The Royal Australasian College of Physicians

The Royal Australian & New Zealand College of Psychiatrists

Your Health in Mind

The Royal Australasian College of Physicians

and

The Royal Australian and New Zealand College of Psychiatrists

Alcohol Policy

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Preface

The Royal Australasian College of Physicians (RACP) represents physicians across a diverse range of disciplines, including internal medicine, paediatrics, public health medicine, occupational and environmental medicine, rehabilitation medicine, addiction medicine and sexual health medicine.

The Royal Australian and New Zealand College of Psychiatrists (RANZCP) is the principal organisation representing the medical specialty of psychiatry in Australia and New Zealand and has responsibility for training, examining and awarding the qualification of Fellowship of the College (FRANZCP) to medical practitioners in psychiatry.

Together, these specialists manage patients, families and communities affected by alcohol on a daily basis, often in partnership with primary care providers. The RACP and RANZCP hold that the level of alcohol-related harm in Australia and New Zealand is unacceptable and much more could and should be done to reduce alcohol consumption and the harms arising from it. They also recognise that alcohol misuse affects our entire society and can only be addressed by a whole-of-community approach.

The RACP and RANZCP hold that, to comprehensively tackle the harms associated with alcohol in Australia and New Zealand, a national public health approach to reducing alcohol consumption is required. This will necessarily include consideration of the drinking culture in both countries. As well as addressing consumption, the RACP and RANZCP are calling for an increase in the availability and range of treatment services for those with problems associated with alcohol consumption.

This policy document provides a comprehensive overview of the significant and varied harms associated with alcohol, while making recommendations for addressing these harms. It highlights that a comprehensive, multifaceted approach to reducing alcohol-related harm is required, encompassing the following policy areas:

- Putting the right price on alcohol
- Further restricting the physical availability of alcohol
- Penalising breaches of advertising and marketing restrictions on alcohol
- Raising the minimum purchase age for alcohol
- Further reducing the incidence of drink driving
- Improving prevention of Fetal Alcohol Spectrum Disorders
- Providing more effective and accessible alcohol treatment services
- Strengthening data collection and evidence
- Bringing it all together: A comprehensive policy approach to reduce alcohol-related harms.

There is a clear and compelling need to have nationally coordinated and comprehensive alcohol policies, developed in collaboration with key stakeholders without the involvement of the alcohol industry which has strong competing interests. In light of these interests, the RACP and RANZCP call on political parties and governments at all levels to reconsider accepting financial donations from the alcohol industry.

The RACP and RANZCP urge governments in Australia and New Zealand to respond to the findings in this document and demonstrate leadership through developing and committing to long-term, resourced and sustained strategies to reduce the levels of alcohol-related harms in both countries.

1. Introduction

Alcohol is an undeniable part of the social fabric of Australian and New Zealand societies. Most adults consume some level of alcohol, and its sale contributes significantly to the Australian and New Zealand economies.

However, the many harms of alcohol and their costs to individuals and society are both undisputed and substantial, with alcohol consumption being a causal factor in more than 200 disease and injury conditions.[1] There is a clear link between the amount of alcohol consumed, either in the short or long term, and the level of harm that results both for individuals and societies.[2] The spectrum of harm is also related to the pattern of alcohol consumption. For example, single episodes of acute intoxication can lead to interpersonal violence and injuries and result in emotional trauma; chronic medium to high level consumption is associated with liver and cardiovascular disease, mental health disorders and domestic violence; and lower level consumption over long periods has been causally linked with a range of cancers.[3] The evidence that modest alcohol consumption can lead to some health benefits is contested.[4]

In Australia, the two major guidelines of importance for the management of alcohol consumption and its associated problems are the National Health and Medical Research Council (NHMRC)'s *Australian Guidelines to Reduce Health Risks from Drinking Alcohol* and the Australian Department of Health's *Guidelines for the Treatment of Alcohol Problems.* The former is targeted at the general population and contains the evidence base for alcohol policies and guidelines on what constitutes 'risky' levels of alcohol consumption. The latter provides evidence-based information to clinicians on the available treatments for people with alcohol problems. However, neither of these documents has been revised since 2009.

The Royal Australasian College of Physicians and the Royal Australian and New Zealand College of Psychiatrists contend that the level of alcohol-related harm in Australia and New Zealand is unacceptable and that more should be done to reduce risky alcohol consumption and the harms that arise from it.

As this document will demonstrate, there is a wealth of evidence supporting the proposition that various well-targeted changes to existing policy settings can make a big difference in reducing the current level of alcohol-related harms. Yet there has been little movement by governments to make these changes and address one of the biggest public health challenges of our time. This lack of action must change and a whole-of-government approach must be taken, ensuring broad consultation across the health and social sectors and a firm commitment to funding and timely implementation, and excluding any involvement of the alcohol industry which clearly has competing interests.

1.1 Consumption patterns

Australia's apparent per capita consumption of alcohol in 2013–14 was 9.7 litres of pure alcohol per person over the age of 15 years.[5] In New Zealand, for the same period, the figure was 9.1 litres per person aged 15 years and over.[6]

In the most recent (2013) Australian National Drug Strategy Household Survey, 21.8 per cent of Australians aged 14 years and older reported no alcohol consumption over the past 12 months. This is a statistically significant increase from 20.5 per cent in 2010 when fewer than 1 in 5 (18.2 per cent)

reported drinking at average daily levels that place them at risk of long-term harms based on National Health and Medical Research Council guidelines of more than 2 standard drinks. However, the same survey showed that 38 per cent of people *over* 14 years reported that on at least one occasion in the previous 12 months they had consumed alcohol at a level placing them at risk of injury and 26 per cent had done so as often as monthly. So, despite some positