)		Hospitalisations (rates*)	
	Men	Women	Men	Women
NSW	290 (9.9)	213 (7.1)	1,500 (51.5)	1,560 (52.3)
VIC	185 (8.5)	166 (7.3)	1,199 (55.0)	1,324 (58.4)
QLD	186 (10.9)	120 (7.0)	1,295 (74.8)	1,052 (60.3)
SA	65 (9.2)	49 (6.6)	368 (53.3)	355 (49.8)
WA	86 (9.9)	60 (6.9)	550 (61.6)	484 (54.5)
TAS	29 (13.1)	18 (7.7)	145 (66.4)	107 (47.6)
NT	10 (14.8)	6 (13.1)	53 (72.8)	31 (49.9)
ACT	10 (7.5)	10 (7.4)	65 (51.4)	88 (66.0)
Total (AUS)	861 (9.8)	642 (7.1)	5,175 (58.7)	5,002 (55.4)

* Standardised rate per 100,000 population

The following figures present the proportion of total cancer deaths (Figure 7) and hospitalisations (Figure 8) that were attributed to alcohol within each jurisdiction. These figures show that a similar overall proportion of cancer deaths and hospitalisations were due to alcohol, and that the highest proportions occur in the NT and WA for both men and women.

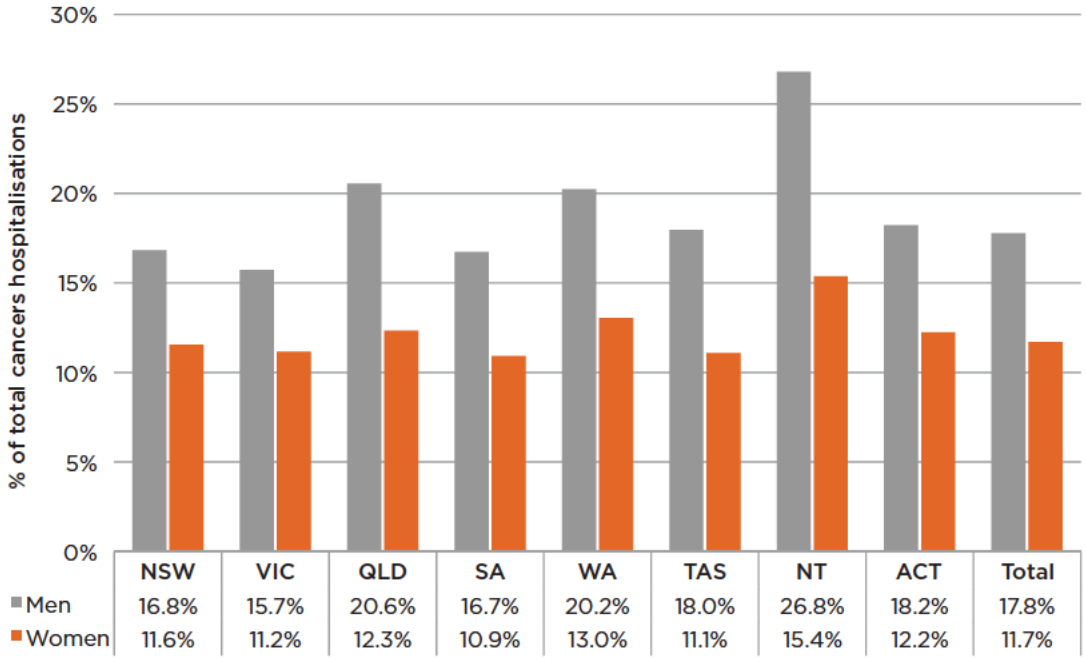
These data were subsequently broken down to show the proportion of cancer deaths (Figure 9) and hospitalisations (Figure 10) attributable to alcohol across the different cancer types. These figures collectively show that the highest rates for both men and women across these two outcomes are attributable to oral cavity and pharynx cancers.

Figure 7. Proportion of cancers deaths attributable to alcohol by state in Australia in 2010



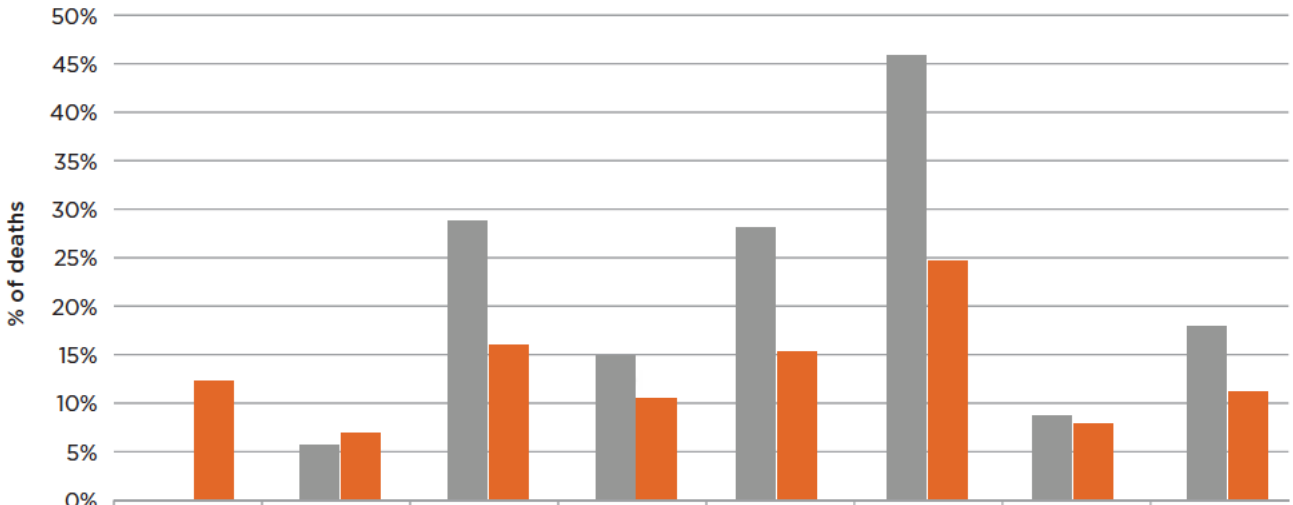
	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
Men	18.4%	15.7%	18.8%	17.0%	19.1%	18.3%	28.0%	18.5%	17.8%
Women	11.2%	10.8%	11.3%	9.9%	13.2%	10.5%	17.0%	12.0%	11.2%

Figure 8. Proportion of cancers hospitalisations attributable to alcohol by state in Australia in 2010



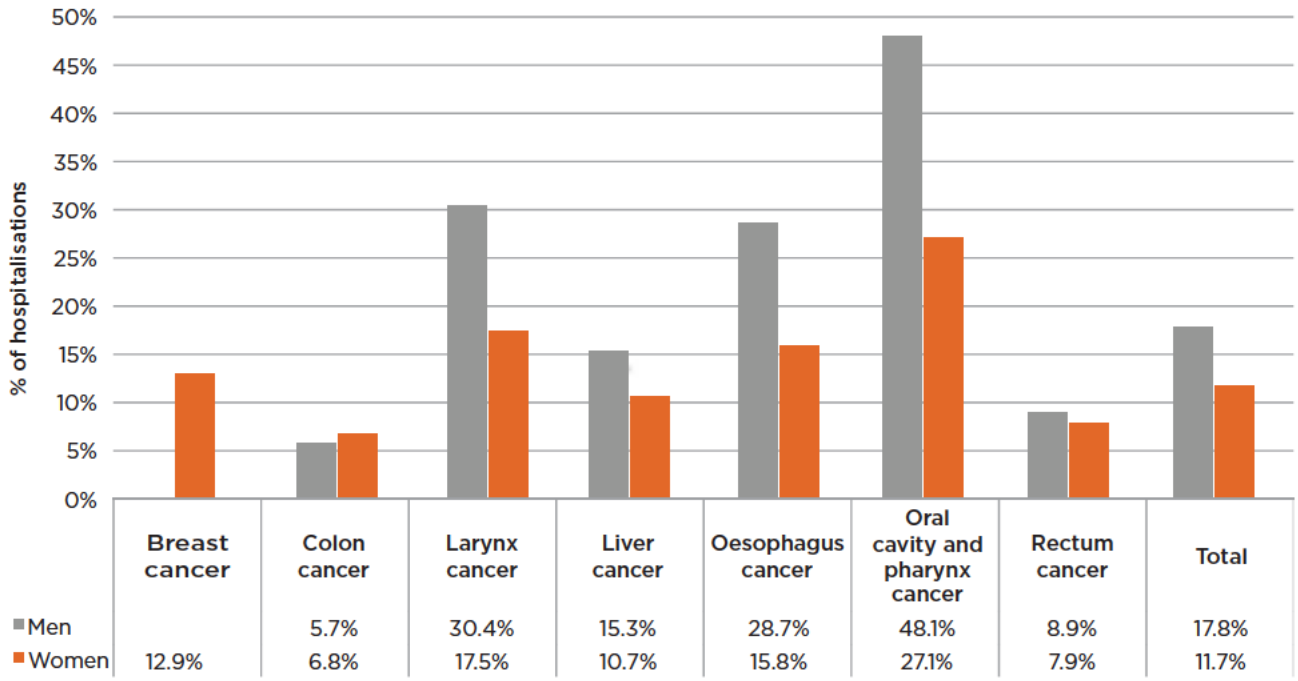
	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
Men	16.8%	15.7%	20.6%	16.7%	20.2%	18.0%	26.8%	18.2%	17.8%
Women	11.6%	11.2%	12.3%	10.9%	13.0%	11.1%	15.4%	12.2%	11.7%

Figure 9. Proportion of cancers deaths attributable to alcohol by disease type in 2010



	Breast cancer	Colon cancer	Larynx cancer	Liver cancer	Oesophagus cancer	Oral cavity and pharynx cancer	Rectum cancer	Total
Men		5.7%	28.8%	14.9%	28.1%	45.8%	8.7%	17.8%
Women	12.3%	6.9%	16.0%	10.5%	15.3%	24.7%	7.9%	11.2%

Figure 10. Proportion of cancers hospitalisations attributable to alcohol by disease type in 2010



	Breast cancer	Colon cancer	Larynx cancer	Liver cancer	Oesophagus cancer	Oral cavity and pharynx cancer	Rectum cancer	Total
Men		5.7%	30.4%	15.3%	28.7%	48.1%	8.9%	17.8%
Women	12.9%	6.8%	17.5%	10.7%	15.8%	27.1%	7.9%	11.7%

CHAPTER 6
Cardiovascular Diseases

Background

Hypertensive disease

Hypertension is a risk factor for many cardiovascular outcomes [23]. However, the relationship between alcohol use and hypertensive disease is complex, and depends on factors related to the volume [69], and pattern [70] of alcohol consumption, in addition to the cardiovascular condition or outcome being considered [71].

A causal relationship between regular alcohol consumption and high blood pressure levels has been clearly established [72]. The mechanisms responsible for hypertensive changes in blood pressure following alcohol have been speculated in many reports, and require further study [71]. Most likely it involves central changes in autonomic nervous system functioning leading to increased heart rate and blood pressure variability with heightened sympathetic drive at rest [69, 73].

In addition, there are sex differences, and Corrao et al [20] reported a detrimental dose-response effect for men, while others have suggested there may be a protective effect following moderate consumption in women [16]. Recent analyses have suggested that light-to-moderate alcohol consumption is associated with a decreased risk for hypertension in women and an increased risk in men, with the threshold above which alcohol became deleterious for hypertension risk emerged at >4 drinks per day in women versus a moderate level of >1 drink per day in men [74]. Recently Taylor et al. [23] reported that for males consuming on average 50g of alcohol per day that there was a RR of 1.57 and for those reporting 100g per day of alcohol consumption a relative risk of 2.57 was calculated. Taylor et al. [23] reported that for females, there was a J-shaped curve, where there were protective effects for the consumption of up to 15g of alcohol per day, but harmful effects in levels above this with a RR of 1.81 at 50g per day, and 2.81 at 100g per day.

Ischemic heart disease (IHD)

The relationship between alcohol and IHD is complex [24], with the amount and pattern of alcohol consumption conferring either beneficial or harmful effects [16]. Low-moderate levels of alcohol consumption are associated with a reduced risk and severity of cardiac events compared with non-drinking [75], while drinking more than two standard drinks per day confers no beneficial effects in relation to cardiac events [76, 77]. Complicating this relationship is the finding that engagement in heavy drinking occasions "bingeing" removes any potentially beneficial effect, and the beneficial effects seem to be confined to older age groups [12, 78].

The mechanism(s) of this beneficial effect on the cardiovascular system may involve changes in multiple mechanisms including changes in insulin sensitivity, high-density lipoprotein cholesterol levels, clotting or inflammatory factors [75, 79]. Nicoll and Henein [77] note that there may be differences in the beneficial effects based on alcohol type, with red wine able to increase coronary flow-velocity reserve, raise high density lipoprotein (HDL) and plasma antioxidant status, and inhibit growth factor beta-receptors that are implicated in atherosclerosis to a significantly greater extent than other beverage types including white wine. However, these mechanisms and findings require further study.

On the other hand, high levels of alcohol consumption, or the inclusion of heavy drinking occasions as part of the drinking pattern, have been found to consistently result in detrimental rather than beneficial effects on IHD [77, 79]. For example, heavy alcohol consumption is linked to cardiomyopathy and cardiac arrhythmias [80]. These harmful effects of alcohol involve numerous mechanisms including oxidative damage, deposition of triglycerides and impaired protein synthesis [81].

Cardiac arrhythmias

Atrial fibrillation (AF) is the most common arrhythmia observed in clinical practice, and a significant risk factor for stroke [82]. Numerous studies have reported associations between alcohol and cardiac arrhythmias see [83]. For example, Lowenstein et al. [84] and Rich et al. [85] each reported that alcohol was responsible for up to two-thirds of new onset diagnoses of atrial fibrillation. The relative association between alcohol use and AF is apparent in high-alcohol consumers, and may involve both the amount of alcohol consumed, and the relevant pattern of alcohol consumption. For example, the Framington heart study [86] aimed to determine relevant risk factors for AF, and reported that consumption of 36g of alcohol on average per day was associated with an increased risk of AF of 34% and that men were more likely to develop AF compared with women [82]. Recent analysis has suggested that these limits may be lower in females, with >2 drinks on average per day associated with increased relative risk of AF [87]. Relative risks from recent analyses have reported that women consuming between 24 and 120g of alcohol on average per day have a relative risk of between 1.07 and 2.02 compared with non-drinkers, while in men, the RR for the same volumes of alcohol were between 1.08 and 2.09 (95% CI: 1.52–2.86)[21].

Different mechanisms supporting the link between alcohol and AF have been proposed. These have included direct toxic effect on cardiac myocytes, and changes in sympathetic and vagal tone or atrial conduction time [88].

Stroke

The relationship between alcohol and the RR of stroke depends on a number of factors including the type of stroke considered (ischemic or haemorrhagic), and the amount and pattern of alcohol consumption [22, 89]. Some authors have argued that more specific sub-types of stroke should be considered when defining RR attributable to alcohol consumption, and for a discussion see [89].

Overall, meta analyses have determined that there is a non-linear relationship between alcohol consumption and total stroke [20]. For example, the consumption of less than 12g of alcohol per day was associated with a decreased RR of stroke, while consumption of >60+ was associated with an increased risk of stroke [90]. In addition, the RR of total stroke is higher in 'binge' drinkers (men who consume >6 drinks in one sitting, and women who consume >4 drinks in one session), with a RR of 1.86 [91].

Ischaemic strokes account for approximately 80% of all strokes [89]. For ischemic stroke, there is a J-shaped relationship between alcohol consumption and RR. Those consuming less than 12g of alcohol on average per day have the lowest risk, while those consuming more than 60 g per day have the highest risk of this form of stroke [90]. In addition, binge drinkers have a higher RR compared with non-binge drinkers of 1.99 [91].

In contrast, for haemorrhagic stroke Reynolds et al. (2003) reported that the relative risk increases linearly at all levels of alcohol consumption compared with abstainers, with the highest risk for those consuming >60g of alcohol per day. Feigin et al.[92] reported increased RR for both men and women consuming both <150g and >150g of alcohol on average per week.

Multiple biological mechanisms are likely involved in the relationship between alcohol use and stroke [14, 52, 90]. Indeed while alcohol has anticoagulant properties which may be beneficial in reducing the risk of ischemic stroke, it may also increase the risk of haemorrhagic stroke. The increased risk of haemorrhagic stroke is thought to involve multiple mechanisms including alcohol-induced hypertension, cardiomyopathy, disorders in coagulation, AF or reduced cerebral blood flow. In contrast the decreased risk of ischemic disease may involve changes in high-density lipoprotein levels and platelet aggregation.

Results

The following tables present information on the number and proportions of cardiovascular deaths and hospitalisations that are attributable to alcohol use (Table 14) or protected by alcohol use (Table 15). Overall, 436 cardiovascular deaths in Australian men and 708 in Australian women were attributable to alcohol, while 7,115 cardiovascular hospitalisations in Australian men and 3,558 in Australian women were attributable to alcohol. These tables show that for Australian men and women, the highest proportion of deaths in the cardiovascular disease category relate to haemorrhagic stroke and ischemic heart disease respectively. In addition there is a beneficial effect estimated due to alcohol with 359 male and 429 female deaths estimated to be prevented by alcohol. The protective factors for deaths are due almost exclusively to ischaemic heart disease in men and ischemic stroke in women.

Table 14. Number and percentage of alcohol-attributable cardiovascular disease deaths and hospitalisations in Australia in 2010

Disease	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
Alcohol cardiomyopathy	47 (11%)	10 (1%)	108 (2%)	5 (0%)
Cardiac arrhythmias	68 (16%)	146 (21%)	5,346 (75%)	3,222 (91%)
Haemorrhagic stroke	186 (43%)	181 (26%)	995 (14%)	0 (0%)
Hypertensive disease	116 (27%)	42 (6%)	559 (8%)	331 (9%)
Ischaemic heart disease	1 (0%)	329 (46%)	0 (0%)	0 (0%)
Ischaemic stroke	19 (4%)	0 (0%)	107 (2%)	0 (0%)
Total	436 (100%)	708 (100%)	7,115 (100%)	3,558 (100%)

* Percentage of total alcohol-attributable cardiovascular diseases deaths or hospitalisations

Table 15. Number and percentage cardiovascular disease deaths and hospitalisations protected by alcohol in Australia in 2010

Disease	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
Alcohol cardiomyopathy	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Cardiac arrhythmias	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Haemorrhagic stroke	0 (0%)	0 (0%)	0 (0%)	732 (6%)
Hypertensive disease	0 (0%)	13 (3%)	0 (0%)	57 (0%)
Ischaemic heart disease	356 (99%)	1 (0%)	9,360 (100%)	9,983 (87%)
Ischaemic stroke	2 (1%)	415 (97%)	22 (0%)	688 (6%)
Total	359 (100%)	429 (100%)	9,382 (100%)	11,460 (100%)

* Percentage cardiovascular diseases deaths or hospitalisations protected by alcohol

The following tables present data on the number and standardised rates for alcohol-attributable harmful effects (Table 16) and protective effects (Table 17) by state and territory. These tables show marked variation between jurisdictions in both the harmful and beneficial effects of alcohol on cardiovascular outcomes. Note that some of these jurisdictions have a small number of events reported, and therefore the rates should be interpreted with caution.

Table 16. Number and rate of alcohol-attributable cardiovascular disease deaths and hospitalisations by state in 2010

States	Deaths (rate*)		Hospitalisations (rate*)	
	Men	Women	Men	Women
NSW	197 (6.7)	251 (8.2)	2,228 (76.4)	1,083 (35.8)
VIC	82 (3.7)	176 (7.7)	1,721 (78.9)	940 (41.3)
QLD	72 (4.2)	138 (8.3)	1,537 (89.0)	757 (44.2)
SA	34 (4.8)	52 (6.7)	632 (91.3)	307 (41.6)
WA	27 (3.2)	58 (6.9)	706 (79.4)	350 (40.8)
TAS	13 (5.6)	24 (10.0)	110 (49.7)	59 (25.1)
NT	7 (14.6)	4 (5.8)	79 (115.2)	24 (41.3)
ACT	5 (4.6)	6 (5.4)	101 (84.2)	39 (32.2)
Total (AUS)	436 (5.0)	708 (7.8)	7,115 (80.8)	3,558 (39.5)

* Standardised rate per 100,000 population

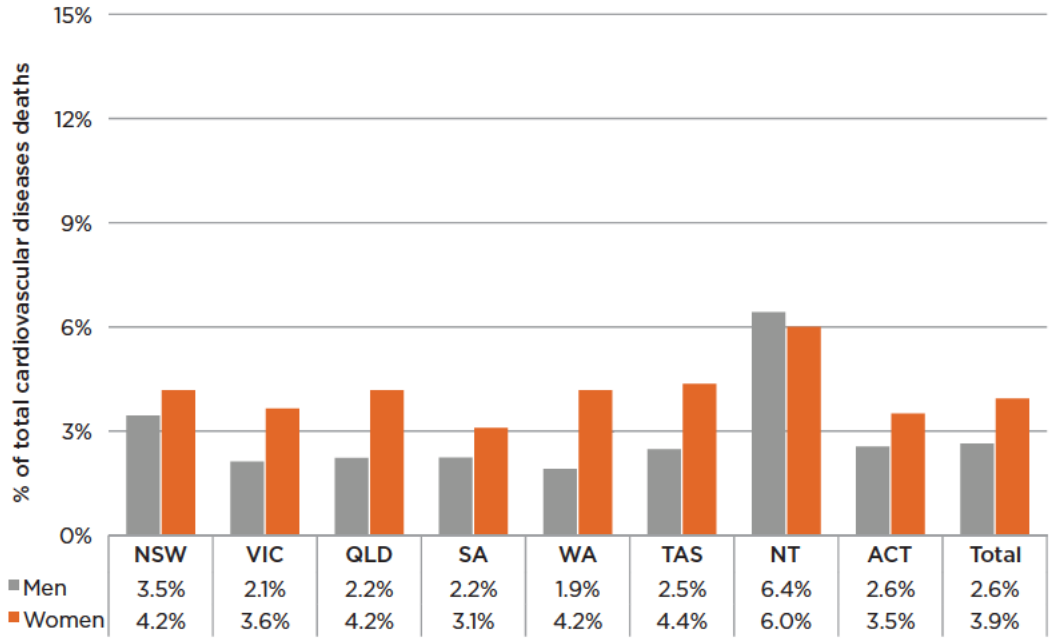
Table 17. Number and rate of cardiovascular disease deaths and hospitalisations protected by alcohol by state in 2010

States	Deaths (rate*)		Hospitalisations (rate*)	
	Men	Women	Men	Women
NSW	124 (4.2)	133 (4.3)	3,007 (102.7)	3,476 (115.1)
VIC	91 (4.2)	107 (4.6)	2,462 (112.7)	3,056 (134.0)
QLD	54 (3.2)	82 (5.0)	1,818 (106.2)	2,414 (141.7)
SA	28 (3.9)	52 (6.7)	730 (103.5)	877 (117.8)
WA	41 (4.8)	30 (3.7)	877 (101.5)	1,076 (124.7)
TAS	14 (6.1)	17 (7.1)	218 (95.3)	228 (99.0)
NT	1 (1.5)	1 (2.9)	83 (125.3)	111 (194.9)
ACT	5 (4.7)	7 (5.6)	187 (154.9)	222 (178.9)
Total (AUS)	359 (4.1)	429 (4.8)	9,382 (106.5)	11,460 (127.1)

* Standardised rate per 100,000 population

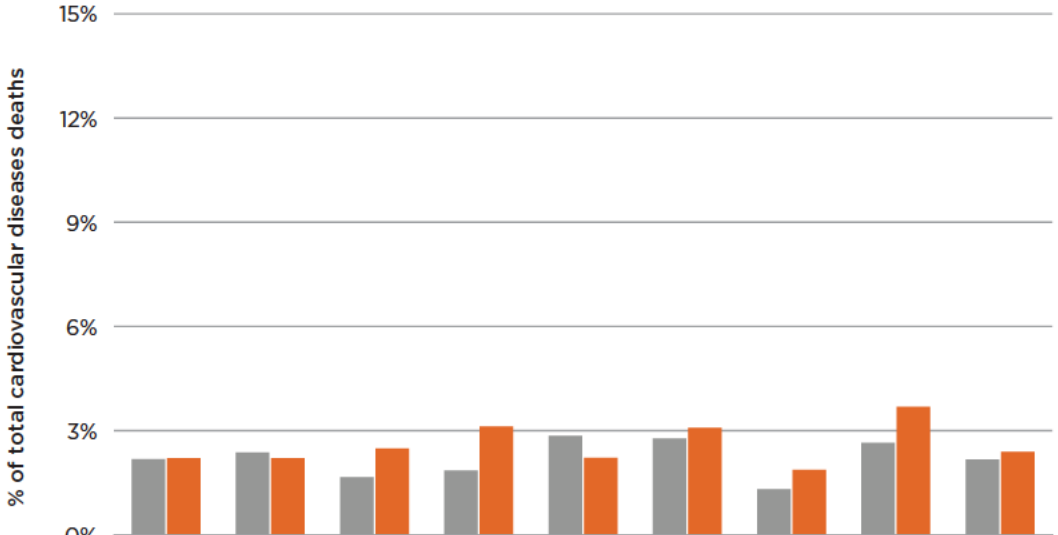
Figure 11 and Figure 12 show the proportion of cardiovascular deaths that were estimated to be caused by alcohol or protected by alcohol for Australian men and women. Figure 11 shows that a higher proportion of total cardiovascular deaths were attributable to women than in men, and that this relationship is observed in all jurisdictions except the NT. In addition, Figure 12 shows that more than 2% of the total in cardiovascular diseases is protected by alcohol in both men and women. There is slight variation in the estimated protective effect between jurisdictions and between men and women.

Figure 11. Proportion of cardiovascular disease deaths attributable to alcohol by state in Australia in 2010



	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
Men	3.5%	2.1%	2.2%	2.2%	1.9%	2.5%	6.4%	2.6%	2.6%
Women	4.2%	3.6%	4.2%	3.1%	4.2%	4.4%	6.0%	3.5%	3.9%

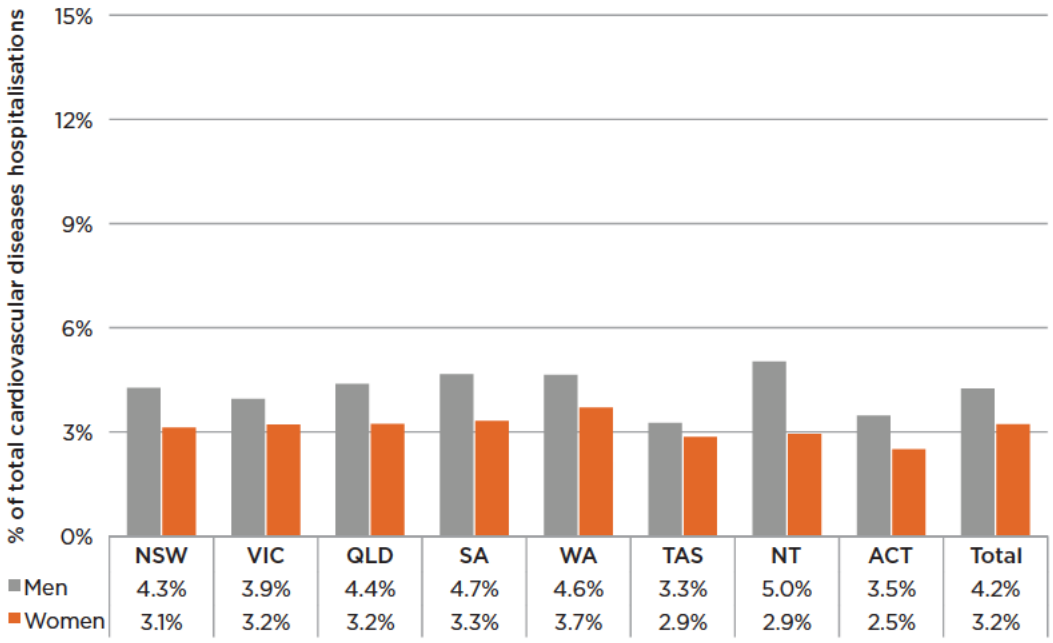
Figure 12. Proportion of cardiovascular disease deaths protected by alcohol by state in Australia in 2010



	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
Men	2.2%	2.4%	1.7%	1.9%	2.9%	2.8%	1.3%	2.6%	2.2%
Women	2.2%	2.2%	2.5%	3.1%	2.2%	3.1%	1.9%	3.7%	2.4%

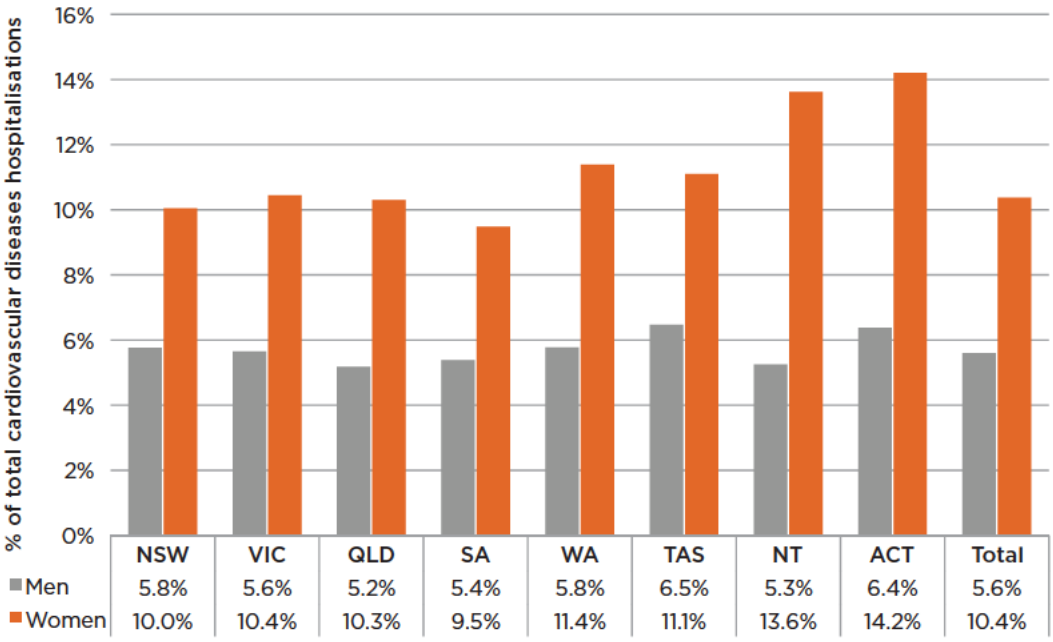
The following figures present the proportion of cardiovascular disease hospitalisations that were either alcohol-attributable (Figure 13) or protected by alcohol (Figure 14). Figure 13 shows that approximately 4% of all cardiovascular hospitalisations in men and approximately 3% in women were alcohol-attributable, with males higher in each jurisdiction. This pattern is reversed when considering the protective effects of alcohol on cardiovascular disease, with approximately double the number of protective effects in women compared to men.

Figure 13. Proportion of cardiovascular disease hospitalisations attributable to alcohol by state in Australia in 2010



	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
Men	4.3%	3.9%	4.4%	4.7%	4.6%	3.3%	5.0%	3.5%	4.2%
Women	3.1%	3.2%	3.2%	3.3%	3.7%	2.9%	2.9%	2.5%	3.2%

Figure 14. Proportion of cardiovascular diseases hospitalisations protected by alcohol by state in Australia in 2010

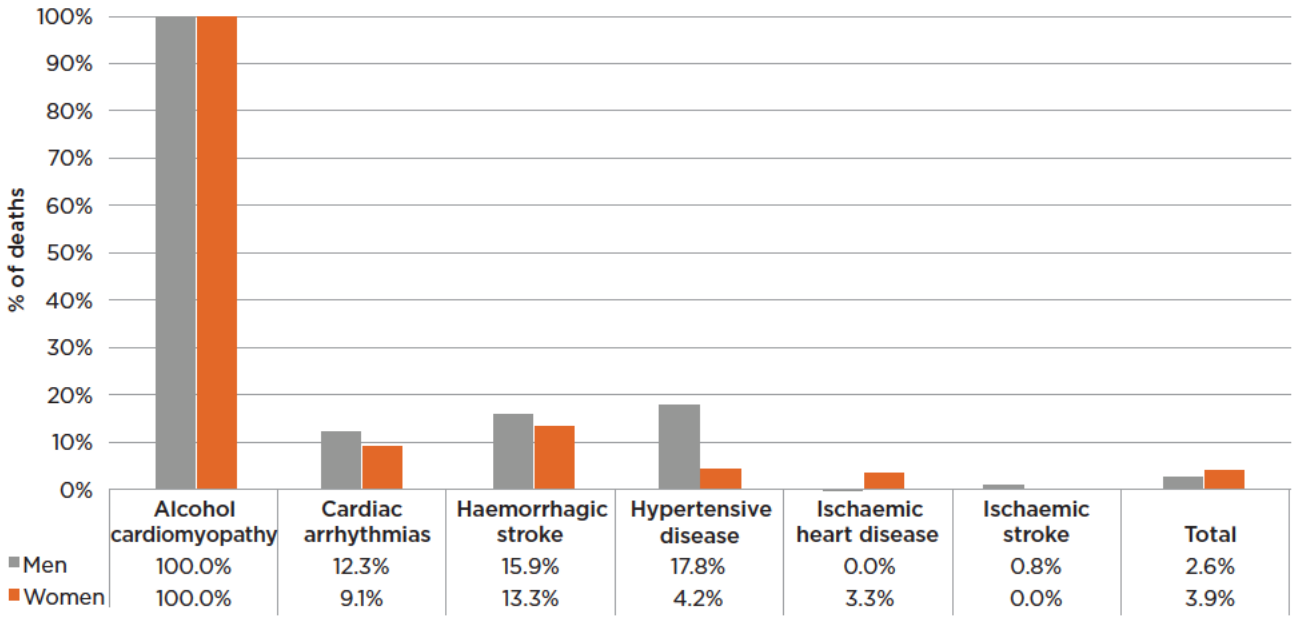


	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
Men	5.8%	5.6%	5.2%	5.4%	5.8%	6.5%	5.3%	6.4%	5.6%
Women	10.0%	10.4%	10.3%	9.5%	11.4%	11.1%	13.6%	14.2%	10.4%

The following figures provide a representation of the proportion of deaths that were attributable to alcohol (Figure 15) or protected by alcohol (Figure 16) by cardiovascular disease category. Collectively these figures show that that the harmful effects of alcohol were seen across multiple categories, with those conditions having less than an AAF of 1 responsible for up to 20% of all cardiovascular disease in 2010. Conversely, the protective effects of alcohol were evident in only a few disease categories with larger effects evident in women, particularly with respect to ischemic stroke.

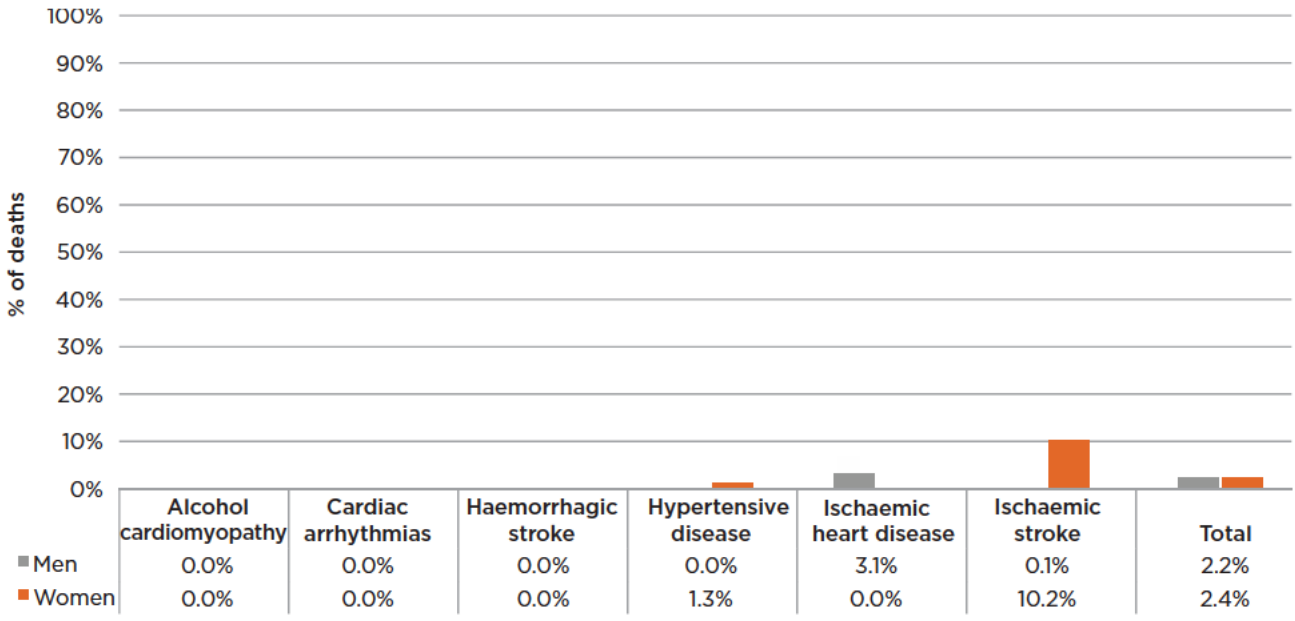
The two figures in this chapter provide a representation of the proportion of hospitalisations that were attributable to alcohol (Figure 17) or 'protected' by alcohol (Figure 18) by cardiovascular disease category. Figure 17 shows that a higher proportion of alcohol-attributable hospitalisations were evident in males across the different outcomes considered, and that these were responsible for >4% of all hospitalisations in men and >3% in women. Figure 18 shows that the protective effect of alcohol on cardiovascular hospitalisations was greater in women compared with men.

Figure 15. Proportion of cardiovascular diseases deaths attributable to alcohol by disease type in 2010



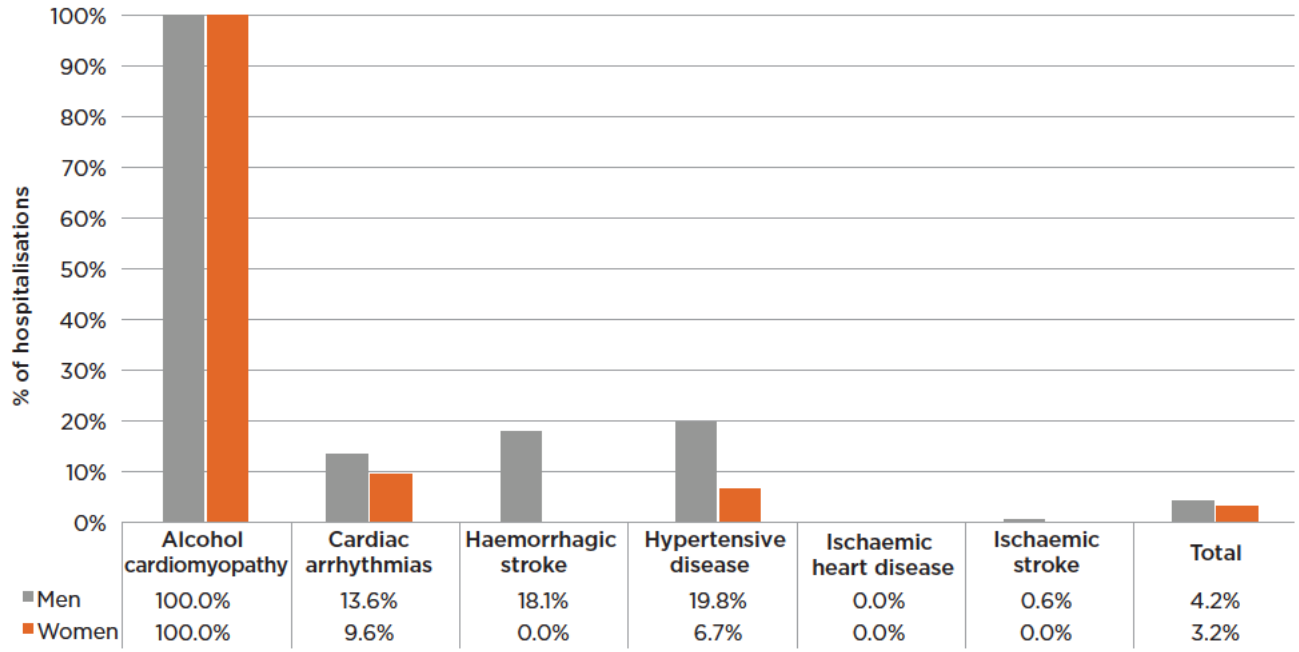
	Alcohol cardiomyopathy	Cardiac arrhythmias	Haemorrhagic stroke	Hypertensive disease	Ischaemic heart disease	Ischaemic stroke	Total
Men	100.0%	12.3%	15.9%	17.8%	0.0%	0.8%	2.6%
Women	100.0%	9.1%	13.3%	4.2%	3.3%	0.0%	3.9%

Figure 16. Proportion of cardiovascular diseases deaths protected by alcohol by disease type in 2010



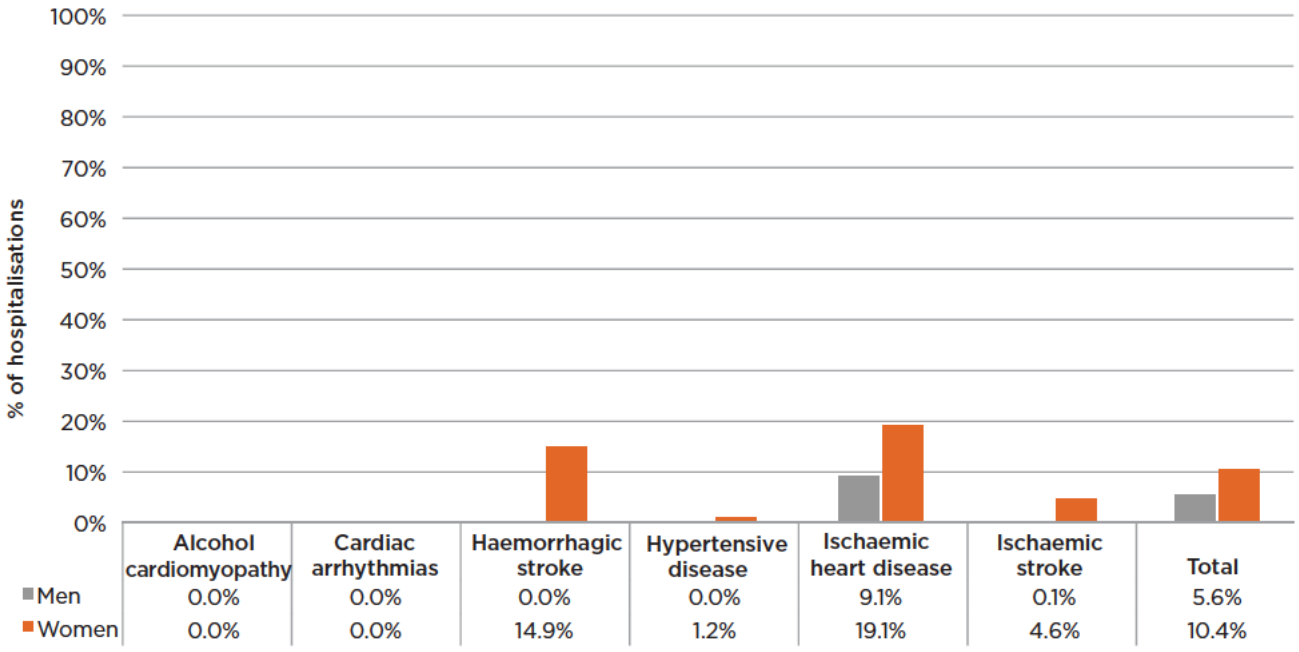
	Alcohol cardiomyopathy	Cardiac arrhythmias	Haemorrhagic stroke	Hypertensive disease	Ischaemic heart disease	Ischaemic stroke	Total
Men	0.0%	0.0%	0.0%	0.0%	3.1%	0.1%	2.2%
Women	0.0%	0.0%	0.0%	1.3%	0.0%	10.2%	2.4%

Figure 17. Proportion of cardiovascular diseases hospitalisations attributable to alcohol by disease type in 2010



	Alcohol cardiomyopathy	Cardiac arrhythmias	Haemorrhagic stroke	Hypertensive disease	Ischaemic heart disease	Ischaemic stroke	Total
Men	100.0%	13.6%	18.1%	19.8%	0.0%	0.6%	4.2%
Women	100.0%	9.6%	0.0%	6.7%	0.0%	0.0%	3.2%

Figure 18. Proportion of cardiovascular diseases hospitalisations protected by alcohol by disease type in 2010



	Alcohol cardiomyopathy	Cardiac arrhythmias	Haemorrhagic stroke	Hypertensive disease	Ischaemic heart disease	Ischaemic stroke	Total
Men	0.0%	0.0%	0.0%	0.0%	9.1%	0.1%	5.6%
Women	0.0%	0.0%	14.9%	1.2%	19.1%	4.6%	10.4%

CHAPTER 7

Diabetes

Background

Type 2 diabetes mellitus is a chronic metabolic disorder caused by deficiencies in the secretion and action of insulin [93]. Moderate alcohol consumption is associated with reduced incidence of diabetes mellitus, with evidence from meta-analyses suggesting that there is a U-shaped relationship between alcohol consumption and subsequent risk for diabetes [94]. Compared with non-drinkers, low-moderate drinkers have an approximately 30% lower risk for diabetes [95]. The RR of diabetes following higher levels of alcohol consumption have been inconsistent, and requires further research. While studies have reported an increased risk of diabetes following high levels of alcohol consumption [94, 95], the proportion of high alcohol consumers included in studies to date assessing the relative risk of diabetes has been low [94]. Koppes et al. [96] presented a series of relative risk for diabetes based on average daily consumption of alcohol consistent with a U shaped relationship, while non-consumers and those who had on average >48g of alcohol had a RR of 1.04, low (<6g/day) and moderate-level (6-12;12-24;24-48 g/day) had relative risks between 0.69 and 0.87 with the largest protective effect evident in the 12-24g/day group. Recent analyses have reported similar effects for both men and women [97].

The development of insulin resistance is a key factor in the pathogenesis of type 2 diabetes, and light to moderate drinking has been associated with enhanced insulin sensitivity [94], and may also involve effects on lipid metabolism and blood pressure [98]. Adverse effects observed in high alcohol consumers on diabetes may be related to increased body weight or poor diet [99].

Results

Table 18 shows the number and standardised rate of alcohol prevented diabetes deaths and hospitalisations by state. There was a beneficial effect on diabetes attributable to alcohol which was responsible for protecting 39 male and 169 female deaths and 897 male and 3,159 female hospitalisations primarily caused by diabetes in Australia in 2010 were protected by alcohol consumption. Most of the protective effects are estimated for females (14.8% of diabetes deaths and 16% of hospitalisations were protected by alcohol in women, however only 3.4% of both diabetes deaths and hospitalisations were protected in men, see Figure 19 and Figure 20). Population rates of alcohol protected diabetes deaths and hospitalisations were similar in most states, except that the population rate of alcohol protected diabetes hospitalisations was much higher in the NT compared with other states. This is due to the fact that both the percentage of diabetes hospitalisations protected by alcohol (20%, see Figure 20) and the prevalence of diabetes hospitalisations were higher in females in the NT.

Table 18. Number and rate of diabetes deaths and hospitalisations protected by alcohol by state in 2010

States	Deaths (rate*)		Hospitalisations (rate*)	
	Men	Women	Men	Women
NSW	9 (0.3)	32 (1.1)	241 (8.3)	837 (27.7)
VIC	10 (0.5)	46 (2.0)	254 (11.6)	920 (40.3)
QLD	11 (0.6)	48 (2.8)	180 (10.4)	598 (34.8)
SA	2 (0.3)	13 (1.7)	63 (9.0)	210 (28.7)
WA	4 (0.5)	18 (2.2)	109 (12.7)	398 (45.9)
TAS	1 (0.6)	6 (2.4)	23 (10.6)	69 (30.3)
NT	0 (0.3)	2 (4.1)	10 (10.4)	83 (121.7)
ACT	1 (0.5)	3 (2.7)	16 (14.1)	45 (36.1)
Total (AUS)	39 (0.4)	169 (1.9)	897 (10.2)	3,159 (35.0)

* Standardised rate per 100,000 population

Figure 19. Proportion of diabetes deaths protected by alcohol by state in Australia in 2010

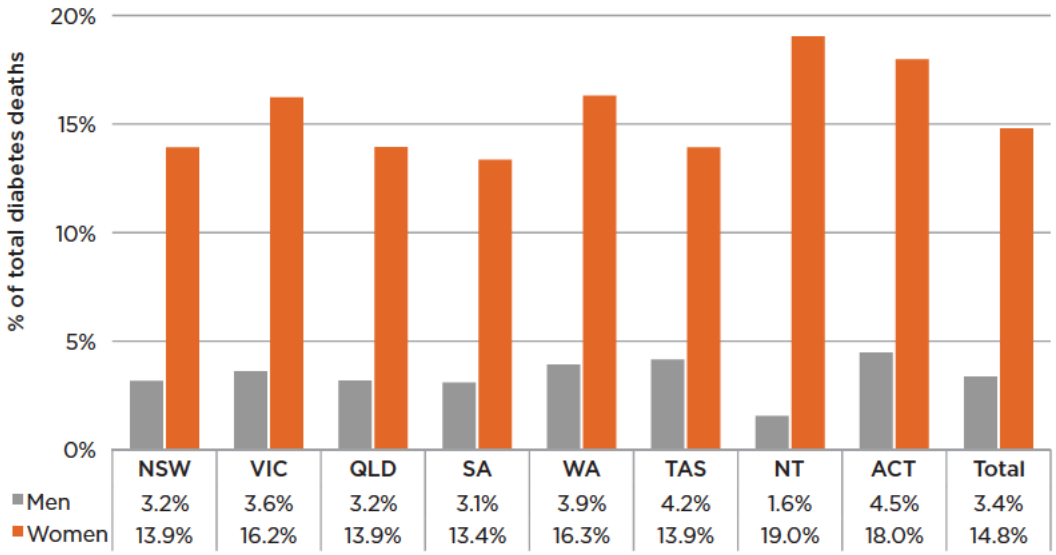
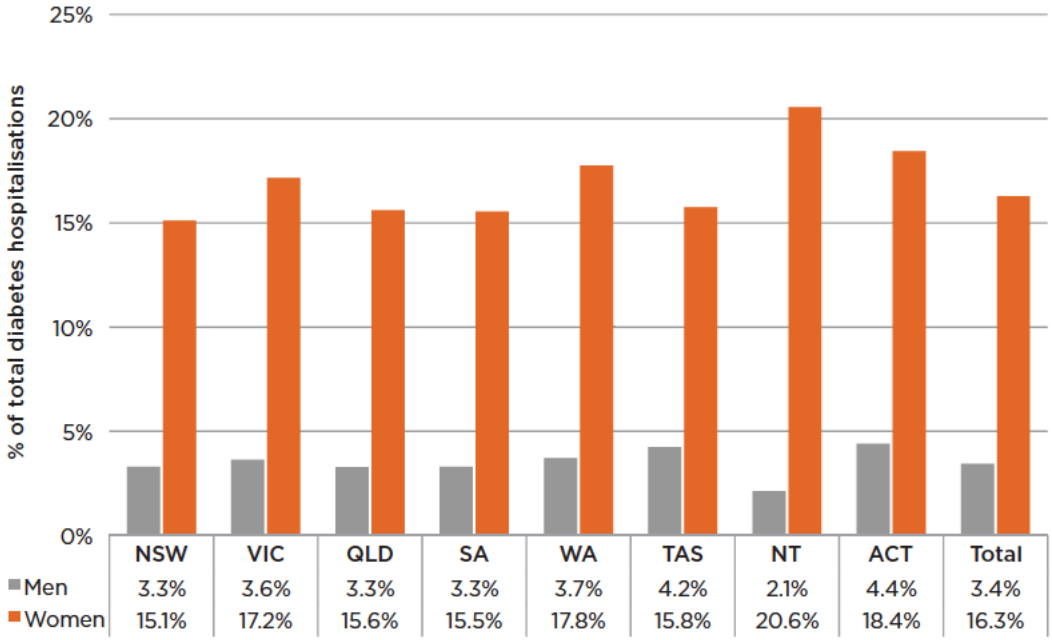


Figure 20. Proportion of diabetes hospitalisations protected by alcohol by state in Australia in 2010



	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
Men	3.3%	3.6%	3.3%	3.3%	3.7%	4.2%	2.1%	4.4%	3.4%
Women	15.1%	17.2%	15.6%	15.5%	17.8%	15.8%	20.6%	18.4%	16.3%

CHAPTER 8
Digestive Diseases

Background

Liver cirrhosis

Cirrhosis of the liver is the most important chronic disease condition caused by alcohol consumption resulting in mortality [100]. A positive association exists between per capita alcohol intake and cirrhosis mortality in both men and women [16, 101]. In addition, the pattern of alcohol consumption is also important in the extent of liver disease [102], for example damage evident in the liver even in the absence of dietary deficiencies [103]. Corrao et al. [20] identified 27 relevant studies dealing with cirrhosis or other chronic liver diseases including a total of more than 2,000 people. A total of 1-2% per year of heavy drinkers will eventually develop cirrhosis [101], with meta-analyses reporting an increased RR of 2.90 following average alcohol intake of 25g/day for cirrhosis. Increased alcohol intake above this level was found to substantially increase risk of cirrhosis. Recent analyses suggested that even amounts equivalent to on average one drink per day are associated with increased risk in women [100].

Lieber and colleagues [103] reviewed the biochemical and molecular pathways involving alcohol and liver disease, while others have reviewed the effects of alcohol on immune function which contribute to the susceptibility of alcohol-related liver disease [104-106].

Pancreatitis

There are two broad categories of pancreatitis relevant for discussion here, acute pancreatitis and chronic pancreatitis [107]. Acute pancreatitis is an acute inflammatory process that involves peri pancreatic tissues and/or remote organ systems. Chronic pancreatitis leads to the progressive and irreversible destruction of exocrine and endocrine glandular pancreatic parenchyma [27]. There is evidence for a link between alcohol consumption and the development of both acute and chronic pancreatitis [108, 109]. Carrao et al. [20] identified 2 relevant studies in their meta-analysis when considering the effects of alcohol on pancreatitis. The RR of pancreatitis is significantly greater (RR=1.34) even at an average of 25g per day. A more recent meta-analysis has been conducted reporting a non-linear association between alcohol consumption and pancreatitis [27]. At low levels of alcohol consumption, RR is relatively flat, but increases significantly to a RR of 1.2 in those who report consuming 36g of alcohol daily.

Ethanol has been found to have both direct toxic effects on the pancreas and indirect effects such as altering the properties of pancreatic juice and toxic effects of ethanol metabolites such as acetaldehyde, reactive oxygen species and fatty acid ethyl esters on pancreatic cells and enzymes [110, 111].

Results

The following tables present information on the number and proportions of digestive disease related deaths and hospitalisations attributable to alcohol, and their breakdown by different jurisdictions. Table 19 shows that 549 male and 237 female digestive disease deaths were attributable to alcohol in 2010, while 6,726 male and 2,971 female hospitalisations for digestive diseases were attributable to alcohol. The majority of deaths in this category for both men and women were due to liver cirrhosis, while hospitalisations involved a spread of burden due to alcoholic gastritis, liver cirrhosis and pancreatitis. Table 20 shows numbers and rates of alcohol-attributable digestive disease deaths

and hospitalisations by state. This table presents a standardised rate of 6.2 deaths in Australian men per 100,000 population and a rate of 2.6 for women due to alcohol-related digestive diseases. For hospitalisations, the standardised rate for Australian men was more than twice the rate reported for women, with the highest rates in the NT and WA for both sexes.

Figure 21 below shows the proportion of digestive disease deaths attributable to alcohol across different jurisdictions. Collectively, alcohol was attributable to the majority of these deaths, with between 55% and 60% of deaths in this disease category attributable to alcohol. In contrast to the data presented related to deaths, hospitalisations due to alcohol-related digestive diseases shows a clear gender difference, with men more adversely affected by liver cirrhosis. This pattern is evident across all of the different jurisdictions presented in Figure 22.

Table 19. Number and percentage of alcohol-attributable digestive diseases deaths and hospitalisations in Australia in 2010

Disease	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
Alcoholic gastritis	N<5	N<5	1,182 (18%)	511 (17%)
Liver cirrhosis	519 (95%)	227 (96%)	2,572 (38%)	1,573 (53%)
Pancreatitis	30 (5%)	9 (4%)	2,971 (44%)	887 (30%)
Total	549 (100%)	237 (100%)	6,726 (100%)	2,971 (100%)

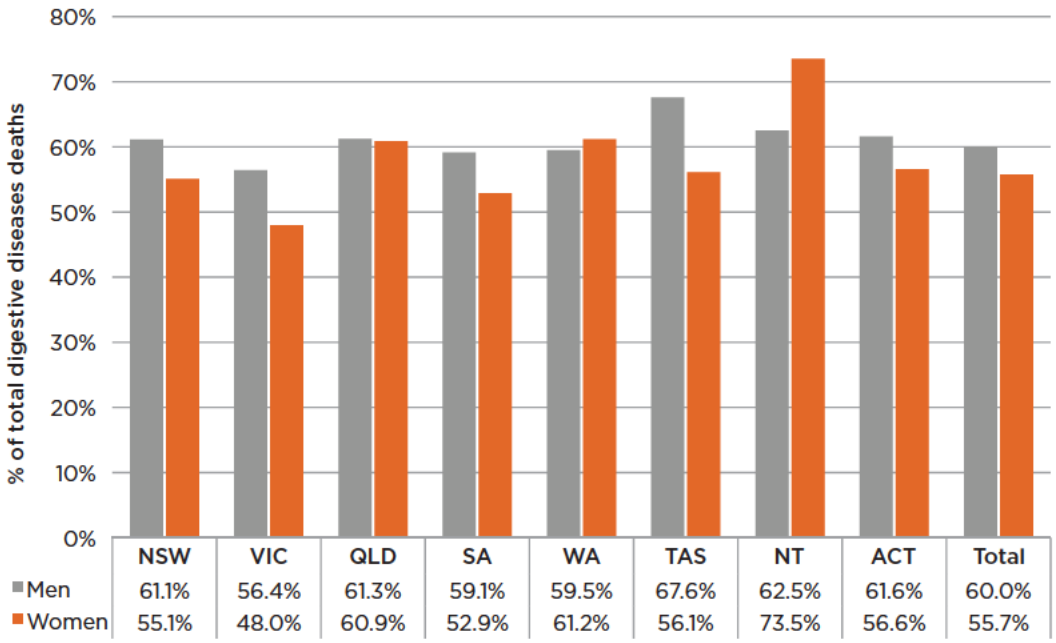
* Percentage of total alcohol-attributable digestive diseases deaths or hospitalisations

Table 20. Number and rate of alcohol-attributable digestive diseases deaths and hospitalisations by state in 2010

States	Deaths (rate*)		Hospitalisations (rate*)	
	Men	Women	Men	Women
NSW	200 (6.9)	73 (2.5)	1,804 (63.0)	701 (23.8)
VIC	111 (5.1)	44 (1.9)	1,638 (75.3)	797 (35.2)
QLD	106 (6.1)	54 (3.1)	1,501 (85.6)	656 (37.0)
SA	50 (7.3)	19 (2.6)	524 (79.0)	229 (33.3)
WA	48 (5.4)	26 (3.0)	824 (88.5)	351 (38.4)
TAS	14 (6.3)	10 (4.8)	115 (54.9)	59 (27.6)
NT	12 (14.9)	8 (14.9)	237 (254.3)	140 (163.4)
ACT	9 (7.0)	2 (1.6)	82 (60.4)	38 (26.8)
Total (AUS)	549 (6.2)	237 (2.6)	6,726 (76.3)	2,971 (33.0)

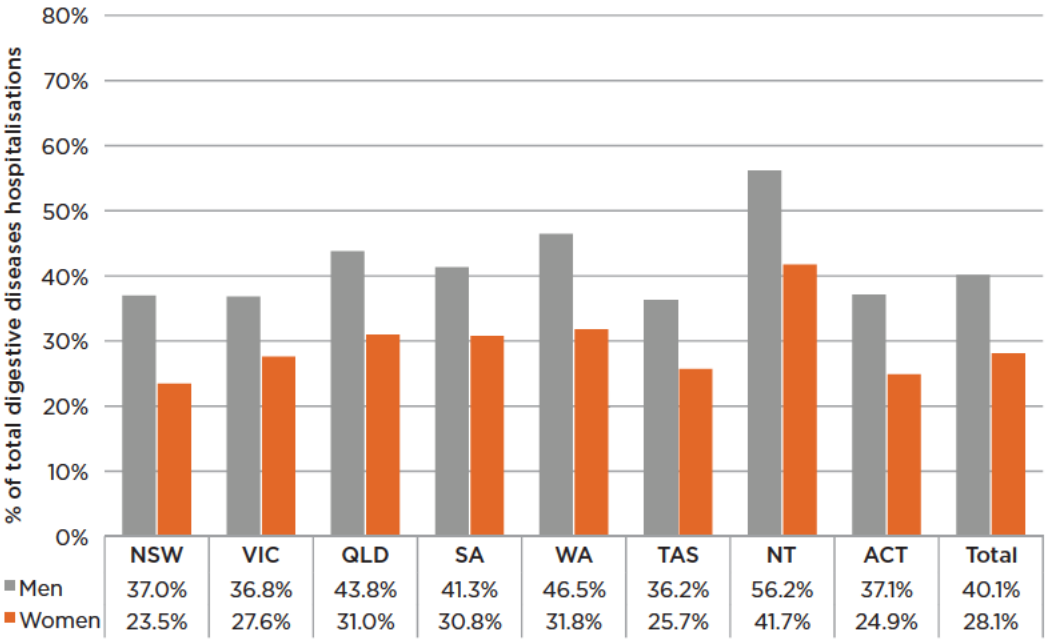
* Standardised rate per 100,000 population

Figure 21. Proportion of digestive diseases deaths attributable to alcohol by state in Australia in 2010



	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
Men	61.1%	56.4%	61.3%	59.1%	59.5%	67.6%	62.5%	61.6%	60.0%
Women	55.1%	48.0%	60.9%	52.9%	61.2%	56.1%	73.5%	56.6%	55.7%

Figure 22. Proportion of digestive diseases hospitalisations attributable to alcohol by state in Australia in 2010



	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
Men	37.0%	36.8%	43.8%	41.3%	46.5%	36.2%	56.2%	37.1%	40.1%
Women	23.5%	27.6%	31.0%	30.8%	31.8%	25.7%	41.7%	24.9%	28.1%

CHAPTER 9

Infectious And Parasitic Diseases

Background

Alcohol consumption, particularly heavy alcohol consumption, has been identified as a risk factor for many respiratory and sexually transmitted diseases [1, 112-114]. Clear links have been established between alcohol consumption and infection with Tuberculosis (TB), pneumonia and Human Immunodeficiency Virus (HIV) [31, 115]. The major pathological reason for this association is that chronic or acute alcohol consumption cause an impaired immune system [1].

The contribution of alcohol exposure to adversely affect the immune system may be both direct and indirect. Alcohol has a broad range of effects on host response against viral and bacterial pathogens, for example alcohol was found to weaken the defensive capability of alveolar macrophages and influence cytokine production and normal T-cell function [116-118]. Another important influence of alcohol on host defence ability is that alcohol induces intestinal leakage and allows bacteria-derived products to enter the liver to create a chronic inflammatory environment aggravating liver injury [119]. These mechanisms together increase alcohol users', particular heavy alcohol users', susceptibility, morbidity and mortality from infection as well as progression of HIV and other liver diseases [119]. Other indirect factors for alcohol consumption contributing to increasing risks of infection include nutritional problems, poor hygiene conditions, risky sex and other social factors [120, 121].

Tuberculosis (TB)

The association between alcohol use and TB has been recognised since 1785 [113]. Many systematic literature reviews and meta-analyses concluded that there is a consistently strong association between heavy drinking and risk of TB infection as well as transmission while controlling for other cofounding variables [74, 79, 122]. The impaired immune system, caused by heavy drinking, increases both individual's susceptibility for TB and risk for onset of clinical symptoms [123]. Although the dose-response relationship between alcohol consumption and TB is still unclear, some studies suggested that risk of TB increases with average alcohol consumption [124]. In the meantime, heavy alcohol drinking is also related with poor clinic outcome and relapse rate of TB [125, 126].

Lower respiratory infections

Alcohol consumption was found to be a risk factor for community-acquired pneumonia (CAP) by many case-control studies [11, 127]. Recent meta-analysis suggested a linear dose-response relationship between alcohol consumption and CAP [31].

HIV

The association between alcohol consumption and HIV is more complicated. Alcohol consumption influences HIV risk through two co-operative pathways: causing immune system function problems and increasing the likelihood of engaging in high risk behaviours [128]. In a review meeting hosted by the Medical Research Council and the WHO in 2008, 25 international experts concluded that the causal relationship between alcohol use and risky sex was still unclear [115]. However, there was a consent from experts that heavy alcohol use worsens the course of HIV due to compromised immunity and negative impact on treatment adherence [115].

Results

The following tables present alcohol related mortality and morbidity caused by infectious and parasitic diseases in Australia in 2010. Table 21 shows that 123 male and female deaths in this category were attributable to alcohol, while 4,990 male and 3,704 hospitalisations were attributable to alcohol. Within this category, lower respiratory infections were responsible for the vast majority of alcohol related infectious diseases deaths and hospitalisations in both genders in this year. According to Table 22, population rates of alcohol-attributed deaths were the same in men and women, but the population rate of alcohol-attributable hospitalisations was higher in men (56.6%) compared with women (41.1%). Similarly with other conditions, NT had the highest population rates of alcohol-attributable infectious diseases deaths and hospitalisations.

Figure 23 and Figure 24 present proportions of infectious and parasitic diseases deaths and hospitalisations attributable to alcohol in each state and territory. Alcohol was attributable for between 8% and 12% of infectious disease related deaths and hospitalisations. The alcohol-attributable proportions were higher in males. There was also a great difference of AAF of infectious diseases deaths among jurisdictions. The proportion of infectious diseases deaths attributable to alcohol in the NT (22.6%), was almost three times as high as the proportion in Tasmania, which is only 8.1%.

Table 21. Number and percentage of alcohol-attributable infectious and parasitic diseases deaths and hospitalisations in Australia in 2010

Disease	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
HIV	2 (2%)	1 (0%)	-	-
Lower respiratory infections	112 (91%)	120 (97%)	4,827 (97%)	3,626 (98%)
Tuberculosis	9 (8%)	3 (2%)	162 (3%)	77 (2%)
Total	123 (100%)	123 (100%)	4,990 (100%)	3,704 (100%)

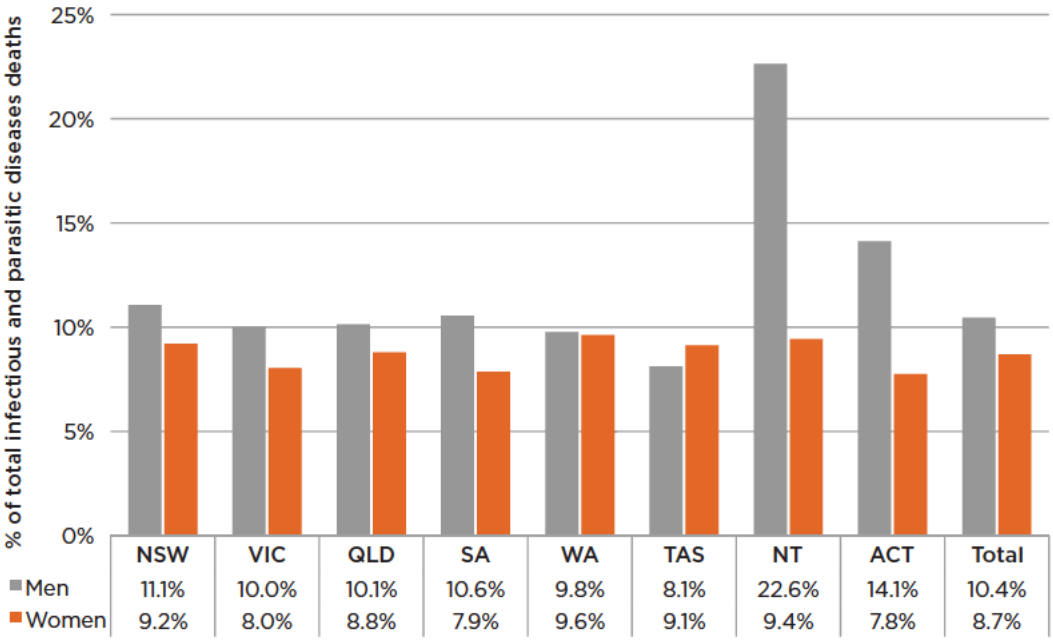
* Percentage of total alcohol-attributable infectious and parasitic diseases deaths or hospitalisations

Table 22. Number and rate of alcohol-attributable infectious and parasitic diseases deaths and hospitalisations by state in 2010

States	Deaths (rate*)		Hospitalisations (rate*)	
	Men	Women	Men	Women
NSW	42 (1.4)	43 (1.4)	1,506 (51.5)	1,094 (36.2)
VIC	33 (1.5)	33 (1.4)	1,371 (62.7)	1,019 (44.7)
QLD	22 (1.3)	20 (1.2)	962 (55.9)	745 (43.5)
SA	12 (1.7)	11 (1.4)	394 (56.6)	289 (39.6)
WA	9 (1.1)	12 (1.4)	494 (55.9)	369 (42.1)
TAS	2 (1.0)	3 (1.4)	76 (34.1)	65 (28.5)
NT	1 (1.7)	1 (1.7)	112 (144.3)	73 (106.6)
ACT	2 (2.0)	1 (1.1)	74 (60.8)	49 (39.5)
Total (AUS)	123 (1.4)	123 (1.4)	4,990 (56.6)	3,704 (41.1)

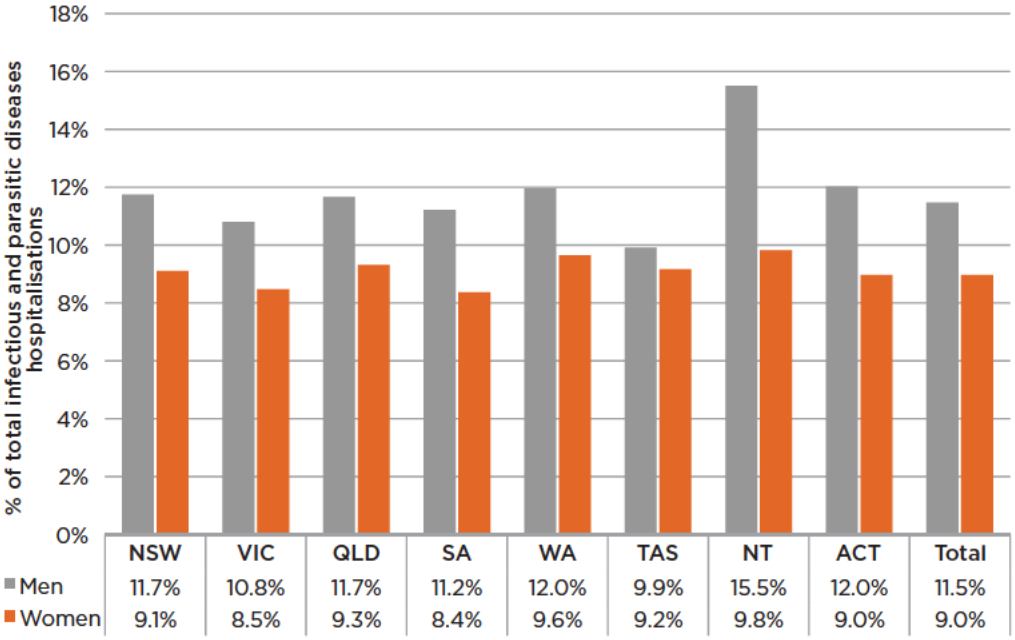
* Standardised rate per 100,000 population

Figure 23. Proportion of infectious and parasitic diseases deaths attributable to alcohol by state in Australia in 2010



	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
Men	11.1%	10.0%	10.1%	10.6%	9.8%	8.1%	22.6%	14.1%	10.4%
Women	9.2%	8.0%	8.8%	7.9%	9.6%	9.1%	9.4%	7.8%	8.7%

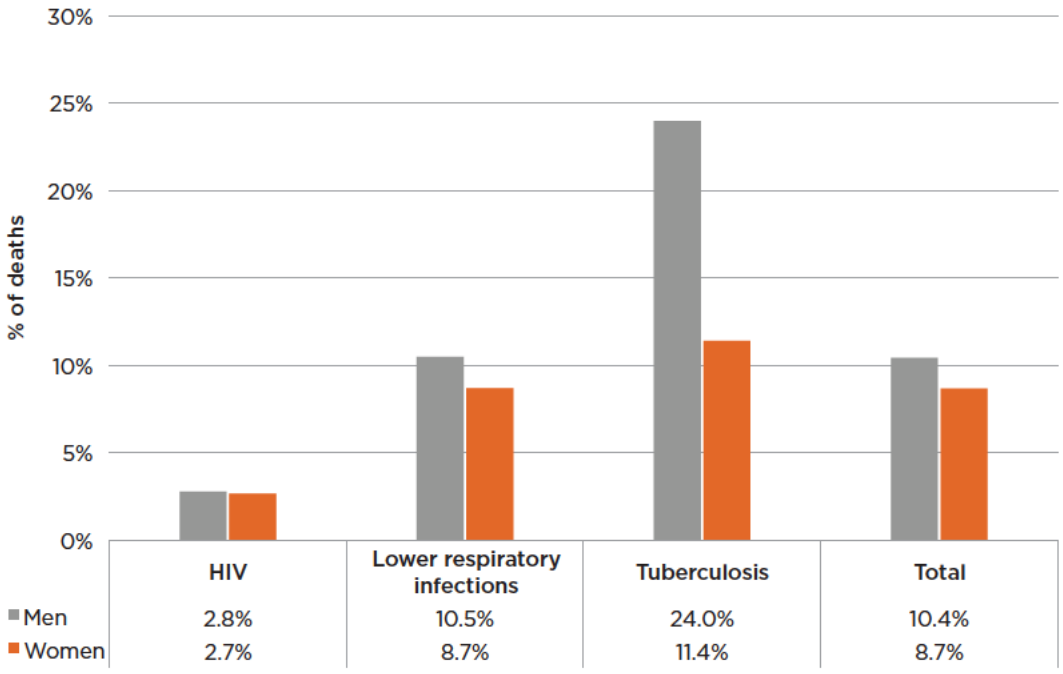
Figure 24. Proportion of infectious and parasitic diseases hospitalisations attributable to alcohol by state in Australia in 2010



	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
Men	11.7%	10.8%	11.7%	11.2%	12.0%	9.9%	15.5%	12.0%	11.5%
Women	9.1%	8.5%	9.3%	8.4%	9.6%	9.2%	9.8%	9.0%	9.0%

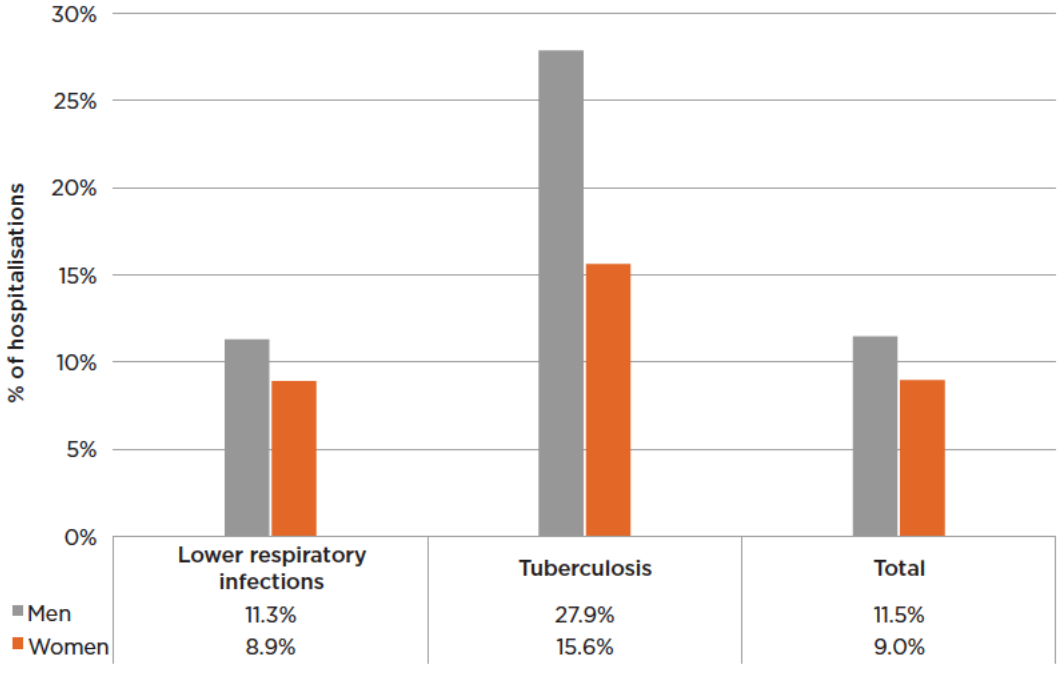
The following figures present proportions of different infectious and parasitic diseases attributable to alcohol. As shown in Figure 25 and Figure 26, tuberculosis had a higher alcohol-attributable burden particularly in males (24% of tuberculosis deaths and 27.9% of hospitalisations in men compared with 11.4% and 15.6% in women). HIV had a lower alcohol-attributable burden in both genders. However, it should be noted that the alcohol burden was calculated only on mortality of HIV not incidence of HIV.

Figure 25. Proportion of infectious and parasitic diseases deaths attributable to alcohol by disease type in 2010



	HIV	Lower respiratory infections	Tuberculosis	Total
Men	2.8%	10.5%	24.0%	10.4%
Women	2.7%	8.7%	11.4%	8.7%

Figure 26. Proportion of infectious and parasitic diseases hospitalisations attributable to alcohol by disease type in 2010



	Lower respiratory infections	Tuberculosis	Total
Men	11.3%	27.9%	11.5%
Women	8.9%	15.6%	9.0%

CHAPTER 10

Injuries

Background

Injuries were responsible for a high proportion of burden, particularly fatal burden, in Australia (estimated to be responsible for 8.3% of non-fatal burden and 11.6% of fatal burden in 2010 [19]). Road injuries rank as the fourth leading cause of mortality burden (YLL), and falls rank as the sixth leading cause of morbidity burden (YLD) in Australia in 2010 [19]. Evidence for causal relationships between alcohol consumption and different types of injuries are clear [2, 37].

Motor vehicle accidents (MVA)

The reasons for alcohol increasing acute risks of MVA are direct. Alcohol consumption has been found to cause impaired performance of multiple mental and motor functions, such as information processing speed, reaction time, visual functions, tracking ability and vigilance [129]. Effects of alcohol on driving skills were also found to be significant for any measured Blood Alcohol Concentration (BAC) above zero, hence Ogden and Moskowitz suggested that there is no risk-free threshold BAC [129]. Many retrospective studies also compared BAC levels of patients who experienced injuries or died from MVA with a control group, and identified an exponential-shape dose-relationship between RR and BAC level [130-132]. Chronic risks of alcohol consumption to MVA were found more related to binge drinking patterns [133]. A recent meta-analysis reviewed 8 studies published from 1994 to 2008 and estimated an increase of 1.24 odds of MVA per 10g increase of consumption [2].

Non-motor vehicle accidents (Non-MVA)

Substantial evidence exists for associations between alcohol consumption and acute risks of falls, drowning, fires, violent behaviours and other self-inflicted injuries [55, 94, 134-137]. Experimental studies have attributed these associations to alcohol consumption causing aggression, reduction of fears of risky behaviours, impaired problem solving ability etc [95, 99, 138, 139]. Other than drinking quantity per occasion, frequency of drinking was found to be associated with aggressive behaviours [140]. There is also an association between alcohol misuse and suicidal behaviours [141]. Chronic alcohol misuse was also found to increase the risk of poor clinical outcomes from injury [142]. Meta-analysis suggested that intentional injuries have the greatest proportional per-drink increase in risk compared with falls, MVA and other unintentional injuries [2].

Results

Table 23 and Table 24 report mortality and morbidity of alcohol-attributable injuries by injury type and state and territory. In total, a substantial number of hospitalisations attributable to alcohol relate to injuries. While 1,239 male and 256 female injury deaths were attributable to alcohol, 47,189 male and 17,779 female hospitalisations were attributable to alcohol. According to Table 23, alcohol-related Non-MVA was responsible for about 85% of alcohol-related injury deaths, and about 95% of alcohol related injuries hospitalisations. Only a small proportion of total alcohol-related injuries were caused by direct alcohol poisoning (total 81 deaths and 1,410 hospitalisations). Population rates of alcohol-attributable injury mortality and morbidity were highest in the NT followed by WA as seen in Table 24.

Table 23. Number and percentage of alcohol-attributable injuries deaths and hospitalisations in Australia in 2010

Disease	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
Alcohol poisoning	60 (5%)	21 (8%)	714 (2%)	690 (4%)
MVA	103 (8%)	17 (7%)	1,812 (4%)	473 (3%)
Non-MVA	1,076 (87%)	218 (85%)	44,663 (95%)	16,616 (93%)
Total	1,239 (100%)	256 (100%)	47,189 (100%)	17,779 (100%)

* Percentage of total alcohol-attributable injuries deaths or hospitalisations

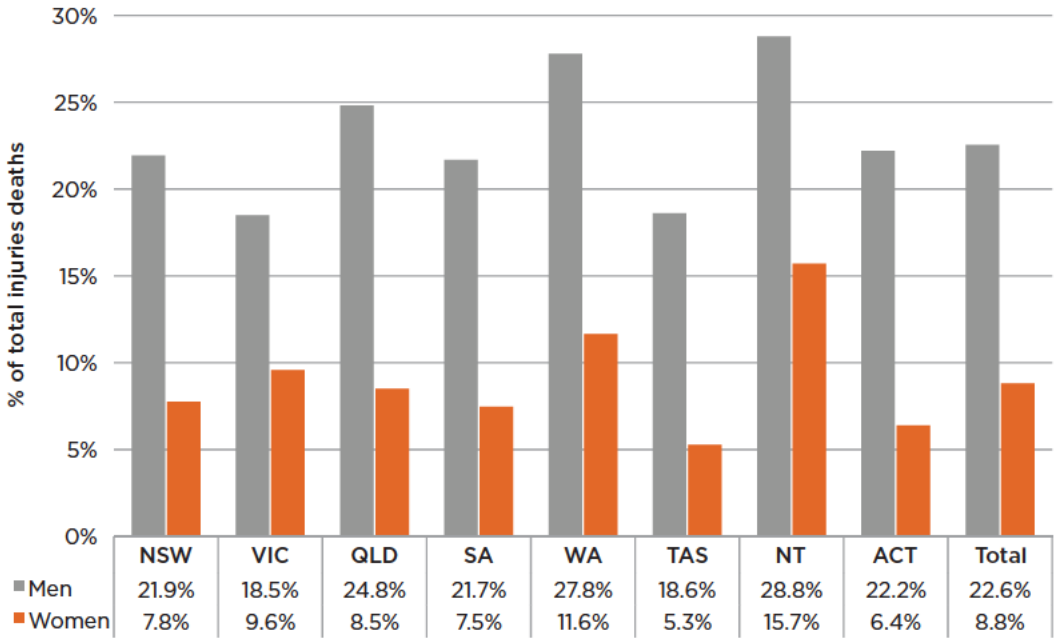
Table 24. Number and rate of alcohol-attributable injuries deaths and hospitalisations by state in 2010

States	Deaths (rate*)		Hospitalisations (rate*)	
	Men	Women	Men	Women
NSW	339 (11.8)	66 (2.2)	14,015 (487.8)	4,958 (167.4)
VIC	238 (10.9)	66 (2.9)	10,117 (462.2)	4,771 (209.9)
QLD	296 (17.0)	52 (2.9)	10,872 (623.7)	3,655 (205.6)
SA	93 (14.1)	17 (2.6)	3,487 (524.7)	1,208 (177.8)
WA	189 (20.3)	41 (4.6)	5,950 (643.1)	2,295 (254.1)
TAS	24 (11.9)	4 (1.9)	858 (419.4)	248 (117.5)
NT	39 (40.3)	6 (6.8)	1,057 (1,147.7)	369 (414.9)
ACT	20 (14.3)	3 (2.5)	833 (605.9)	276 (189.3)
Total (AUS)	1,239 (14.1)	256 (2.8)	47,189 (535.5)	17,779 (197.1)

* Standardised rate per 100,000 population

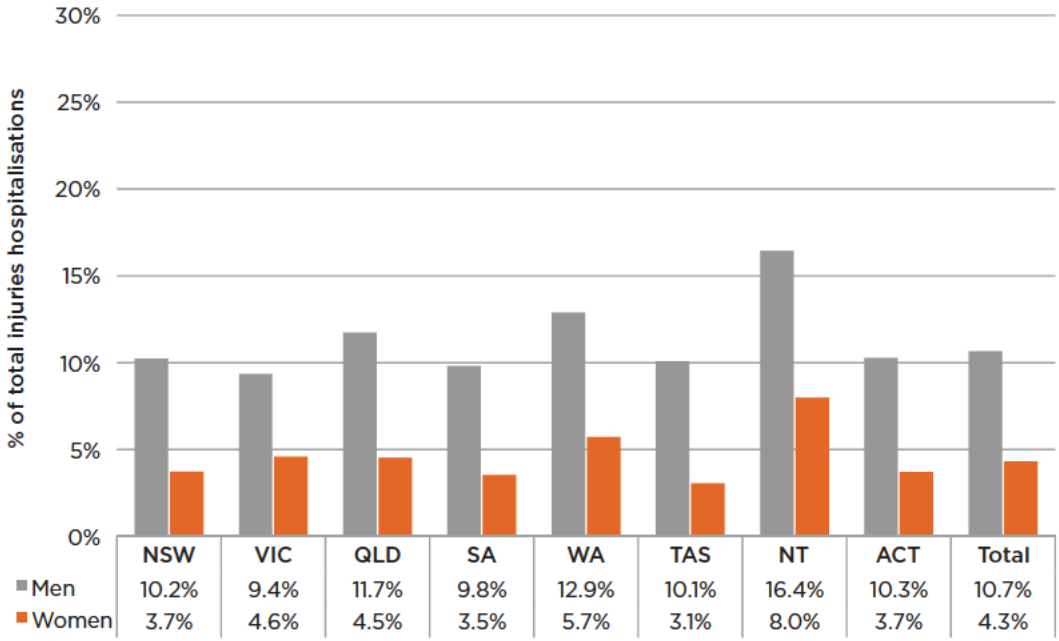
Proportions of injury caused deaths and hospitalisations attributable to alcohol are presented in Figure 27 and Figure 28 for each state and territory. Alcohol contributed proportions were higher for deaths than hospitalisations. The NT had the highest alcohol-attributable proportions for both deaths and hospitalisations, and Tasmania had the lowest proportions and population rates (see Table 24, Figure 27 and Figure 28). According to Figure 29 and Figure 30 alcohol-attributable fractions were higher for Non-MVA than MVA in both genders.

Figure 27. Proportion of injuries deaths attributable to alcohol by state in Australia in 2010



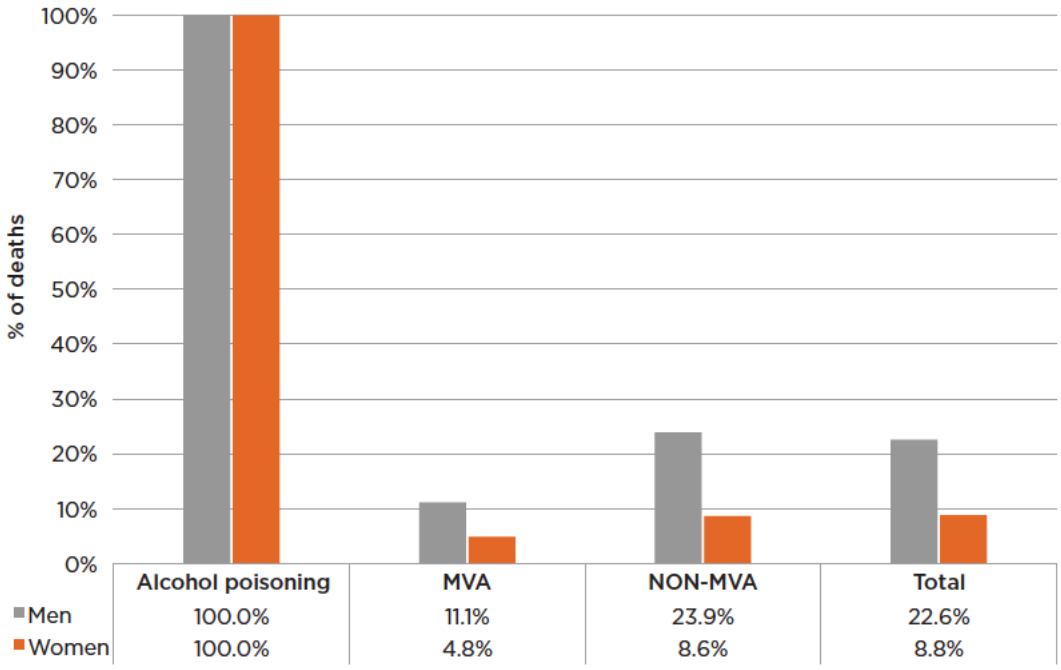
	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
Men	21.9%	18.5%	24.8%	21.7%	27.8%	18.6%	28.8%	22.2%	22.6%
Women	7.8%	9.6%	8.5%	7.5%	11.6%	5.3%	15.7%	6.4%	8.8%

Figure 28. Proportion of injuries hospitalisations attributable to alcohol by state in Australia in 2010



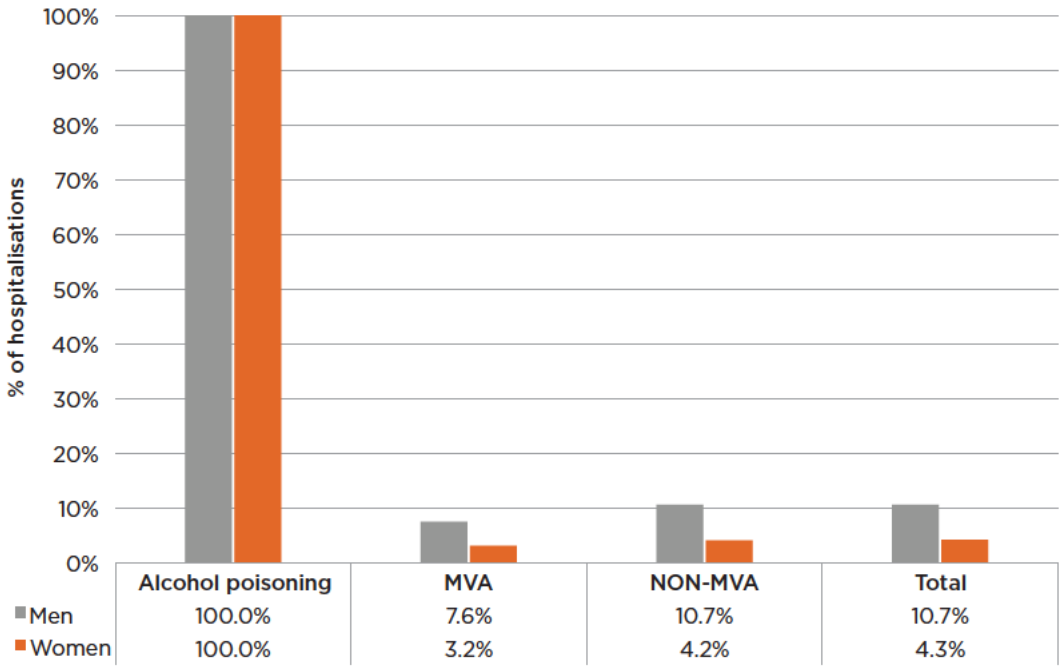
	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
Men	10.2%	9.4%	11.7%	9.8%	12.9%	10.1%	16.4%	10.3%	10.7%
Women	3.7%	4.6%	4.5%	3.5%	5.7%	3.1%	8.0%	3.7%	4.3%

Figure 29. Proportion of injuries deaths attributable to alcohol by disease type in 2010



	Alcohol poisoning	MVA	NON-MVA	Total
Men	100.0%	11.1%	23.9%	22.6%
Women	100.0%	4.8%	8.6%	8.8%

Figure 30. Proportion of injuries hospitalisations attributable to alcohol by disease type in 2010



	Alcohol poisoning	MVA	NON-MVA	Total
Men	100.0%	7.6%	10.7%	10.7%
Women	100.0%	3.2%	4.2%	4.3%

CHAPTER 11

Neuropsychiatric Diseases

Background

The co-morbidity between alcohol misuse and dependence and other neuropsychological and mental conditions is high. This co-morbidity is observed in both clinical samples [120] and in the general population [113, 142]. An Australian study reported that one-third of respondents in the National Survey of Mental Health and Wellbeing who had an alcohol use disorder (abuse or dependence) met the criteria for at least one mental disorder in the previous 12 months [143].

Causality between alcohol use and mental disorders such as depression is hard to define, but more recent Comparative Risk Analysis (CRA) and GBD have assessed the evidence and concluded that the relationship is sufficiently strong for a causal role of alcohol in depression [37, 144]. Such estimates have also been included in the separate analyses completed in Switzerland [145] and New Zealand [146].

Epilepsy

The relationship between alcohol and seizures is complex [139], and a summary of these relationships is provided in Hillbom et al., [147]. In summary, alcohol can act as a central nervous system depressant and increase the normal seizure threshold, while acute alcohol intoxication and rising BAC has also been shown to precipitate seizures in Hillbom et al., [147]. Furthermore, in heavy drinkers, withdrawal from alcohol may also precipitate seizures. The analyses presented in this paper draw from the definition and conditions specified in Rehm et al. [16] that epilepsy is a brain disorder that is characterised by an enduring predisposition to generate epileptic seizures.

Studies have reported a significant dose-response relationship between alcohol use and the onset of epilepsy independent of withdrawal [33, 148]. For example, those consuming on average four, six, or eight drinks had a RR of 1.81, 2.44, and 3.27 compared to non-drinkers. There does not seem to be an increased RR for fewer than four drinks per day [33].

Alcohol has numerous effects on neurotransmitter levels and ion-balance in the central nervous system in particular which may explain the relationship between alcohol use and an increased risk of epilepsy [140, 141]. Samokhalov et al. [165] addressed these mechanisms in more detail, and noted that while there is some evidence that increased risk may be due to brain atrophy or lesions or repeated 'withdrawals' via a "kindling" effect [149], that to date none of the reviewed factors is a unique causative agent of epilepsy or unprovoked seizures.

Results

The number and percentage of alcohol-attributable neuropsychiatric diseases are listed in Table 25. Within this category there was a large neuropsychiatric burden estimated to be attributable to alcohol. Overall, 258 male and 122 female neuropsychiatric deaths were attributable to alcohol, while 30,231 male and 22,695 female hospitalisations were attributable to alcohol. About 17% of alcohol-attributable neuropsychiatric diseases deaths in 2010 were from alcohol-attributable epilepsy, and the rest were caused by mental and behavioural disorders due to use of alcohol including alcohol intoxication, abuse, dependence and other alcohol-induced disorders. This ICD-10 condition (mental and behavioural disorders due to use of alcohol) also contributed >90% of alcohol-attributable neuropsychiatric diseases hospitalisations.

The NT had the highest population rates of alcohol-attributable neuropsychiatric diseases deaths and hospitalisations (see Table 26), among which rates of alcohol-attributed neuropsychiatric deaths were about 10 times higher than other states and territories (death rates were 23.1 per 100,000 population for men and 16.3 per 100,000 for women, whereas in Victoria death rates were only 2.6 and 1.1 per 100,000 population for men and women separately).

Table 25. Number and percentage of alcohol-attributable neuropsychiatric diseases deaths and hospitalisations in Australia in 2010

Disease	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
Epilepsy	44 (17%)	22 (18%)	2,362 (8%)	1,086 (5%)
Mental and behavioural disorders due to use of alcohol	210 (81%)	100 (82%)	27,700 (92%)	21,546 (95%)
Other alcohol-induced neuropsychiatric conditions	N<5	N<5	169 (1%)	63 (0%)
Total	258 (100%)	122 (100%)	30,231 (100%)	22,695 (100%)

* Percentage of total alcohol-attributable neuropsychiatric diseases deaths or hospitalisations

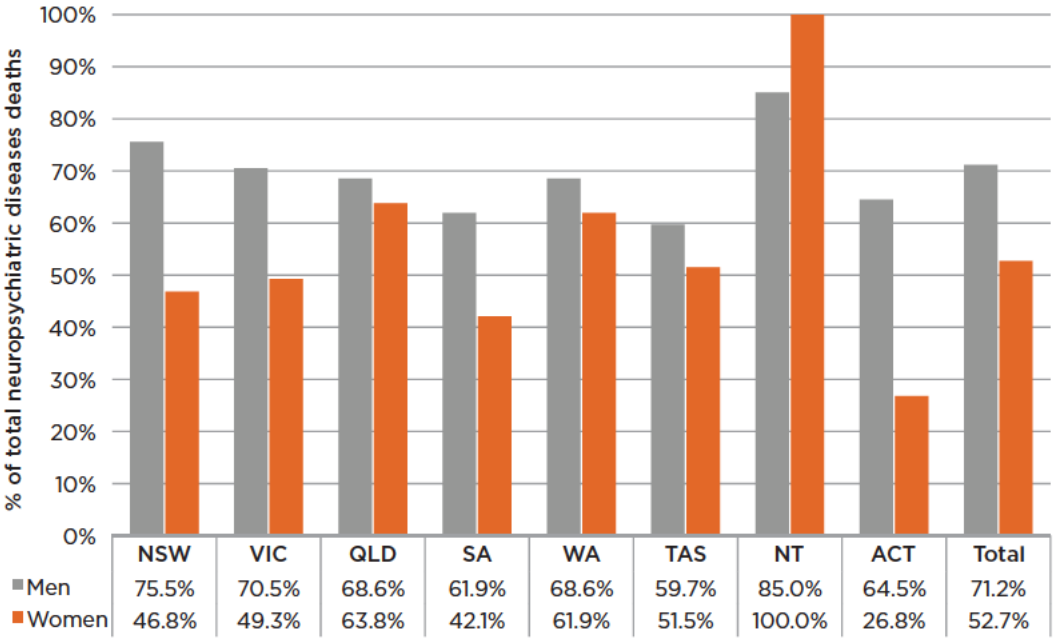
Table 26. Number and rate of alcohol-attributable neuropsychiatric diseases deaths and hospitalisations by state in 2010

States	Deaths (rate*)		Hospitalisations (rate*)	
	Men	Women	Men	Women
NSW	90 (3.1)	33 (1.1)	10,411 (366.0)	7,292 (249.8)
VIC	57 (2.6)	24 (1.1)	7,671 (351.9)	6,811 (302.2)
QLD	46 (2.6)	31 (1.8)	6,040 (345.3)	4,901 (273.9)
SA	15 (2.2)	9 (1.2)	1,816 (277.9)	950 (142.6)
WA	24 (2.7)	12 (1.4)	3,175 (340.2)	1,900 (203.7)
TAS	11 (4.9)	4 (1.6)	391 (188.3)	404 (192.3)
NT	14 (23.1)	7 (16.3)	326 (341.1)	208 (237.0)
ACT	1 (0.9)	2 (1.8)	400 (272.2)	228 (150.1)
Total (AUS)	258 (2.9)	122 (1.4)	30,231 (343.1)	22,695 (251.7)

* Standardised rate per 100,000 population

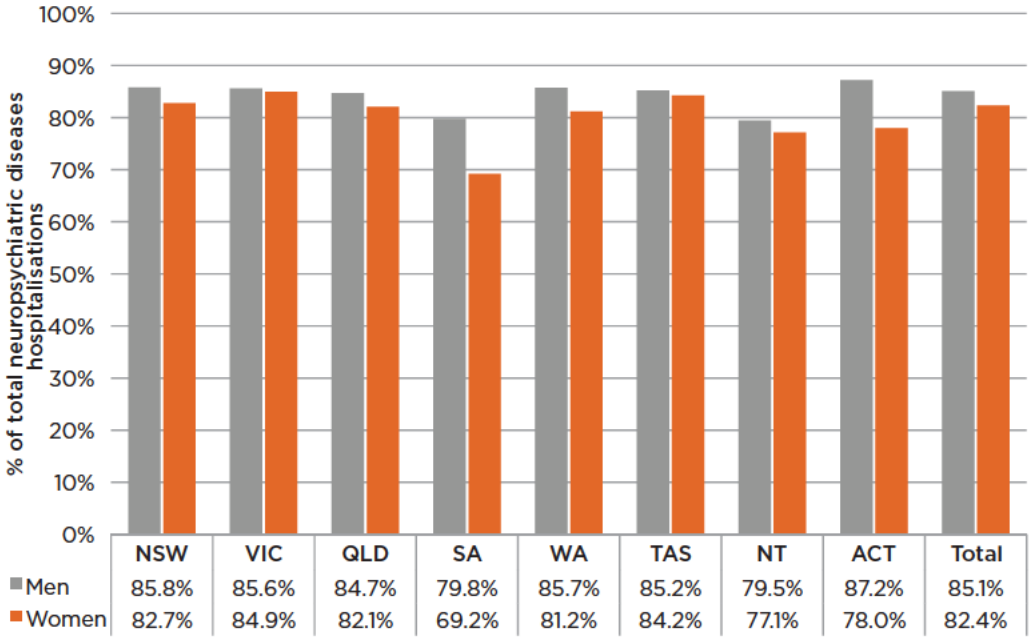
Proportions of neuropsychiatric diseases caused deaths and hospitalisations for each state and territory are listed in Figure 31 and Figure 32. The alcohol-attributable proportion for females in the NT was 100%, this is because there was no death from epilepsy in females in the NT in 2010. Proportions of neuropsychiatric diseases hospitalisations attributable to alcohol were similar in most of states and territories (see Figure 32), and surprisingly the NT did not have the highest proportion. This is caused by a high prevalence of alcohol attributable epilepsy hospitalisations (Table A64) and a low prevalence of hospitalisations for mental and behavioural disorders due to use of alcohol (Table A67).

Figure 31. Proportion of neuropsychiatric diseases deaths attributable to alcohol by state in Australia in 2010



	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
Men	75.5%	70.5%	68.6%	61.9%	68.6%	59.7%	85.0%	64.5%	71.2%
Women	46.8%	49.3%	63.8%	42.1%	61.9%	51.5%	100.0%	26.8%	52.7%

Figure 32. Proportion of neuropsychiatric diseases hospitalisations attributable to alcohol by state in Australia in 2010



	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	Total
Men	85.8%	85.6%	84.7%	79.8%	85.7%	85.2%	79.5%	87.2%	85.1%
Women	82.7%	84.9%	82.1%	69.2%	81.2%	84.2%	77.1%	78.0%	82.4%

Figure 33. Proportion of neuropsychiatric diseases deaths attributable to alcohol by disease type in 2010

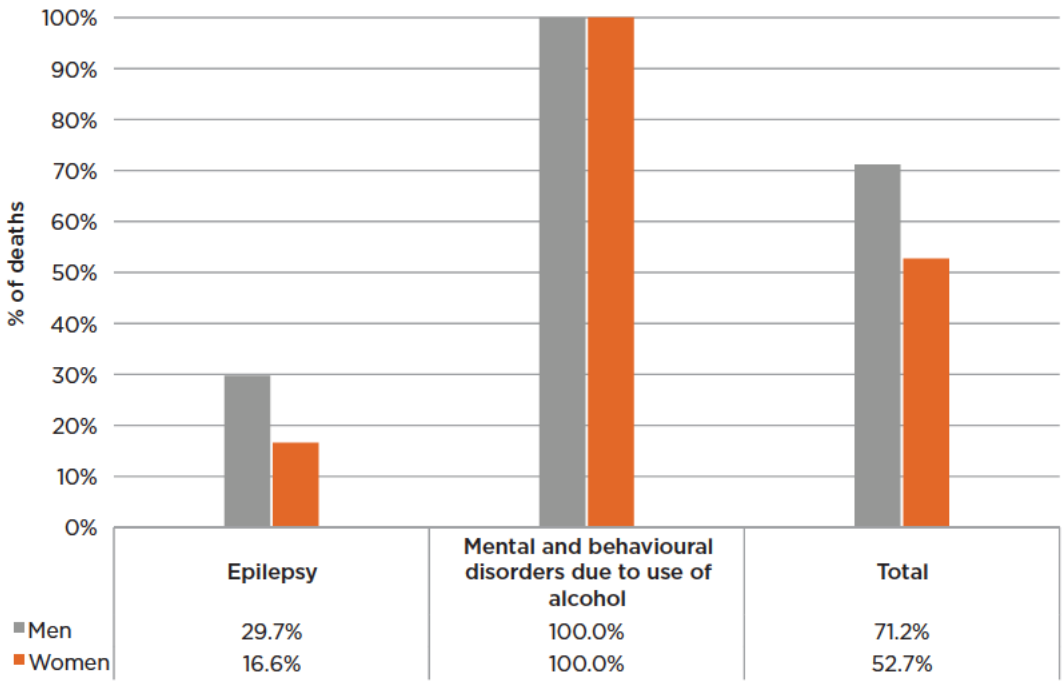
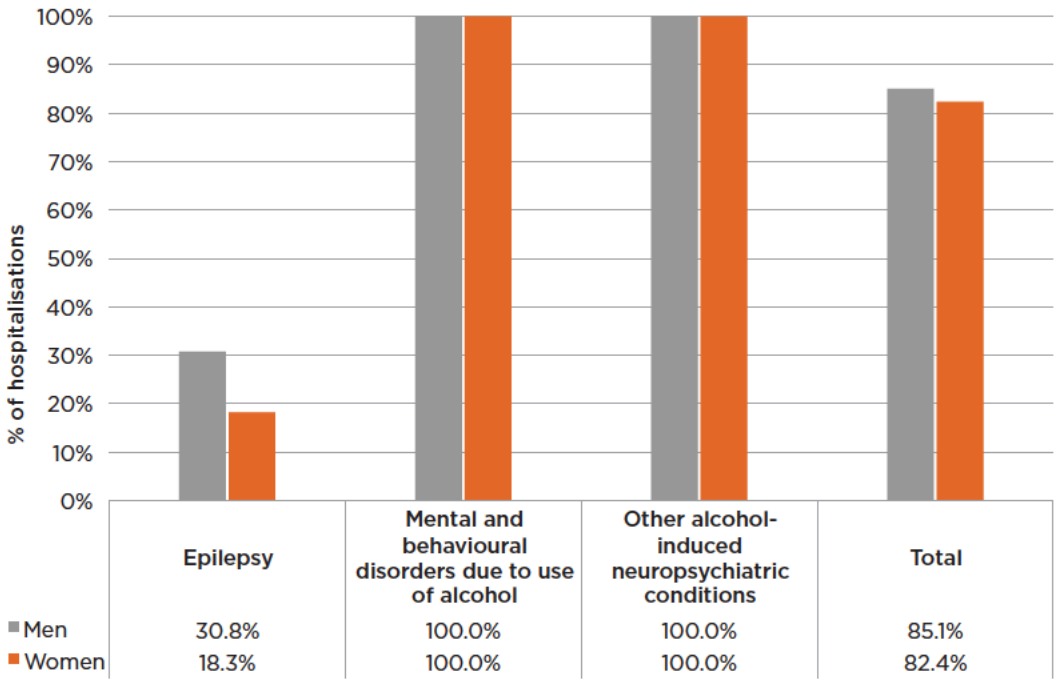


Figure 34. Proportion of neuropsychiatric diseases hospitalisations attributable to alcohol by disease type in 2010



CHAPTER 12
Discussion

Findings

The present report provides an examination of alcohol's contribution to the BoD in Australia in 2010. The methodology underpinning these analyses was based on the current international standard approach, using methods developed in the *Comparative Risk Analyses for the Global Burden of Disease* [9]. The estimates provided in this report were based on consumption and health services data from 2010, and as such form an integral resource for researchers, policy makers and health service workers who wish to gauge the impacts that alcohol has on the Australian health care system. BoD estimates are a valuable tool, enabling an assessment of changing trends of harm in the community, and as such this study builds upon previous Australian work which has investigated the role of alcohol in BoD [3, 4, 6, 7]. This present report is timely given that more than a decade has passed since alcohol's role in the BoD has been investigated in Australia [7]. In addition, recent estimates from comparable countries such as Canada [150], New Zealand [146] and Europe [9] as well as the recent GBD study are available for comparison [8, 151, 152].

Consumption of alcohol in Australia in 2010

PCA estimates reported in these analyses were similar to those reported by WHO for Australia, with a similar gender divide whereby males consumed significantly more alcohol (14.4L) than females (6.5L) on average per year. This finding reflects the stable pattern of alcohol consumption with which Australia has been categorised by WHO [44], suggesting no significant increases in PCA.

One interesting finding refers to reported PCA levels compared to those uplifted based on a triangulation of self-reported survey data with sales and taxation figures collected by the ABS. While mean consumption levels in jurisdictions such as the NT (8.31L), WA (6.56) and Queensland (6.49) were the highest among the states and territories, the proportion of estimated consumption in these states was underestimated by a similar factor to those in states with lower consumption levels such as NSW (5.25L), Victoria (5.20L) and SA (5.22L). This suggests that in all jurisdictions, there are similar difficulties in sampling respondents that are heavy drinkers [52, 153] and this has ramifications for the proportion classified as risky drinkers (estimated based on under-reported survey data). In 5 jurisdictions (NT, Queensland, WA, Tasmania, ACT) more than 50% of male respondents and more than 30% of female respondents reported drinking five or more standard drinks at least once in the past 12 months, and these percentages may be even higher when underreporting problems associated with survey methodology are considered. For example, Mathews and Callinan [153] recently reported that up until age 60, the majority of male drinkers exceed the single drinking occasion limits recommended by the NHMRC at least monthly.

The overall burden of alcohol consumption in Australia

Alcohol has detrimental health effects in a number of disease categories including those that can be classified as acute (e.g. injuries) and chronic conditions such as cardiovascular events, cancers and digestive diseases [144, 154, 155]. In addition, alcohol also has beneficial effects for some conditions including ischemic stroke and ischemic heart disease [12, 20], with these effects larger in females compared with males [16]. However, these beneficial effects are small when considering the overall burden that alcohol plays on the health system. The present report estimates that in 2010 4.7% of deaths in Australian men were attributable

to alcohol and 3.0% of deaths in females were attributable to alcohol.

In addition, this report also provides an examination of differences based on jurisdictions, which have not previously been presented in alcohol-related BoD reports. These analyses showed that the highest proportion of alcohol-attributable deaths for both sexes occurred in the NT, (males: 13.4%, females 8.9%) approximately three-times greater than the national figure (males: 4.7%, females 3.0%), while Victoria (males: 3.9%, females 2.9%) had the lowest proportion of deaths attributable to alcohol. In addition to deaths, 2.5% of hospitalisations for men and 1.2% for women were estimated to be alcohol attributable, with the highest proportion in the NT (males: 4.1%, females 1.5%) and the lowest in SA (males 2.3%, females 1.0%).

These mortality figures present a higher number of deaths attributable to alcohol than that previously estimated by Begg et al [7] (3,430 deaths) and by Ridolfo and Stevenson [6] (3,271 deaths), but are similar to those estimated by Holman et al. [3] (5,360 deaths). More concerning is the large increase in hospitalisations presented in this report compared to previous alcohol-burden studies, with 157,132 hospital separations estimated to be due to alcohol-related causes in Australia in 2010, this number approximately double the estimate of Holman et al. of 76,467. This finding supports recent literature showing increases in alcohol-related harm during a period of relatively stable alcohol consumption [156], particularly morbidity as opposed to mortality [157]. From a BoD perspective, increases in the number of hospital separations can be partly explained by the greater number of conditions that have received sufficient support based on meta-analyses for inclusion in this study compared with previous BoD studies. Alcohol has been identified as either a causal or component factor in more than 200 ICD-10 3-digit disease codes [45, 52] and this number has increased since previous BoD studies reflecting a greater knowledge of alcohol-related effects. This change in hospitalisation numbers may also reflect changes in the drinking patterns amongst high-risk sub-groups, who subsequently require more treatment episodes for alcohol-related conditions such as presentations to emergency departments or alcohol-related ambulance attendances [156]. In addition, utilisation of hospital services has increased. AIHW reported that population rates of hospitalisation separations increased by more than 10% from 2005 to 2010 in Australia [158], and this reflects potential differences in screening, and treatment for a number of conditions including alcohol-related conditions such as breast cancer in women.

Alcohol burden with respect to specific disease conditions

Many conditions included in this report have an AAF of less than 1 (e.g. MVA and certain cancers), because only part of the burden of those conditions is attributable to alcohol [127, 159]. For example, in 2007 IARC monograph working group concluded that there was sufficient evidence for the carcinogenicity of alcohol for a causal link between alcohol consumption and cancers of the oral cavity, pharynx, larynx, oesophagus, liver, colon, rectum and breast cancer in females [53]. The estimated number of deaths in Australian males (861) is greater than that estimated for females (642), however levels of hospitalisation for males and females is similar with 5,175 in males and 5,002 in females. A similar proportion of cancer deaths and hospitalisations due to alcohol were estimated between states and territories, with the highest proportions estimated in the NT and WA for both men and women.

For Australian men and women the highest proportion of deaths in the cardiovascular disease category is for haemorrhagic stroke and ischemic heart disease respectively. In addition, the beneficial effects are due almost exclusively to ischaemic heart disease in men and ischemic stroke in women. Overall, there is estimated to be a higher proportion of total cardiovascular deaths in women than in men, and this relationship is observed in all jurisdictions except the NT. This difference likely reflects the higher reported alcohol consumption among men in the NT compared with other jurisdictions.

It is important to note that for strokes and ischaemic heart disease, where both detrimental and beneficial effects exist (depends on consumption level), the current AAF estimation algorithm cannot separate these two effects in one population group. For example when calculating AAF of ischaemic stroke for females aged 65+, a proportion of this population consumed under a certain amount of alcohol, which has a protective effect (RR lower for this group compared with abstainer), while the rest of drinkers drank over this amount of alcohol (alcohol introduces a higher risk over this amount compared with abstainer). The AAF calculated for females aged 65+ is a neutralisation of protective and detriment effects in these two sub-groups,

which depends on both the prevalence of harmful drinkers and RRs of harmful drinking. The reported numbers of deaths and hospitalisations caused by or protected against by alcohol in these disease categories indicated overall trends of protection or detrimental effects under each age and gender group. Hence when zero deaths or hospitalisation attributable to alcohol are reported for these disease categories for a population, it should not be interpreted as there being no death or hospitalisation caused by alcohol for this population. It should be interpreted as the protective effects exceeding the detrimental effects in the population (a small proportion of this population with heavy drinking behaviours suffering from these conditions caused by alcohol consumption, while the majority of the population with low drinking behaviours benefit from their drinking).

Low to moderate alcohol consumption is associated with reduced risk of type II diabetes [94], with an approximately 30% decrease in observed risk [95]. A greater protective effect was observed in women, likely due to higher levels of low-moderate alcohol consumption reported in females. Estimated rates were similar in most jurisdictions, except the NT. This is likely due to both the proportion of diabetes hospitalisations protected by alcohol being greater, and the prevalence of diabetes hospitalisations being higher in females in the NT.

The present report considers the role of alcohol in the burden of digestive diseases. Within this category, cirrhosis of the liver was the most important chronic disease condition caused by alcohol consumption resulting in mortality [100], with greater burden on males compared with females. The majority of deaths in both men and women were found to be due to liver cirrhosis. Hospitalisations within this category, however, involve a spread of burden due to each of the conditions considered (alcoholic gastritis, liver cirrhosis and pancreatitis), again with a higher burden in men with a standardised rate more than twice that of women and the highest rates of hospitalisations in the NT and WA for both sexes.

Heavy alcohol consumption is a risk factor for many respiratory and sexually transmitted diseases [1, 112-114], likely caused by impairment of the immune system [1]. Within this category, lower respiratory infections were estimated to be responsible for the vast majority of alcohol related infectious diseases deaths and hospitalisations in both genders, but population rates of alcohol-attributable hospitalisations were higher among men (56.7%) compared with women (41.1%). There are also marked differences between different jurisdictions, with the proportion of infectious disease deaths attributable to alcohol in the NT (22.6%) almost three times higher than the proportion in Tasmania (8.1%).

Injures are responsible for a high proportion of both morbidity and mortality in Australia [19], with MVA ranking as the fourth leading cause of overall mortality burden, and falls ranking as the sixth leading cause of morbidity burden in Australia in 2010 [19]. The evidence for causal relationships between alcohol consumption and different types of injuries has been reported in previous work [2, 37]. Within this category, alcohol-related MVA and Non-MVA were responsible for the greatest burden. Non-MVA was responsible for about 85% of alcohol-related injury deaths and about 95% of alcohol related injury hospitalisations. Alcohol burden within this category reflects high rates of deaths compared with hospitalisations, and this likely reflects the burden associated with young road users compared with other conditions included in this report (such as chronic diseases which adversely affect older Australians [34, 127, 160]). The NT had the highest alcohol-attributable proportions for both deaths and hospitalisations and Tasmania had the lowest proportions and population rates.

Approximately 17% of alcohol-attributable neuropsychiatric diseases deaths in 2010 were attributable to alcohol-related epilepsy, with the rest in this category caused by mental and behavioural disorders including alcohol intoxication, abuse and dependence. The NT had the highest population rates of alcohol-attributable neuropsychiatric diseases deaths and hospitalisations with rates approximately 10 times higher than other states and territories (death rates were 23 per 100,000 population for men and 16.3 per 100,000 for women, whereas in Victoria death rates were only 2.6 and 1.1 per 100,000 population for men and women separately). The co-morbidity between alcohol misuse and dependence and other neuropsychological and mental conditions is high [113, 120, 142], with an Australian study finding that one-third of respondents in the National Survey of Mental Health and Wellbeing who had an alcohol use disorder (abuse or dependence) meeting the criteria for at least one mental disorder in the previous 12 months [143].

Despite this, the burden associated with this category is likely underestimated. This is because the causality between alcohol use and mental disorders such as depression is hard to define, even though

some recent studies have noted that the relationship is sufficiently strong for a causal role of alcohol in depression [37, 144].

Limitations

In estimating PCA for the present study, survey data were used from the 2010 NDSHS. However, a limitation with such surveys includes underreporting of alcohol consumption when compared with national sales and taxation figures [36] by between 30-70% [159]. Underreporting in national surveys is a function of respondents providing lower estimates of true actual consumption due to a desire to conceal it, or because high alcohol consumers in the community such as the homeless or those institutionalised are excluded from the sample or are reluctant to participate [156, 159]. To address this limitation, relevant adjustments consistent with GBD methodology were used to overcome underreporting of alcohol consumption (see Chapter 2). Specifically, we first estimated state-level annual PCA using the 2010 NDSHS data, then uplifted these data using the National estimation of PCA[11]. In WA, NT and Queensland the uplifted PCAs were corrected using available sales and taxation data from the 2009/2010 financial year.

In addition to concerns with alcohol-related 'volume' estimates, alcohol-related harm is also dependent on the pattern of consumption, [154, 155, 161] with heavy drinking occasions or 'binges' detrimental in a number of outcomes [161]. To address this issue, we also obtained data of proportions of binge drinkers and frequencies of binge drinking from NDSHS. However there is no alternative data available to assist us to correct the underreported 'binge' drinking occasions reported in the survey. Hence, there is likely an underestimation of alcohol burden for conditions such as injuries, ischaemic heart disease and ischaemic stroke, where drinking patterns also contribute to harm.

The AAF calculations are algorithms that use the distribution of alcohol consumption and drinking patterns in one population, and the RR of a disease obtained from other populations (normally obtained from meta-analysis) to calculate proportion of the disease outcomes attributable to alcohol. Most studies used in meta-analysis for deriving RR were not from Australia. Hence similar with other BoD studies, assuming a similarity between the population where RR was obtained from and the population where RR was applied to may introduce potential bias for our estimated results [127]. However, RRs were predominantly extracted from studies conducted in high-income countries (more comparable with Australia), which may reduce estimation bias caused by this problem.

It is also important to note that the current BoD methodology assumes stable alcohol exposure for individuals during the two decades for chronic conditions [9]. Hence, there is potential bias associated with estimation of alcohol attributable fractions for chronic conditions such as cancers given that drinking patterns may not be stable across this timeframe. Future studies can address this problem by including drinking patterns change in the BoD methodology.

Future Directions

This report provides a quantification of the burden of disease and injury in Australia which the contribution of alcohol to the burden of disease in Australia. For example, these estimates may form the basis for a future cost of illness study to assess how current funding is allocated to tackling alcohol-related burden in the Australian health care system, and how to determine better estimates for future funding. Indeed, given the differences between jurisdictions with respect to alcohol consumption, future work should continue to extend this type of analysis to provide estimates that are relevant to sub-populations, and to support policy responses at jurisdictional and national levels.

AAFs were applied only to principal diagnoses (underlying causes for deaths) not to other primary diagnoses (associated causes for deaths). However in 2010 hospitalisation records, there were an additional 76,681 separations where ICD-10 codes F10 (mental health and behaviour disorders due to use of alcohol) or T51 (toxic effect of alcohol) were coded as other primary diagnoses (records not included in the study due to principal diagnoses not in the study diseases list). The current Alcohol BoD methodology cannot employ both principal and other primary diagnoses, although they are both important in determining overall cost and burden

[11] 43070DO001-Apparent Consumption of Alcohol, Australia, 2011-12 released 18/09/2013, available at: http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/4307.0.55.0012011-12?OpenDocument

attributable to alcohol. Future studies are needed to develop methodology considering both principal and other primary diagnoses to fully understand the contribution of alcohol to BoD in Australia.

Conclusion

This study extends our understanding of the role that alcohol plays with respect to Australian disease, illness and injury and builds upon a strong record of research which has previously investigated these issues [3, 4, 6, 7]. Importantly, this report extends these findings by including the latest methodology associated with Alcohol BoD studies overseas [9, 11, 146], thus including the latest RR derived from meta-analyses and including conditions and illness types not previously considered. Also, this report provides estimates for different states and territories in a number of different disease types and injuries.

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APPENDIX

List of Tables

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Table A1. Frequency of drinking more than four standard drinks at a time for Australians (15+)

State	Everyday	5-6 days a week	3-4 days a week	1-2 days a week	2-3 days a month	About 1 day a month	Less often	Never	Do not know
NSW	2.11%	1.33%	2.19%	6.21%	6.95%	10.27%	6.77%	62.19%	1.99%
VIC	1.48%	1.38%	2.57%	5.69%	8.76%	10.17%	7.09%	61.50%	1.37%
QLD	2.73%	1.84%	3.02%	6.74%	10.45%	12.10%	7.11%	54.17%	1.82%
SA	1.61%	1.53%	1.98%	6.70%	7.83%	11.42%	6.70%	61.01%	1.21%
WA	2.77%	1.97%	1.87%	8.28%	8.96%	11.29%	7.56%	55.69%	1.60%
TAS	1.85%	1.51%	3.06%	6.01%	8.46%	10.53%	7.82%	59.87%	0.88%
NT	4.33%	2.37%	4.02%	9.33%	9.69%	13.90%	6.14%	49.24%	0.97%
ACT	1.26%	1.38%	2.37%	5.72%	10.86%	12.70%	8.87%	55.31%	1.53%
Total	2.11%	1.54%	2.44%	6.45%	8.49%	10.88%	7.04%	59.38%	1.66%

Table A2. Partially alcohol-attributable diseases and injuries identified by reviews and meta-analysis

	Relevant References	Summary Effect of alcohol consumption
Cancers		
Breast cancer	[20, 53, 57, 58, 61]	Detrimental in females
Colon cancer	[20, 53-55]	Detrimental
Larynx cancer	[20, 53]	Detrimental
Liver cancer	[20, 53]	Detrimental
Oral cavity and pharynx cancer	[20, 53]	Detrimental
Rectum cancer	[20, 53, 54]	Detrimental
Cardiovascular Diseases		
Cardiac arrhythmias	[20, 21, 86]	Detrimental
Hypertensive disease	[20, 23, 69]	Detrimental
Ischaemic heart disease (IHD)	[20, 76]	Beneficial in low-moderate amounts, detrimental in higher amounts or where heavy drinking occasions are present
Ischaemic stroke	[20, 22]	Detrimental or beneficial depends on patterns of drinking (similar to IHD)
Haemorrhagic stroke	[20, 22]	Mainly detrimental, except for moderate alcohol consumption
Diabetes		
Diabetes mellitus	[94-96]	Beneficial (low-moderate levels)
Digestive Diseases		
Liver cirrhosis	[20, 100, 103, 162]	Detrimental
Pancreatitis	[20, 27]	Detrimental
Infectious and parasitic diseases		
HIV	[115, 163]	Sufficient evidence of causal impact on course of disease but not incidence
Lower respiratory infections		Detrimental
Tuberculosis	[115, 164]	Detrimental
Injuries		
MVA	[2]	Detrimental
NON-MVA	[2, 134]	Detrimental
Neuropsychiatric diseases		
Epilepsy	[33]	Detrimental

Cancers

Table A3. Crude rate of alcohol-attributable cancers deaths and hospitalisations by state in 2010

State	Crude death rate*		Crude hospitalisation rate*	
	Men	Women	Men	Women
NSW	10.2	7.3	52.6	53.2
VIC	8.4	7.3	54.7	58.4
QLD	10.7	6.8	74.2	59.2
SA	9.8	7.2	56.0	52.3
WA	9.3	6.5	59.3	52.6
TAS	14.2	8.5	71.4	51.2
NT	11.0	7.6	56.8	37.0
ACT	6.6	6.3	44.5	58.1
Total (AUS)	9.8	7.1	58.7	55.4

* Crude rate per 100,000 population

Figure A1. Proportion of cancers YLL, YLD and DALYs attributable to alcohol in Australia in 2010

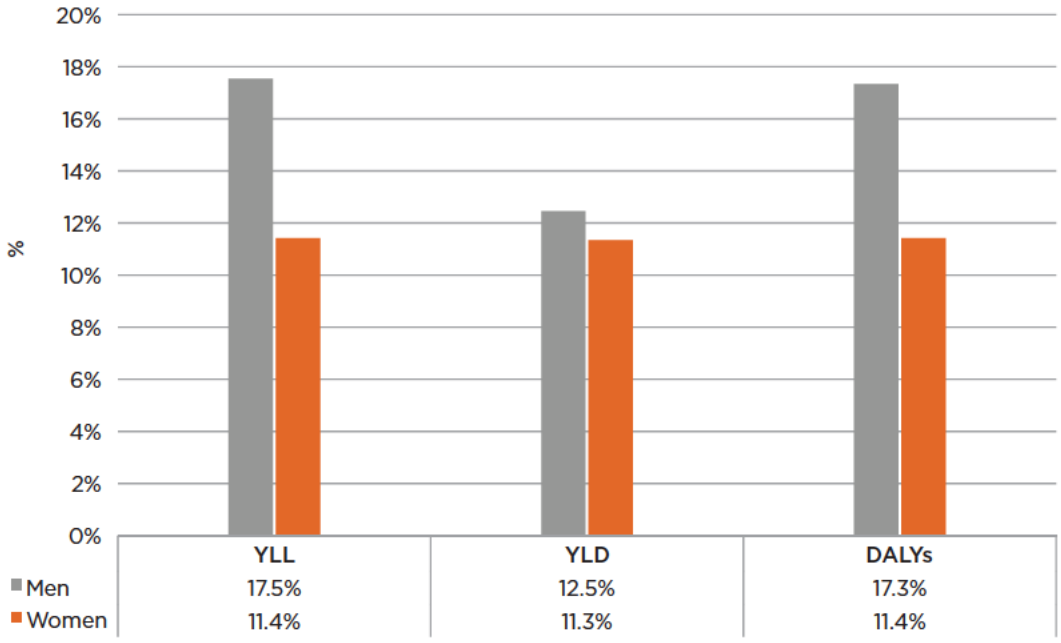

Table A4. Number and proportion of alcohol-attributable breast cancer deaths and hospitalisations by state in 2010 (women only)

State	Deaths (%*)	Hospitalisations (%*)
NSW	119 (12.3%)	1,013 (12.8%)
VIC	90 (11.9%)	865 (12.5%)
QLD	62 (12.4%)	666 (13.5%)
SA	28 (11.3%)	237 (12.3%)
WA	34 (13.8%)	317 (14.0%)
TAS	9 (11.9%)	65 (12.7%)
NT	2 (15.3%)	17 (15.4%)
ACT	6 (12.6%)	59 (12.9%)
Total (AUS)	349 (12.3%)	3,239 (12.9%)

* Proportion of breast cancerdeaths or hospitalisations attributable to alcohol

Table A5. Standardised rate and crude rate of alcohol-attributable breast cancer deaths and hospitalisations by state in 2010 (women only)

State	Death rate (crude rate)*	Hospitalisation rate (crude rate)*
NSW	3.97 (4.07)	34.14 (34.52)
VIC	3.94 (3.95)	38.24 (38.13)
QLD	3.59 (3.48)	37.87 (37.50)
SA	3.82 (4.07)	33.68 (34.85)
WA	3.89 (3.69)	35.34 (34.47)
TAS	4.09 (4.45)	29.42 (31.08)
NT	2.14 (1.79)	23.70 (20.30)
ACT	4.33 (3.74)	43.09 (38.73)
Total (AUS)	3.87 (3.87)	35.89 (35.89)

* Standardised rate (crude rate) per 100,000 population

Table A6. Number and proportion of alcohol-attributable colon cancer deaths and hospitalisations by state in 2010

State	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
NSW	20 (5.8%)	24 (7.3%)	173 (5.8%)	198 (7.1%)
VIC	15 (5.4%)	15 (6.0%)	139 (5.4%)	148 (6.0%)
QLD	13 (5.8%)	15 (7.4%)	114 (5.9%)	135 (7.2%)
SA	6 (5.9%)	7 (6.6%)	46 (5.9%)	49 (6.6%)
WA	7 (5.6%)	5 (6.9%)	49 (5.8%)	46 (6.7%)
TAS	2 (5.0%)	4 (7.8%)	13 (5.2%)	19 (7.7%)
NT	1 (6.5%)	N<5	4 (7.8%)	2 (6.4%)
ACT	1 (5.6%)	1 (7.0%)	7 (5.6%)	9 (6.7%)
Total (AUS)	64 (5.7%)	71 (6.9%)	544 (5.7%)	607 (6.8%)

* Proportion of colon cancer deaths or hospitalisations attributable to alcohol

Table A7. Standardised rate and crude rate of alcohol-attributable colon cancer deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	0.67 (0.69)	0.78 (0.81)	5.88 (6.07)	6.51 (6.75)
VIC	0.70 (0.70)	0.66 (0.67)	6.36 (6.35)	6.49 (6.53)
QLD	0.76 (0.74)	0.90 (0.85)	6.72 (6.59)	7.98 (7.60)
SA	0.85 (0.93)	0.88 (0.99)	6.50 (7.00)	6.65 (7.35)
WA	0.76 (0.70)	0.64 (0.59)	5.63 (5.29)	5.35 (5.00)
TAS	0.78 (0.89)	1.50 (1.67)	5.31 (5.91)	8.18 (9.09)
NT	0.76 (0.54)	N<5	6.85 (4.29)	4.35 (2.39)
ACT	0.69 (0.55)	1.01 (0.80)	5.80 (4.79)	7.51 (6.01)
Total (AUS)	0.72 (0.72)	0.79 (0.79)	6.18 (6.18)	6.73 (6.73)

* Standardised rate (crude rate) per 100,000 population

Table A8. Number and proportion of alcohol-attributable larynx cancer deaths and hospitalisations by state in 2010

State	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
NSW	21 (30.6%)	3 (16.5%)	97 (31.1%)	8 (16.9%)
VIC	15 (27.3%)	N<5	103 (29.0%)	7 (16.9%)
QLD	15 (27.2%)	2 (15.7%)	103 (31.1%)	12 (17.2%)
SA	4 (28.9%)	N<5	33 (30.0%)	1 (14.2%)
WA	5 (29.4%)	N<5	31 (31.6%)	4 (20.1%)
TAS	1 (22.9%)	N<5	6 (23.4%)	N<5
NT	2 (39.3%)	N<5	4 (42.1%)	2 (22.6%)
ACT	N<5	N<5	7 (32.5%)	N<5
Total (AUS)	64 (28.8%)	7 (16.0%)	385 (30.4%)	35 (17.5%)

* Proportion of larynx cancer deaths or hospitalisations attributable to alcohol

Table A9. Standardised rate and crude rate of alcohol-attributable larynx cancer deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	0.71 (0.73)	0.09 (0.09)	3.31 (3.40)	0.27 (0.27)
VIC	0.69 (0.68)	N<5	4.72 (4.70)	0.31 (0.31)
QLD	0.89 (0.87)	0.09 (0.09)	5.96 (5.90)	0.69 (0.68)
SA	0.59 (0.62)	N<5	4.76 (5.02)	0.28 (0.29)
WA	0.61 (0.57)	N<5	3.41 (3.24)	0.56 (0.54)
TAS	0.61 (0.69)	N<5	2.63 (2.95)	N<5
NT	3.21 (2.47)	N<5	4.21 (4.29)	1.15 (1.19)
ACT	N<5	N<5	5.80 (4.79)	N<5
Total (AUS)	0.73 (0.73)	0.08 (0.08)	4.35 (4.35)	0.39 (0.39)

* Standardised rate (crude rate) per 100,000 population

Table A10. Number and proportion of alcohol-attributable liver cancer deaths and hospitalisations by state in 2010

State	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
NSW	49 (15.3%)	16 (10.7%)	132 (15.5%)	35 (10.8%)
VIC	32 (14.2%)	13 (10.1%)	115 (14.8%)	22 (10.2%)
QLD	23 (14.8%)	9 (10.6%)	68 (15.7%)	17 (11.1%)
SA	9 (14.6%)	3 (9.4%)	32 (14.9%)	9 (9.7%)
WA	13 (15.5%)	4 (11.6%)	35 (15.9%)	10 (11.6%)
TAS	3 (13.5%)	1 (10.4%)	4 (12.5%)	2 (10.3%)
NT	1 (17.4%)	1 (11.3%)	5 (18.8%)	1 (11.8%)
ACT	1 (16.1%)	1 (10.8%)	4 (15.9%)	2 (10.8%)
Total (AUS)	131 (14.9%)	48 (10.5%)	395 (15.3%)	98 (10.7%)

* Proportion of liver cancer deaths or hospitalisations attributable to alcohol

Table A11. Standardised rate and crude rate of alcohol-attributable liver cancer deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	1.67 (1.71)	0.52 (0.54)	4.54 (4.63)	1.20 (1.23)
VIC	1.44 (1.44)	0.56 (0.56)	5.29 (5.25)	0.97 (0.97)
QLD	1.36 (1.33)	0.51 (0.49)	3.87 (3.84)	0.99 (0.96)
SA	1.35 (1.43)	0.44 (0.49)	4.60 (4.87)	1.08 (1.18)
WA	1.53 (1.45)	0.46 (0.42)	3.95 (3.78)	1.17 (1.09)
TAS	1.38 (1.53)	0.55 (0.62)	2.21 (2.46)	0.84 (0.96)
NT	2.58 (1.29)	1.95 (0.96)	10.28 (6.44)	1.15 (1.19)
ACT	0.63 (0.55)	0.77 (0.60)	3.25 (2.74)	0.88 (0.67)
Total (AUS)	1.49 (1.49)	0.53 (0.53)	4.49 (4.49)	1.08 (1.08)

* Standardised rate (crude rate) per 100,000 population

Table A12. Number and proportion of alcohol-attributable oesophagus cancer deaths and hospitalisations by state in 2010

State	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
NSW	86 (29.4%)	18 (15.2%)	295 (29.4%)	57 (15.4%)
VIC	53 (26.6%)	14 (15.2%)	244 (27.5%)	60 (15.7%)
QLD	53 (27.6%)	8 (15.0%)	210 (28.5%)	33 (16.5%)
SA	20 (27.6%)	3 (11.8%)	85 (28.3%)	11 (13.0%)
WA	22 (28.9%)	7 (18.3%)	119 (29.7%)	27 (18.5%)
TAS	10 (27.4%)	1 (13.0%)	28 (27.2%)	3 (12.9%)
NT	N<5	2 (19.3%)	5 (38.7%)	N<5
ACT	2 (31.0%)	N<5	13 (31.4%)	3 (16.0%)
Total (AUS)	247 (28.1%)	53 (15.3%)	1,000 (28.7%)	194 (15.8%)

* Proportion of oesophagus cancer deaths or hospitalisations attributable to alcohol

Table A13. Standardised rate and crude rate of alcohol-attributable oesophagus cancer deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	2.95 (3.03)	0.60 (0.62)	10.06 (10.32)	1.85 (1.91)
VIC	2.41 (2.41)	0.62 (0.62)	11.24 (11.19)	2.63 (2.65)
QLD	3.10 (3.05)	0.45 (0.43)	12.24 (12.08)	1.90 (1.86)
SA	2.81 (2.98)	0.39 (0.44)	12.26 (12.94)	1.48 (1.62)
WA	2.55 (2.41)	0.79 (0.74)	13.63 (12.94)	3.24 (3.04)
TAS	4.51 (4.88)	0.60 (0.67)	12.74 (13.79)	1.26 (1.43)
NT	N<5	2.96 (1.79)	7.64 (6.44)	N<5
ACT	1.53 (1.30)	N<5	10.04 (8.90)	2.44 (2.00)
Total (AUS)	2.80 (2.80)	0.59 (0.59)	11.37 (11.37)	2.15 (2.15)

* Standardised rate (crude rate) per 100,000 population

Table A14. Number and proportion of alcohol-attributable oral cavity and pharynx cancer deaths and hospitalisations by state in 2010

State	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
NSW	81 (46.7%)	11 (24.5%)	571 (47.8%)	123 (26.6%)
VIC	45 (43.1%)	17 (25.4%)	423 (45.3%)	123 (26.9%)
QLD	62 (45.9%)	12 (23.0%)	664 (48.8%)	114 (27.0%)
SA	18 (44.0%)	3 (17.6%)	126 (47.4%)	26 (23.3%)
WA	32 (47.8%)	6 (30.6%)	258 (51.1%)	50 (31.5%)
TAS	10 (44.0%)	N<5	73 (48.2%)	6 (23.1%)
NT	4 (56.0%)	2 (32.9%)	29 (55.7%)	7 (32.6%)
ACT	4 (48.2%)	N<5	25 (49.5%)	11 (28.8%)
Total (AUS)	257 (45.8%)	52 (24.7%)	2,170 (48.1%)	460 (27.1%)

* Proportion of oral cavity and pharynx cancer deaths or hospitalisations attributable to alcohol

Table A15. Standardised rate and crude rate of alcohol-attributable oral cavity and pharynx cancer deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	2.76 (2.84)	0.36 (0.37)	19.74 (20.04)	4.12 (4.19)
VIC	2.07 (2.06)	0.73 (0.74)	19.44 (19.31)	5.42 (5.43)
QLD	3.62 (3.57)	0.70 (0.68)	38.17 (38.02)	6.52 (6.42)
SA	2.59 (2.76)	0.34 (0.38)	18.58 (19.18)	3.65 (3.82)
WA	3.55 (3.40)	0.70 (0.66)	28.38 (27.83)	5.59 (5.44)
TAS	4.69 (5.02)	N<5	34.02 (35.95)	3.11 (3.35)
NT	5.93 (4.83)	2.98 (2.03)	38.28 (31.11)	11.94 (8.36)
ACT	3.12 (2.95)	N<5	19.15 (17.12)	8.25 (7.34)
Total (AUS)	2.92 (2.92)	0.58 (0.58)	24.61 (24.61)	5.11 (5.11)

* Standardised rate (crude rate) per 100,000 population

Table A16. Number and proportion of alcohol-attributable rectum deaths and hospitalisations by state in 2010

State	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
NSW	34 (9.0%)	22 (8.2%)	231 (9.1%)	127 (8.1%)
VIC	25 (8.2%)	17 (7.2%)	175 (8.5%)	99 (7.3%)
QLD	19 (8.7%)	13 (8.3%)	136 (9.2%)	75 (8.3%)
SA	7 (8.8%)	5 (7.5%)	46 (9.0%)	23 (7.7%)
WA	7 (8.7%)	3 (8.4%)	58 (9.2%)	28 (8.2%)
TAS	3 (8.3%)	1 (8.5%)	20 (8.4%)	11 (8.5%)
NT	1 (12.2%)	N<5	5 (11.8%)	2 (8.0%)
ACT	1 (9.1%)	N<5	9 (9.1%)	4 (7.8%)
Total (AUS)	98 (8.7%)	63 (7.9%)	681 (8.9%)	369 (7.9%)

* Proportion of rectum cancer deaths or hospitalisations attributable to alcohol

Table A17. Standardised rate and crude rate of alcohol-attributable rectum cancer deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	1.15 (1.19)	0.73 (0.75)	7.87 (8.07)	4.22 (4.33)
VIC	1.15 (1.15)	0.76 (0.76)	8.03 (7.99)	4.40 (4.41)
QLD	1.14 (1.11)	0.78 (0.74)	7.89 (7.79)	4.36 (4.22)
SA	1.07 (1.14)	0.70 (0.76)	6.75 (7.15)	3.15 (3.38)
WA	0.85 (0.79)	0.36 (0.33)	6.49 (6.15)	3.33 (3.15)
TAS	1.17 (1.28)	0.61 (0.67)	9.47 (10.34)	4.83 (5.26)
NT	0.74 (0.75)	N<5	6.58 (5.36)	4.35 (2.39)
ACT	1.23 (1.03)	N<5	6.72 (5.48)	3.11 (2.67)
Total (AUS)	1.11 (1.11)	0.70 (0.70)	7.71 (7.71)	4.11 (4.11)

* Standardised rate (crude rate) per 100,000 population

Cardiovascular Diseases

Table A18. Crude rate of alcohol-attributable cardiovascular diseases deaths and hospitalisations by state in 2010

State	Death rate		Hospitalisation rate	
	Men	Women	Men	Women
NSW	6.9	8.5	78.2	36.9
VIC	3.7	7.8	78.6	41.5
QLD	4.1	7.8	88.0	42.6
SA	5.2	7.6	96.4	45.0
WA	2.9	6.3	76.0	38.1
TAS	6.2	11.3	54.2	27.7
NT	7.5	4.3	84.7	28.7
ACT	3.5	4.2	69.9	26.7
Total (AUS)	5.0	7.8	80.8	39.5

Figure A2. Proportion of cardiovascular disease YLL, YLD and DALYs attributed to alcohol in 2010

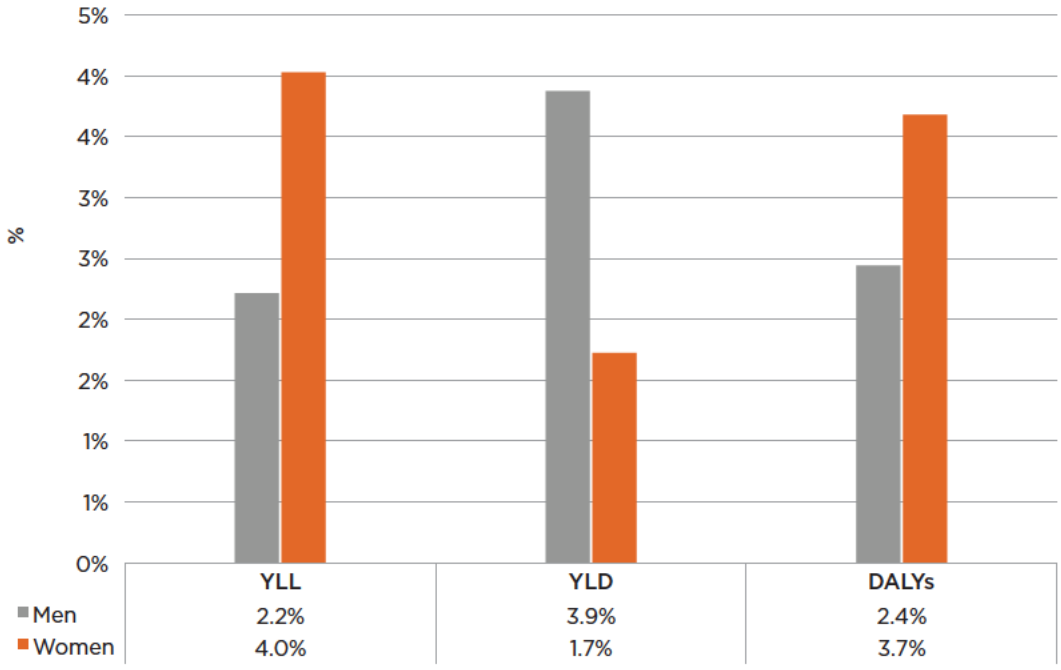

Table A19. Number of alcohol cardiomyopathy deaths and hospitalisations by state in 2010 (100% attributable to alcohol)

State	Deaths		Hospitalisations	
	Men	Women	Men	Women
NSW	20	N<5	46	N<5
VIC	5	5	17	N<5
QLD	13	N<5	20	N<5
SA	N<5	N<5	10	N<5
WA	N<5	N<5	9	N<5
TAS	N<5	N<5	N<5	N<5
NT	N<5	N<5	N<5	N<5
ACT	N<5	N<5	N<5	N<5
Total (AUS)	47	10	108	5

Table A20. Standardised rate and crude rate of alcohol cardiomyopathy deaths and hospitalisations by state in 2010 (100% attributable to alcohol)

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	0.68 (0.70)	N<5	1.60 (1.61)	N<5
VIC	0.23 (0.23)	0.22 (0.22)	0.78 (0.78)	N<5
QLD	0.75 (0.74)	N<5	1.14 (1.15)	N<5
SA	N<5	N<5	1.48 (1.52)	N<5
WA	N<5	N<5	1.00 (0.97)	N<5
TAS	N<5	N<5	N<5	N<5
NT	N<5	N<5	N<5	N<5
ACT	N<5	N<5	N<5	N<5
Total (AUS)	0.53 (0.53)	0.11 (0.11)	1.23 (1.23)	0.06 (0.06)

* Standardised rate (crude rate) per 100,000 population

Table A21. Number and proportion of alcohol-attributable cardiac arrhythmias deaths and hospitalisations by state in 2010

State	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
NSW	27 (13.2%)	33 (9.8%)	1,628 (13.8%)	996 (9.9%)
VIC	17 (11.7%)	79 (8.8%)	1,316 (12.9%)	847 (9.2%)
QLD	10 (11.6%)	14 (9.4%)	1,149 (13.8%)	676 (9.8%)
SA	6 (12.1%)	7 (8.3%)	494 (13.4%)	292 (8.9%)
WA	5 (12.4%)	10 (10.6%)	553 (14.3%)	301 (10.6%)
TAS	3 (10.2%)	3 (9.8%)	84 (12.2%)	56 (9.8%)
NT	N<5	N<5	50 (17.4%)	19 (10.7%)
ACT	1 (13.7%)	1 (10.0%)	72 (14.1%)	36 (9.9%)
Total (AUS)	68 (12.3%)	146 (9.1%)	5,346 (13.6%)	3,222 (9.6%)

* Proportion of cardiac arrhythmias deaths or hospitalisations attributable to alcohol

Table A22. Standardised rate and crude rate of alcohol-attributable cardiac arrhythmias deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	0.89 (0.93)	1.06 (1.11)	55.81 (57.14)	32.87 (33.94)
VIC	0.77 (0.78)	3.42 (3.47)	60.33 (60.09)	37.15 (37.38)
QLD	0.58 (0.56)	0.84 (0.79)	66.57 (65.80)	39.68 (38.01)
SA	0.78 (0.85)	0.86 (0.99)	71.16 (75.04)	39.37 (42.79)
WA	0.60 (0.55)	1.19 (1.07)	62.25 (59.55)	35.21 (32.73)
TAS	1.08 (1.23)	1.23 (1.39)	37.85 (41.37)	24.22 (26.78)
NT	N<5	N<5	75.89 (53.63)	36.02 (22.69)
ACT	0.92 (0.68)	1.14 (0.87)	58.71 (48.63)	30.22 (24.70)
Total (AUS)	0.77 (0.77)	1.62 (1.62)	60.63 (60.63)	35.73 (35.73)

* Standardised rate (crude rate) per 100,000 population

Table A23. Number and proportion of alcohol-attributable haemorrhagic stroke deaths and hospitalisations by state in 2010

State	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
NSW	66 (16.7%)	62 (13.3%)	337 (18.5%)	0 (0.0%)
VIC	47 (15.2%)	47 (14.4%)	268 (17.2%)	0 (0.0%)
QLD	32 (15.9%)	32 (12.3%)	187 (18.2%)	0 (0.0%)
SA	18 (15.6%)	13 (9.9%)	74 (17.6%)	0 (0.0%)
WA	13 (15.5%)	19 (17.9%)	80 (18.9%)	0 (0.0%)
TAS	6 (14.4%)	5 (10.0%)	19 (16.0%)	0 (0.0%)
NT	2 (21.9%)	2 (25.3%)	10 (24.0%)	0 (0.0%)
ACT	3 (16.9%)	2 (14.2%)	21 (19.0%)	0 (0.0%)
Total (AUS)	186 (15.9%)	181 (13.3%)	995 (18.1%)	0 (0.0%)

* Proportion of haemorrhagic stroke deaths or hospitalisations attributable to alcohol

Table A24. Number and proportion of alcohol-protected haemorrhagic stroke deaths and hospitalisations by state in 2010

State	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
NSW	0 (0.0%)	0 (0.0%)	0 (0.0%)	228 (14.0%)
VIC	0 (0.0%)	0 (0.0%)	0 (0.0%)	216 (15.4%)
QLD	0 (0.0%)	0 (0.0%)	0 (0.0%)	135 (14.9%)
SA	0 (0.0%)	0 (0.0%)	0 (0.0%)	63 (16.3%)
WA	0 (0.0%)	0 (0.0%)	0 (0.0%)	47 (13.7%)
TAS	0 (0.0%)	0 (0.0%)	0 (0.0%)	23 (18.2%)
NT	0 (0.0%)	0 (0.0%)	0 (0.0%)	5 (13.5%)
ACT	0 (0.0%)	0 (0.0%)	0 (0.0%)	15 (18.0%)
Total (AUS)	0 (0.0%)	0 (0.0%)	0 (0.0%)	228 (14.0%)

* Proportion of haemorrhagic stroke deaths or hospitalisations protected by alcohol

Table A25. Standardised rate and crude rate of alcohol-attributable haemorrhagic stroke deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	2.22 (2.30)	2.04 (2.11)	11.50 (11.83)	0.00 (0.00)
VIC	2.14 (2.14)	2.04 (2.06)	12.26 (12.24)	0.00 (0.00)
QLD	1.90 (1.86)	1.87 (1.80)	10.88 (10.71)	0.00 (0.00)
SA	2.53 (2.76)	1.69 (1.87)	10.51 (11.26)	0.00 (0.00)
WA	1.49 (1.36)	2.22 (2.07)	9.09 (8.63)	0.00 (0.00)
TAS	2.82 (3.10)	2.15 (2.39)	8.56 (9.36)	0.00 (0.00)
NT	2.69 (1.93)	1.73 (1.79)	15.37 (11.80)	0.00 (0.00)
ACT	2.53 (1.99)	1.73 (1.40)	17.83 (14.38)	0.00 (0.00)
Total (AUS)	2.12 (2.12)	2.01 (2.01)	11.31 (11.31)	0.00 (0.00)

* Standardised rate (crude rate) per 100,000 population

Table A26. Standardised rate and crude rate of alcohol-protected haemorrhagic stroke deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	7.55 (7.77)
VIC	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	9.48 (9.53)
QLD	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	7.92 (7.60)
SA	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	8.43 (9.26)
WA	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	5.40 (5.11)
TAS	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	9.99 (11.00)
NT	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	8.71 (4.78)
ACT	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	12.96 (10.68)
Total (AUS)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	8.12 (8.12)

* Standardised rate (crude rate) per 100,000 population

Table A27. Number and proportion of alcohol-attributable hypertensive disease deaths and hospitalisations by state in 2010

State	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
NSW	74 (18.8%)	20 (4.2%)	172 (19.9%)	85 (5.4%)
VIC	12 (15.6%)	10 (5.2%)	115 (18.5%)	93 (7.7%)
QLD	12 (16.6%)	1 (0.8%)	154 (20.0%)	81 (6.5%)
SA	6 (16.4%)	1 (1.6%)	45 (18.8%)	15 (3.6%)
WA	7 (16.6%)	8 (12.1%)	51 (21.7%)	48 (14.5%)
TAS	3 (13.6%)	1 (0.3%)	5 (19.7%)	3 (3.8%)
NT	N<5	1 (12.4%)	10 (27.3%)	5 (19.0%)
ACT	1 (19.7%)	0 (0.0%)	7 (20.6%)	2 (4.9%)
Total (AUS)	116 (17.8%)	42 (4.2%)	559 (19.8%)	331 (6.7%)

* Proportion of hypertensive disease deaths or hospitalisations attributable to alcohol

Table A28. Number and proportion of alcohol-protected hypertensive disease deaths and hospitalisations by state in 2010

State	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
NSW	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
VIC	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
QLD	0 (0.0%)	5 (3.9%)	0 (0.0%)	33 (2.6%)
SA	0 (0.0%)	5 (5.9%)	0 (0.0%)	20 (5.0%)
WA	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
TAS	0 (0.0%)	3 (9.1%)	0 (0.0%)	4 (5.9%)
NT	N<5	0 (0.0%)	0 (0.0%)	0 (0.0%)
ACT	0 (0.0%)	1 (0.0%)	0 (0.0%)	1 (0.0%)
Total (AUS)	0 (0.0%)	13 (1.3%)	0 (0.0%)	57 (1.2%)

* Proportion of hypertensive disease deaths or hospitalisations protected by alcohol

Table A29. Standardised rate and crude rate of alcohol-attributable hypertensive disease deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	2.51 (2.60)	0.66 (0.67)	5.93 (6.04)	2.91 (2.93)
VIC	0.56 (0.57)	0.44 (0.45)	5.32 (5.30)	4.05 (4.06)
QLD	0.71 (0.70)	0.06 (0.06)	8.88 (8.82)	4.50 (4.56)
SA	0.85 (0.93)	0.20 (0.19)	6.54 (6.85)	2.25 (2.21)
WA	0.82 (0.74)	0.98 (0.88)	5.52 (5.39)	5.47 (5.22)
TAS	1.13 (1.28)	0.05 (0.05)	2.32 (2.46)	1.47 (1.43)
NT	N<5	1.91 (1.55)	10.19 (10.73)	5.32 (5.97)
ACT	1.11 (0.82)	0.00 (0.00)	5.80 (4.79)	1.35 (1.34)
Total (AUS)	1.32 (1.32)	0.46 (0.46)	6.34 (6.34)	3.68 (3.68)

* Standardised rate (crude rate) per 100,000 population

Table A30. Standardised rate and crude rate of alcohol-protected hypertensive disease deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
VIC	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
QLD	0.00 (0.00)	0.31 (0.29)	0.00 (0.00)	2.00 (1.86)
SA	0.00 (0.00)	0.59 (0.68)	0.00 (0.00)	2.55 (2.94)
WA	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
TAS	0.00 (0.00)	1.30 (1.48)	0.00 (0.00)	1.68 (1.91)
NT	N<5	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
ACT	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Total (AUS)	0.00 (0.00)	0.14 (0.14)	0.00 (0.00)	0.63 (0.63)

* Standardised rate (crude rate) per 100,000 population

Table A31. Number and proportion of alcohol-attributable ischaemic heart disease deaths and hospitalisations by state in 2010

State	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
NSW	0 (0.0%)	136 (4.1%)	0 (0.0%)	0 (0.0%)
VIC	0 (0.0%)	36 (1.5%)	0 (0.0%)	0 (0.0%)
QLD	0 (0.0%)	87 (4.4%)	0 (0.0%)	0 (0.0%)
SA	0 (0.0%)	31 (3.3%)	0 (0.0%)	0 (0.0%)
WA	0 (0.0%)	21 (2.6%)	0 (0.0%)	0 (0.0%)
TAS	0 (0.0%)	16 (5.0%)	0 (0.0%)	0 (0.0%)
NT	1 (0.2%)	1 (1.3%)	0 (0.0%)	0 (0.0%)
ACT	0 (0.0%)	3 (3.0%)	0 (0.0%)	0 (0.0%)
Total (AUS)	1 (0.0%)	329 (3.3%)	0 (0.0%)	0 (0.0%)

* Proportion of ischaemic heart disease deaths or hospitalisations attributable to alcohol

Table A32. Number and proportion of alcohol-protected ischaemic heart disease deaths and hospitalisations by state in 2010

State	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
NSW	124 (3.2%)	1 (0.0%)	3,006 (9.3%)	3,043 (18.6%)
VIC	91 (3.3%)	0 (0.0%)	2,456 (9.2%)	2,625 (19.7%)
QLD	54 (2.3%)	0 (0.0%)	1,818 (8.4%)	2,130 (18.2%)
SA	28 (2.6%)	1 (0.0%)	730 (9.2%)	737 (18.5%)
WA	40 (3.7%)	1 (0.0%)	870 (9.5%)	972 (20.4%)
TAS	13 (3.8%)	0 (0.0%)	212 (10.0%)	182 (20.0%)
NT	1 (1.6%)	1 (0.8%)	83 (7.6%)	102 (20.6%)
ACT	5 (3.9%)	1 (0.2%)	185 (9.3%)	193 (23.3%)
Total (AUS)	356 (3.1%)	1 (0.0%)	9,360 (9.1%)	9,983 (19.1%)

* Proportion of ischaemic heart disease deaths or hospitalisations protected by alcohol

Table A33. Standardised rate and crude rate of alcohol-attributable ischaemic heart disease deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	0.00 (0.00)	4.40 (4.62)	0.00 (0.00)	0.00 (0.00)
VIC	0.00 (0.00)	1.55 (1.57)	0.00 (0.00)	0.00 (0.00)
QLD	0.00 (0.00)	5.28 (4.90)	0.00 (0.00)	0.00 (0.00)
SA	0.00 (0.00)	3.96 (4.56)	0.00 (0.00)	0.00 (0.00)
WA	0.00 (0.00)	2.50 (2.24)	0.00 (0.00)	0.00 (0.00)
TAS	0.00 (0.00)	6.59 (7.51)	0.00 (0.00)	0.00 (0.00)
NT	0.47 (0.21)	1.28 (0.48)	0.00 (0.00)	0.00 (0.00)
ACT	0.00 (0.00)	2.46 (1.87)	0.00 (0.00)	0.00 (0.00)
Total (AUS)	0.00 (0.00)	3.64 (3.64)	0.00 (0.00)	0.00 (0.00)

* Standardised rate (crude rate) per 100,000 population

Table A34. Standardised rate and crude rate of alcohol-protected ischaemic heart disease deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	4.20 (4.35)	0.00 (0.00)	102.71 (105.51)	100.73 (103.70)
VIC	4.17 (4.17)	0.00 (0.00)	112.42 (112.09)	115.09 (115.85)
QLD	3.16 (3.08)	0.00 (0.00)	106.23 (104.11)	125.01 (119.93)
SA	3.90 (4.26)	0.00 (0.00)	103.47 (111.12)	99.07 (108.37)
WA	4.72 (4.28)	0.01 (0.01)	100.54 (93.74)	112.60 (105.58)
TAS	5.58 (6.35)	0.00 (0.00)	93.20 (104.40)	78.86 (87.03)
NT	1.46 (1.50)	0.23 (0.24)	125.32 (89.03)	178.38 (121.79)
ACT	4.67 (3.63)	0.14 (0.13)	153.59 (126.71)	155.54 (128.87)
Total (AUS)	4.05 (4.05)	0.01 (0.01)	106.20 (106.20)	110.69 (110.69)

* Standardised rate (crude rate) per 100,000 population

Table A35. Number and proportion of alcohol-attributable ischaemic stroke deaths and hospitalisations by state in 2010

State	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
NSW	11 (1.3%)	0 (0.0%)	45 (0.8%)	0 (0.0%)
VIC	1 (0.1%)	0 (0.0%)	6 (0.1%)	0 (0.0%)
QLD	5 (0.9%)	0 (0.0%)	27 (0.8%)	0 (0.0%)
SA	2 (1.0%)	0 (0.0%)	9 (0.7%)	0 (0.0%)
WA	1 (0.3%)	0 (0.0%)	13 (0.9%)	0 (0.0%)
TAS	1 (0.1%)	0 (0.0%)	1 (0.1%)	0 (0.0%)
NT	N<5	0 (0.0%)	6 (5.1%)	0 (0.0%)
ACT	1 (0.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Total (AUS)	19 (0.8%)	0 (0.0%)	107 (0.6%)	0 (0.0%)

* Proportion of ischaemic stroke deaths or hospitalisations attributable to alcohol

Table A36. Number and proportion of alcohol-protected ischaemic stroke deaths and hospitalisations by state in 2010

State	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
NSW	0 (0.0%)	133 (9.5%)	1 (0.0%)	205 (4.1%)
VIC	0 (0.0%)	107 (11.1%)	7 (0.2%)	215 (5.2%)
QLD	0 (0.0%)	77 (9.8%)	0 (0.0%)	117 (4.3%)
SA	0 (0.0%)	48 (10.7%)	0 (0.0%)	57 (4.8%)
WA	1 (0.5%)	30 (9.5%)	8 (0.5%)	57 (4.9%)
TAS	1 (1.6%)	14 (11.6%)	5 (1.3%)	19 (5.0%)
NT	N<5	1 (11.0%)	0 (0.0%)	5 (5.8%)
ACT	1 (0.1%)	6 (12.9%)	1 (0.4%)	14 (5.7%)
Total (AUS)	2 (0.1%)	415 (10.2%)	22 (0.1%)	688 (4.6%)

* Proportion of ischaemic stroke deaths or hospitalisations protected by alcohol

Table A37. Standardised rate and crude rate of alcohol-attributable ischaemic stroke deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	0.36 (0.37)	0.00 (0.00)	1.52 (1.58)	0.00 (0.00)
VIC	0.03 (0.03)	0.00 (0.00)	0.28 (0.27)	0.00 (0.00)
QLD	0.29 (0.28)	0.00 (0.00)	1.56 (1.55)	0.00 (0.00)
SA	0.31 (0.33)	0.00 (0.00)	1.25 (1.37)	0.00 (0.00)
WA	0.06 (0.06)	0.00 (0.00)	1.28 (1.29)	0.00 (0.00)
TAS	0.05 (0.05)	0.00 (0.00)	0.47 (0.49)	0.00 (0.00)
NT	N<5	0.00 (0.00)	12.65 (7.51)	0.00 (0.00)
ACT	0.09 (0.07)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
Total (AUS)	0.22 (0.22)	0.00 (0.00)	1.21 (1.21)	0.00 (0.00)

* Standardised rate (crude rate) per 100,000 population

Table A38. Standardised rate and crude rate of alcohol-protected ischaemic stroke deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	0.00 (0.00)	4.32 (4.52)	0.04 (0.04)	6.80 (6.99)
VIC	0.00 (0.00)	4.64 (4.71)	0.32 (0.32)	9.43 (9.49)
QLD	0.00 (0.00)	4.65 (4.34)	0.00 (0.00)	6.79 (6.53)
SA	0.00 (0.00)	6.10 (7.00)	0.00 (0.00)	7.73 (8.38)
WA	0.12 (0.11)	3.66 (3.29)	0.97 (0.86)	6.66 (6.31)
TAS	0.46 (0.54)	5.83 (6.55)	2.10 (2.46)	7.89 (8.61)
NT	N<5	2.68 (1.07)	0.00 (0.00)	9.86 (5.97)
ACT	0.00 (0.00)	5.47 (4.27)	0.71 (0.68)	11.30 (9.35)
Total (AUS)	0.02 (0.02)	4.60 (4.60)	0.25 (0.25)	7.63 (7.63)

* Standardised rate (crude rate) per 100,000 population

Diabetes

Table A39. Crude rate of alcohol-protected diabetes deaths and hospitalisations by state in 2010

State	Death rate		Hospitalisation rate	
	Men	Women	Men	Women
NSW	0.3	1.1	8.5	28.5
VIC	0.5	2.0	11.6	40.6
QLD	0.6	2.7	10.3	33.7
SA	0.4	2.0	9.6	30.9
WA	0.5	2.0	11.8	43.3
TAS	0.7	2.7	11.8	33.0
NT	0.3	2.5	10.7	99.1
ACT	0.4	2.1	11.6	29.4
Total	0.4	1.9	10.2	35.0

Table A40. Number and proportion of alcohol-protected diabetes deaths and hospitalisations by state in 2010

State	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
NSW	9 (3.2%)	32 (13.9%)	241 (3.3%)	837 (15.1%)
VIC	10 (3.6%)	46 (16.2%)	254 (3.6%)	920 (17.2%)
QLD	11 (3.2%)	48 (13.9%)	180 (3.3%)	598 (15.6%)
SA	2 (3.1%)	13 (13.4%)	63 (3.3%)	210 (15.5%)
WA	4 (3.9%)	18 (16.3%)	109 (3.7%)	398 (17.8%)
TAS	1 (4.2%)	6 (13.9%)	23 (4.2%)	69 (15.8%)
NT	1 (1.6%)	2 (19.0%)	10 (2.1%)	83 (20.6%)
ACT	1 (4.5%)	3 (18.0%)	16 (4.4%)	45 (18.4%)
Total (AUS)	39 (3.4%)	169 (14.8%)	897 (3.4%)	3,159 (16.3%)

* Proportion of diabetes mellitus deaths or hospitalisations protected by alcohol

Table A41. Standardised rate and crude rate of alcohol-protected diabetes deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	0.29 (0.30)	1.06 (1.11)	8.26 (8.49)	27.73 (28.52)
VIC	0.45 (0.45)	2.02 (2.04)	11.62 (11.60)	40.35 (40.60)
QLD	0.65 (0.63)	2.83 (2.69)	10.44 (10.25)	34.80 (33.67)
SA	0.35 (0.38)	1.74 (1.99)	9.01 (9.59)	28.71 (30.88)
WA	0.52 (0.46)	2.20 (2.00)	12.71 (11.76)	45.88 (43.28)
TAS	0.64 (0.74)	2.43 (2.73)	10.60 (11.82)	30.26 (32.99)
NT	0.32 (0.32)	4.06 (2.51)	10.36 (10.73)	121.66 (99.10)
ACT	0.49 (0.41)	2.67 (2.14)	14.15 (11.64)	36.06 (29.38)
Total (AUS)	0.44 (0.44)	1.88 (1.88)	10.19 (10.19)	35.03 (35.03)

* Standardised rate (crude rate) per 100,000 population

Digestive Diseases

Table A42. Crude rate of alcohol-attributable digestive diseases deaths and hospitalisations by state in 2010

State	Death rate		Hospitalisation rate	
	Men	Women	Men	Women
NSW	7.0	2.5	63.4	23.9
VIC	5.0	1.9	74.7	35.2
QLD	6.1	3.1	85.9	37.0
SA	7.6	2.8	79.8	33.7
WA	5.2	2.9	88.9	38.2
TAS	6.6	4.8	57.1	28.2
NT	12.8	9.7	254.2	167.2
ACT	6.3	1.5	56.2	25.4
Total (AUS)	6.2	2.6	76.3	33.0

Figure A3. Proportion of digestive diseases YLL, YLD and DALYs attributable to alcohol in 2010

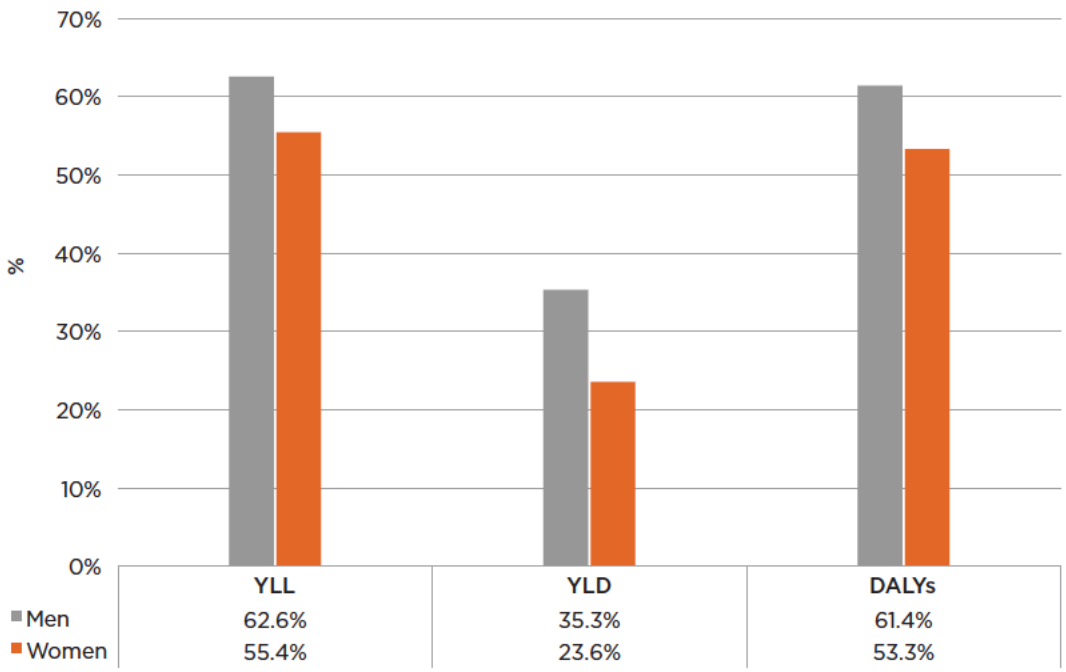

Table A43. Number of alcoholic gastritis deaths and hospitalisations by state in 2010 (100% attributable to alcohol)

State	Deaths		Hospitalisations	
	Men	Women	Men	Women
NSW	N<5	N<5	205	85
VIC	N<5	N<5	232	99
QLD	N<5	N<5	329	118
SA	N<5	N<5	127	45
WA	N<5	N<5	194	82
TAS	N<5	N<5	6	7
NT	N<5	N<5	80	70
ACT	N<5	N<5	9	5
Total (AUS)	N<5	N<5	1,182	511

Table A44. Standardised rate and crude rate of alcoholic gastritis deaths and hospitalisations by state in 2010 (100% attributable to alcohol)

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	N<5	N<5	7.20 (7.20)	2.92 (2.90)
VIC	N<5	N<5	10.60 (10.59)	4.37 (4.37)
QLD	N<5	N<5	18.73 (18.84)	6.57 (6.64)
SA	N<5	N<5	19.52 (19.33)	6.87 (6.62)
WA	N<5	N<5	20.55 (20.93)	8.82 (8.92)
TAS	N<5	N<5	2.94 (2.95)	3.62 (3.35)
NT	N<5	N<5	82.84 (85.81)	76.04 (83.58)
ACT	N<5	N<5	6.45 (6.16)	3.10 (3.34)
Total	N<5	N<5	13.41 (13.41)	5.67 (5.67)

* Standardised rate (crude rate) per 100,000 population

Table A45. Number and proportion of alcohol-attributable liver cirrhosis deaths and hospitalisations by state in 2010

State	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
NSW	189 (65.5%)	70 (70.1%)	693 (41.1%)	363 (61.2%)
VIC	104 (62.5%)	41 (69.2%)	751 (40.0%)	467 (60.4%)
QLD	102 (66.0%)	53 (69.6%)	543 (44.0%)	358 (62.9%)
SA	48 (63.3%)	18 (67.4%)	188 (41.2%)	133 (60.9%)
WA	45 (66.0%)	25 (72.5%)	249 (45.0%)	159 (62.9%)
TAS	14 (67.6%)	10 (69.4%)	61 (44.5%)	37 (61.3%)
NT	9 (77.4%)	8 (73.5%)	53 (51.5%)	35 (64.0%)
ACT	9 (66.9%)	N<5	34 (41.8%)	21 (61.1%)
Total	519 (65.1%)	227 (70.0%)	2,572 (42.0%)	1,573 (61.5%)

* Proportion of liver cirrhosis deaths or hospitalisations attributable to alcohol

Table A46. Standardised rate and crude rate of alcohol-attributable liver cirrhosis deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	6.55 (6.64)	2.36 (2.39)	24.14 (24.32)	12.33 (12.40)
VIC	4.78 (4.73)	1.80 (1.80)	34.65 (34.29)	20.65 (20.61)
QLD	5.84 (5.82)	3.06 (2.98)	31.08 (31.15)	20.28 (20.16)
SA	7.04 (7.32)	2.53 (2.68)	27.96 (28.62)	18.94 (19.56)
WA	5.00 (4.84)	2.87 (2.76)	27.12 (26.86)	17.40 (17.18)
TAS	6.32 (6.65)	4.58 (4.59)	29.20 (30.53)	16.54 (17.21)
NT	10.48 (9.87)	14.87 (9.67)	60.75 (56.85)	44.23 (41.79)
ACT	6.55 (5.96)	N<5	25.07 (23.29)	15.42 (14.02)
Total	5.89 (5.89)	2.52 (2.52)	29.21 (29.21)	17.43 (17.43)

* Standardised rate (crude rate) per 100,000 population

Table A47. Number and proportion of alcohol-attributable pancreatitis deaths and hospitalisations by state in 2010

State	Death (%*)		Hospitalisation (%*)	
	Men	Women	Men	Women
NSW	11 (28.0%)	3 (9.6%)	906 (30.3%)	253 (11.0%)
VIC	7 (22.9%)	3 (8.7%)	654 (28.0%)	231 (11.5%)
QLD	4 (22.5%)	1 (9.7%)	628 (33.7%)	180 (12.6%)
SA	2 (20.1%)	1 (9.2%)	209 (30.6%)	51 (10.5%)
WA	3 (25.2%)	1 (11.9%)	382 (37.1%)	110 (14.3%)
TAS	N<5	N<5	48 (27.5%)	15 (9.5%)
NT	3 (37.1%)	N<5	104 (43.6%)	35 (16.8%)
ACT	N<5	N<5	40 (30.0%)	12 (10.8%)
Total	30 (25.5%)	9 (9.5%)	2,971 (31.5%)	887 (11.9%)

* Proportion of pancreatitis deaths or hospitalisations attributable to alcohol

Table A48. Standardised rate and crude rate of alcohol-attributable pancreatitis deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	0.37 (0.38)	0.11 (0.11)	31.61 (31.80)	8.57 (8.62)
VIC	0.31 (0.31)	0.12 (0.12)	30.05 (29.86)	10.18 (10.19)
QLD	0.25 (0.25)	0.07 (0.07)	35.91 (36.02)	10.20 (10.19)
SA	0.22 (0.24)	0.12 (0.13)	31.53 (31.81)	7.30 (7.35)
WA	0.38 (0.36)	0.11 (0.10)	40.86 (41.10)	11.92 (11.85)
TAS	N<5	N<5	22.76 (23.64)	7.43 (7.65)
NT	4.32 (2.79)	N<5	110.75 (111.55)	39.92 (40.60)
ACT	N<5	N<5	28.91 (26.71)	8.92 (8.68)
Total	0.34 (0.34)	0.11 (0.11)	33.70 (33.70)	9.84 (9.84)

* Standardised rate (crude rate) per 100,000 population

Infectious and Parasitic Diseases

Table A49. Crude rate of alcohol-attributable infectious and parasitic diseases deaths and hospitalisations by state in 2010

State	Death rate		Hospitalisation rate	
	Men	Women	Men	Women
NSW	1.5	1.5	52.8	37.3
VIC	1.5	1.5	62.6	45.0
QLD	1.2	1.1	55.1	42.0
SA	1.8	1.5	60.1	42.5
WA	1.0	1.3	53.3	40.1
TAS	1.1	1.5	37.4	31.1
NT	0.8	1.0	120.1	88.4
ACT	1.6	0.9	50.7	32.7
Total	1.4	1.4	56.6	41.1

Figure A4. Proportion of infectious and parasitic diseases YLL, YLD and DALYs attributable to alcohol in 2010

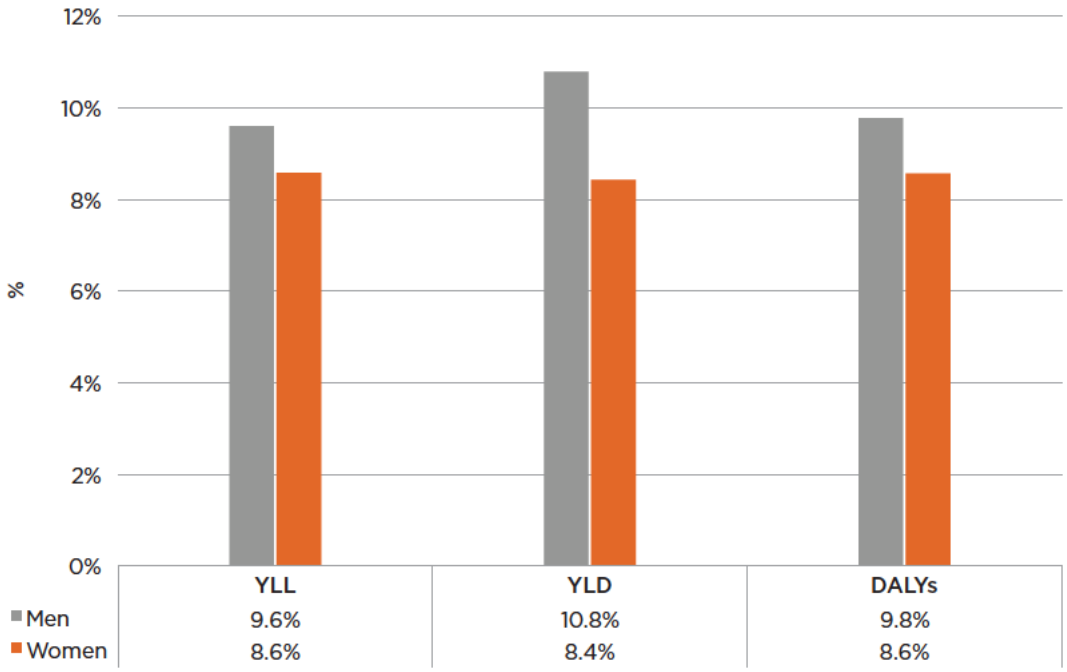

Table A50. Number and proportion of alcohol-attributable HIV deaths by state in 2010

State	Deaths (%*)	
	Men	Women
NSW	1 (3%)	N<5
VIC	1 (3%)	N<5
QLD	1 (3%)	N<5
SA	1 (3%)	N<5
WA	1 (3%)	N<5
TAS	N<5	N<5
NT	N<5	N<5
ACT	N<5	N<5
Total	2 (3%)	1 (3%)

* Proportion of HIV deaths or hospitalisations attributable to alcohol

Table A51. Standardised rate and crude rate of alcohol-attributable HIV deaths by state in 2010

State	Death rate (crude rate)*	
	Men	Women
NSW	0.03 (0.03)	N<5
VIC	0.02 (0.02)	N<5
QLD	0.03 (0.03)	N<5
SA	0.02 (0.02)	N<5
WA	0.02 (0.02)	N<5
TAS	N<5	N<5
NT	N<5	N<5
ACT	N<5	N<5
Total	0.02 (0.02)	0.00 (0.00)

* Standardised rate (crude rate) per 100,000 population

Table A52. Number and proportion of alcohol-attributable lower respiratory infections deaths and hospitalisations by state in 2010

State	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
NSW	38 (11%)	41 (9%)	1,457 (12%)	1,078 (9%)
VIC	31 (10%)	33 (8%)	1,316 (11%)	995 (8%)
QLD	20 (10%)	20 (9%)	929 (11%)	722 (9%)
SA	11 (10%)	10 (8%)	387 (11%)	286 (8%)
WA	9 (10%)	11 (10%)	488 (12%)	363 (10%)
TAS	2 (8%)	3 (9%)	75 (10%)	65 (9%)
NT	N<5	1 (9%)	104 (15%)	70 (10%)
ACT	1 (12%)	1 (9%)	71 (12%)	48 (9%)
Total	112 (11%)	120 (9%)	4,827 (11%)	3,626 (9%)

* Proportion of lower respiratory infections deaths or hospitalisations attributable to alcohol

Table A53. Standardised rate and crude rate of alcohol-attributable lower respiratory infections deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	1.29 (1.34)	1.35 (1.41)	49.77 (51.14)	35.73 (36.77)
VIC	1.40 (1.41)	1.43 (1.45)	60.12 (60.09)	43.65 (43.91)
QLD	1.17 (1.13)	1.18 (1.10)	54.03 (53.20)	42.15 (40.65)
SA	1.50 (1.66)	1.36 (1.54)	55.41 (58.91)	39.11 (42.06)
WA	1.07 (0.96)	1.30 (1.17)	55.23 (52.64)	41.44 (39.47)
TAS	0.84 (0.98)	1.38 (1.53)	33.59 (36.94)	28.46 (31.08)
NT	N<5	1.74 (0.96)	137.06 (112.62)	98.97 (82.39)
ACT	0.99 (0.75)	1.06 (0.80)	59.51 (49.31)	39.47 (32.72)
Total	1.27 (1.27)	1.33 (1.33)	54.80 (54.80)	40.23 (40.23)

* Standardised rate (crude rate) per 100,000 population

Table A54. Number and proportion of alcohol-attributable tuberculosis deaths and hospitalisations by state in 2010

State	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
NSW	3 (25%)	1 (11%)	50 (28%)	16 (14%)
VIC	2 (25%)	N<5	56 (26%)	24 (15%)
QLD	1 (21%)	1 (11%)	33 (29%)	23 (17%)
SA	N<5	N<5	7 (28%)	4 (13%)
WA	N<5	1 (15%)	6 (31%)	6 (18%)
TAS	N<5	N<5	1 (24%)	1 (9%)
NT	N<5	N<5	7 (37%)	4 (18%)
ACT	N<5	N<5	2 (28%)	1 (11%)
Total	9 (24%)	3 (11%)	162 (28%)	77 (16%)

* Proportion of tuberculosis deaths or hospitalisations attributable to alcohol

Table A55. Standardised rate and crude rate of alcohol-attributable tuberculosis deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	0.09 (0.10)	0.04 (0.04)	1.75 (1.75)	0.55 (0.55)
VIC	0.10 (0.10)	N<5	2.54 (2.56)	1.10 (1.10)
QLD	0.08 (0.07)	0.03 (0.03)	1.83 (1.83)	1.28 (1.30)
SA	N<5	N<5	1.08 (1.07)	0.47 (0.44)
WA	N<5	0.09 (0.09)	0.65 (0.65)	0.76 (0.76)
TAS	N<5	N<5	0.47 (0.49)	0.00 (0.00)
NT	N<5	N<5	7.20 (7.51)	3.24 (3.58)
ACT	N<5	N<5	1.30 (1.37)	0.00 (0.00)
Total	0.11 (0.11)	0.03 (0.03)	1.83 (1.83)	0.85 (0.85)

* Standardised rate (crude rate) per 100,000 population

Injuries

Table A56. Crude rate of alcohol-attributable injuries deaths and hospitalisations by state in 2010

State	Death rate		Hospitalisation rate	
	Men	Women	Men	Women
NSW	11.9	2.3	491.9	169.0
VIC	10.9	2.9	461.9	210.5
QLD	17.0	2.9	622.6	205.8
SA	14.2	2.6	530.8	177.6
WA	20.4	4.5	641.7	249.6
TAS	12.0	1.9	422.5	118.1
NT	42.3	7.0	1,133.8	440.6
ACT	13.7	2.3	571.2	184.3
Total	14.1	2.8	535.5	197.1

Figure A5. Proportion of injuries YLL, YLD, DALYs attributable to alcohol in 2010

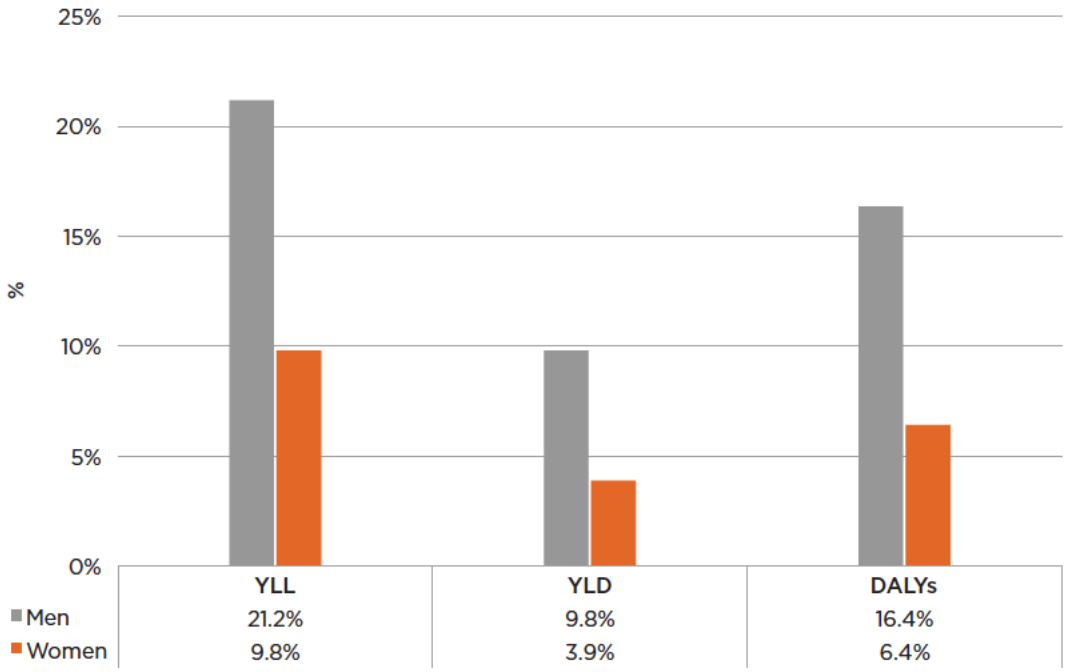

Table A57. Number of alcohol poisoning deaths and hospitalisations by state in 2010 (AAF=1)

State	Deaths		Hospitalisations	
	Men	Women	Men	Women
NSW	13	5	141	122
VIC	16	9	306	323
QLD	11	N<5	129	121
SA	6	N<5	47	46
WA	8	N<5	73	56
TAS	N<5	N<5	6	N<5
NT	N<5	N<5	N<5	N<5
ACT	N<5	N<5	8	15
Total (AUS)	60	21	714	690

Table A58. Standardised rate and crude rate of alcohol poisoning deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	0.45 (0.46)	0.17 (0.17)	4.99 (4.95)	4.18 (4.16)
VIC	0.74 (0.73)	0.40 (0.40)	13.94 (13.97)	14.27 (14.25)
QLD	0.63 (0.63)	N<5	7.35 (7.39)	6.73 (6.81)
SA	0.93 (0.91)	N<5	7.38 (7.15)	6.94 (6.76)
WA	0.87 (0.86)	N<5	7.79 (7.87)	5.98 (6.09)
TAS	N<5	N<5	3.38 (2.95)	N<5
NT	N<5	N<5	N<5	N<5
ACT	N<5	N<5	5.09 (5.48)	9.49 (10.02)
Total (AUS)	0.68 (0.68)	0.23 (0.23)	8.10 (8.10)	7.65 (7.65)

* Standardised rate (crude rate) per 100,000 population

Table A59. Number and proportion of alcohol-attributable MVA deaths and hospitalisations by state in 2010

State	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
NSW	26 (10.5%)	4 (4.3%)	518 (6.9%)	151 (2.9%)
VIC	19 (8.8%)	3 (4.4%)	360 (6.3%)	117 (3.0%)
QLD	25 (12.6%)	4 (5.3%)	428 (8.9%)	83 (3.6%)
SA	8 (10.8%)	2 (4.2%)	132 (7.0%)	34 (2.9%)
WA	18 (13.8%)	3 (5.8%)	260 (9.5%)	60 (4.0%)
TAS	2 (10.2%)	1 (4.5%)	32 (7.7%)	6 (2.5%)
NT	4 (12.5%)	1 (5.9%)	46 (11.0%)	10 (4.8%)
ACT	2 (10.4%)	1 (4.8%)	37 (6.8%)	11 (3.2%)
Total	103 (11.1%)	17 (4.8%)	1,812 (7.6%)	473 (3.2%)

* Proportion of MVA deaths or hospitalisations attributable to alcohol

Table A60. Standardised rate and crude rate of alcohol-attributable MVA deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	0.92 (0.91)	0.12 (0.12)	18.26 (18.18)	5.15 (5.15)
VIC	0.87 (0.87)	0.14 (0.14)	16.42 (16.44)	5.16 (5.16)
QLD	1.42 (1.42)	0.22 (0.22)	24.41 (24.51)	4.70 (4.73)
SA	1.29 (1.26)	0.24 (0.24)	20.47 (20.09)	5.11 (5.00)
WA	1.88 (1.91)	0.33 (0.34)	27.55 (28.05)	6.55 (6.63)
TAS	1.03 (0.98)	0.09 (0.10)	15.91 (15.27)	2.90 (2.87)
NT	3.83 (3.86)	0.90 (0.84)	46.56 (49.34)	9.49 (10.75)
ACT	1.40 (1.44)	0.19 (0.20)	24.55 (25.34)	7.27 (7.34)
Total	1.18 (1.18)	0.18 (0.18)	20.56 (20.56)	5.24 (5.24)

* Standardised rate (crude rate) per 100,000 population

Table A61. Number and proportion of alcohol-attributable non-motor vehicle accidents deaths and hospitalisations by state in 2010

State	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
NSW	303 (23.3%)	58 (7.5%)	13,356 (10.3%)	4,685 (3.7%)
VIC	206 (19.3%)	55 (8.9%)	9,451 (9.3%)	4,331 (4.3%)
QLD	263 (26.4%)	48 (8.9%)	10,315 (11.8%)	3,450 (4.4%)
SA	81 (22.8%)	14 (7.2%)	3,308 (9.8%)	1,128 (3.4%)
WA	166 (30.1%)	34 (11.5%)	5,617 (13.0%)	2,178 (5.7%)
TAS	22 (19.4%)	4 (5.4%)	820 (10.1%)	239 (3.0%)
NT	34 (31.3%)	4 (17.1%)	1,007 (16.8%)	355 (8.0%)
ACT	16 (23.2%)	3 (6.6%)	788 (10.4%)	250 (3.5%)
Total	1,091 (23.9%)	220 (8.6%)	44,663 (10.7%)	16,616 (4.2%)

* Proportion of non-motor vehicle accidents deaths or hospitalisations attributable to alcohol

Table A62. Standardised rate and crude rate of alcohol-attributable non-motor vehicle accidents deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	10.54 (10.63)	1.95 (1.98)	464.48 (468.78)	158.06 (159.66)
VIC	9.42 (9.41)	2.40 (2.41)	431.90 (431.52)	190.46 (191.09)
QLD	15.09 (15.08)	2.72 (2.71)	591.90 (590.68)	194.20 (194.26)
SA	12.16 (12.30)	2.04 (2.06)	496.87 (503.54)	165.76 (165.87)
WA	17.88 (17.91)	3.89 (3.74)	607.87 (605.91)	241.71 (236.94)
TAS	10.51 (10.69)	1.71 (1.72)	400.15 (404.32)	113.55 (114.28)
NT	34.22 (36.15)	5.02 (5.25)	1,098.52 (1,081.20)	400.09 (423.87)
ACT	11.92 (11.30)	2.29 (2.14)	576.25 (540.41)	172.59 (166.92)
Total	12.38 (12.38)	2.44 (2.44)	506.87 (506.87)	184.24 (184.24)

* Standardised rate (crude rate) per 100,000 population

Neuropsychiatric Diseases

Table A63. Crude rate of alcohol-attributable neuropsychiatric diseases deaths and hospitalisations by state in 2010

State	Death rate		Hospitalisation rate	
	Men	Women	Men	Women
NSW	3.2	1.1	365.4	248.5
VIC	2.6	1.1	350.2	300.6
QLD	2.6	1.7	345.9	276.0
SA	2.3	1.4	276.4	139.7
WA	2.6	1.3	342.6	206.7
TAS	5.3	1.7	192.6	193.2
NT	15.6	8.4	348.6	249.5
ACT	0.9	1.5	273.3	151.6
Total	2.9	1.4	343.1	251.7

Figure A6. Proportion of neuropsychiatric diseases YLL, YLD and DALYs attributable to alcohol by disease type in 2010

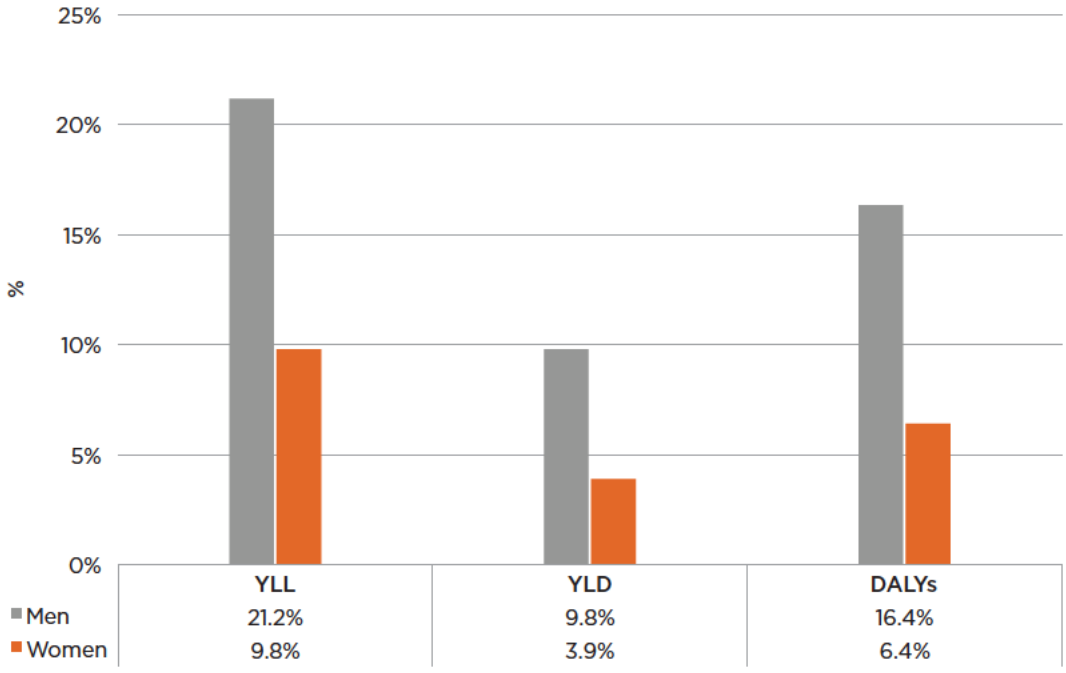

Table A64. Number and proportion of alcohol-attributable epilepsy deaths and hospitalisations by state in 2010

State	Deaths (%*)		Hospitalisations (%*)	
	Men	Women	Men	Women
NSW	12 (29.0%)	7 (16.1%)	737 (29.9%)	316 (17.2%)
VIC	9 (27.6%)	5 (17.1%)	521 (28.8%)	270 (18.3%)
QLD	10 (32.1%)	4 (17.2%)	521 (32.3%)	253 (19.1%)
SA	4 (29.7%)	2 (15.1%)	199 (30.2%)	85 (16.8%)
WA	5 (31.2%)	2 (19.6%)	278 (34.5%)	115 (20.7%)
TAS	3 (27.4%)	N<5	30 (30.7%)	15 (16.1%)
NT	N<5	N<5	50 (37.1%)	17 (21.9%)
ACT	N<5	1 (16.3%)	25 (29.9%)	14 (17.5%)
Total	44 (29.7%)	22 (16.6%)	2,362 (30.8%)	1,086 (18.3%)

* Proportion of epilepsy deaths or hospitalisations attributable to alcohol

Table A65. Standardised rate and crude rate of alcohol-attributable epilepsy deaths and hospitalisations by state in 2010

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	0.41 (0.42)	0.24 (0.25)	25.85 (25.87)	10.78 (10.77)
VIC	0.42 (0.42)	0.22 (0.23)	23.82 (23.79)	11.95 (11.96)
QLD	0.57 (0.57)	0.20 (0.20)	29.83 (29.89)	14.15 (14.25)
SA	0.59 (0.59)	0.33 (0.34)	30.33 (30.29)	12.62 (12.50)
WA	0.55 (0.54)	0.20 (0.20)	29.92 (30.10)	12.54 (12.61)
TAS	1.30 (1.33)	N<5	14.88 (14.77)	7.18 (7.17)
NT	N<5	N<5	52.05 (52.56)	21.47 (21.49)
ACT	N<5	0.93 (0.80)	16.47 (16.44)	8.73 (8.68)
Total	0.50 (0.50)	0.24 (0.24)	26.79 (26.79)	12.05 (12.05)

* Standardised rate (crude rate) per 100,000 population

Table A66. Number of mental and behavioural disorders due to use of alcohol deaths and hospitalisations by state in 2010(100% attributable to alcohol)

State	Deaths		Hospitalisations	
	Men	Women	Men	Women
NSW	78	26	9,616	6,953
VIC	45	19	7,115	6,528
QLD	35	27	5,488	4,636
SA	11	7	1,598	861
WA	19	10	2,877	1,781
TAS	8	N<5	360	384
NT	13	7	273	190
ACT	N<5	N<5	373	213
Total	210	100	27,700	21,546

Table A67. Standardised rate and crude rate of mental and behavioural disorders due to use of alcohol deaths and hospitalisations by state in 2010 (100% attributable to alcohol)

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	2.69 (2.74)	0.87 (0.89)	338.13 (337.51)	238.29 (236.95)
VIC	2.07 (2.05)	0.83 (0.84)	326.48 (324.86)	289.64 (288.10)
QLD	2.02 (2.00)	1.56 (1.52)	313.68 (314.26)	259.12 (261.04)
SA	1.59 (1.67)	0.91 (1.03)	244.80 (243.24)	129.39 (126.61)
WA	2.18 (2.05)	1.17 (1.09)	308.02 (310.35)	190.68 (193.66)
TAS	3.58 (3.94)	N<5	172.93 (177.29)	182.85 (183.61)
NT	21.60 (13.94)	16.26 (8.36)	285.86 (292.82)	214.41 (226.86)
ACT	N<5	N<5	254.33 (255.48)	140.69 (142.22)
Total	2.38 (2.38)	1.11 (1.11)	314.35 (314.35)	238.91 (238.91)

* Standardised rate (crude rate) per 100,000 population

Table A68. Number of other alcohol-induced neuropsychiatric conditions due to use of alcohol deaths and hospitalisations by state in 2010(100% attributable to alcohol)

State	Deaths		Hospitalisations	
	Men	Women	Men	Women
NSW	N<5	N<5	58	23
VIC	N<5	N<5	35	13
QLD	N<5	N<5	31	12
SA	N<5	N<5	19	N<5
WA	N<5	N<5	20	N<5
TAS	N<5	N<5	N<5	5
NT	N<5	N<5	N<5	N<5
ACT	N<5	N<5	N<5	N<5
Total	N<5	N<5	169	63

Table A69. Standardised rate and crude rate of other alcohol-induced neuropsychiatric conditions due to use of alcohol deaths and hospitalisations by state in 2010 (100% attributable to alcohol)

State	Death rate (crude rate)*		Hospitalisation rate (crude rate)*	
	Men	Women	Men	Women
NSW	N<5	N<5	2.00 (2.04)	0.78 (0.78)
VIC	N<5	N<5	1.61 (1.60)	0.58 (0.57)
QLD	N<5	N<5	1.77 (1.78)	0.67 (0.68)
SA	N<5	N<5	2.81 (2.89)	N<5
WA	N<5	N<5	2.25 (2.16)	N<5
TAS	N<5	N<5	N<5	2.31 (2.39)
NT	N<5	N<5	N<5	N<5
ACT	N<5	N<5	N<5	N<5
Total	N<5	N<5	1.92 (1.92)	0.70 (0.70)

* Standardised rate (crude rate) per 100,000 population

Foundation for Alcohol Research & Education

2014 Poll: Alcohol-related violence in New South Wales

Key Findings

- The majority (67%) of NSW adults indicated that it is unsafe in built-up areas of the city or the centre of town on a Saturday night.
- Of the NSW adults who felt it was unsafe, a vast majority (94%) indicated that people affected by alcohol made the city or town unsafe. This was greater than those who selected people affected by drugs (79%) and threatening behaviour (79%).
- The majority of NSW adults support 12 policies to reduce alcohol-related violence in NSW. These include increasing penalties for people involved in alcohol-related violence (89%), stopping the sale of alcohol 30 minutes before closing time (77%) and a closing time for pubs, clubs and bars of no later than 3am (71%).
- The majority (69%) of NSW adults support the introduction of the Newcastle model across NSW, which includes 3am closing times and 1am lockouts.
- Only (12%) of NSW adults think that the NSW Premier Barry O'Farrell is doing enough to stop alcohol-related violence occurring in and around pubs, clubs and bars. A majority (57%) indicated that the Premier isn't doing enough.

About the Polling

The Foundation for Alcohol Research and Education (FARE) commissioned Galaxy Research to carry out polling of NSW adults to determine their perspectives on community safety, alcohol-related policies and actions taken by the NSW Premier to address alcohol-related violence.

This study was conducted online among members of a permission-based panel. The sample selected from the panel members had quotas applied to ensure that it reflected the current population statistics. Fieldwork commenced on Monday 13 January 2014 and was completed on Thursday 16 January 2014. The survey sample comprised 324 respondents aged 18 years and older in NSW.

Following the collection of data, the results were weighted by age, gender and region to reflect the latest Australian Bureau of Statistics (ABS) population estimates.

Findings

Community Safety

NSW adults were asked how safe built-up areas in the city or the centre of town were on a Saturday night. The majority (67%) of NSW adults indicated that it is unsafe, 24% indicated it is safe and 9% are unsure. The table below provides an overview of responses for all NSW adults.

	All NSW (%)
Very safe	2
Safe	22
Unsafe	41
Very unsafe	26
Don't know	9

The NSW adults who indicated that the city or centre of town was unsafe were asked what made it unsafe. The vast majority (94%) indicated that people affected by alcohol made the city or town unsafe. This was greater than those who selected people affected by drugs (79%) and threatening behaviour (79%). The table below provides an overview of responses for all NSW adults.

	All NSW (%)
People affected by alcohol	94
People affected by drugs	79
Threatening behaviour	79
Large groups of people	54
Poor lighting	38
Other	5

Alcohol-related policies

NSW adults were asked whether they support a number of policies to reduce alcohol-related violence. All 12 suggested policy options received majority support. The most popular policies were increasing penalties for people involved in alcohol-related violence (89%), increasing police numbers at times and places where alcohol-related violence is greater (86%) and introducing or increasing closed-circuit television (CCTV). The table below provides an overview of the responses for all alcohol-related policies.

	Support (%)	Do not support (%)	Don't know (%)
Increasing penalties for people involved in alcohol-related violence	89	5	6
Increasing police numbers at times and places where alcohol-related violence is greater	86	6	8
Introducing or increasing closed-circuit television (CCTV)	83	6	10
Introducing more public transport options in areas where there are pubs, clubs and bars	79	7	13
Stopping the sale of alcohol 30 minutes before closing time	77	12	10
A closing time for pubs, clubs and bars of no later than 3am	71	15	14
Introducing a 1am lockout for pubs, clubs and bars	70	18	12
Stopping the sale of alcohol and energy drinks after midnight	70	18	13
Introducing identification (ID) scanners	68	13	19
Placing a limit of four drinks on the number of drinks a person can purchase at one time after 10pm	65	19	16
Not allowing alcohol to be sold for less than $1 per standard drink	65	19	15
Stopping the sale of shots after 10pm	60	20	24

NSW Adults were also asked if they support the introduction of the Newcastle model across NSW, which includes policies such as closing pubs, clubs and bars no later than 3am and a 1am lockout. A majority (69%) support this model, while 14% opposed this and 17% did not know.

Actions taken by the NSW Premier

NSW adults were asked if NSW Premier Barry O'Farrell is doing enough to stop alcohol-related violence occurring in and around pubs, clubs and bars. A small proportion (12%) indicated that he was doing enough, a majority (57%) indicated that he isn't doing enough and 31% don't know.

Foundation for Alcohol Research & Education

About FARE

The Foundation for Alcohol Research and Education (FARE) is an independent charitable organisation working to prevent the harmful use of alcohol in Australia. Our mission is to help Australia change the way it drinks by:

- helping communities to prevent and reduce alcohol-related harms;
- building the case for alcohol policy reform; and
- engaging Australians in conversations about our drinking culture.

Over the last ten years FARE has invested more than $115 million, helped 750 organisations and funded over 1,400 projects addressing the harms caused by alcohol misuse.

FARE is guided by the World Health Organization's *Global Strategy to Reduce the Harmful Use of Alcohol* for addressing alcohol-related harms through population-based strategies, problem-directed policies, and direct interventions.

If you would like to contribute to FARE's important work, call us on (02) 6122 8600 or email fare@fare.org.au. All donations to FARE over $2 are tax deductible.

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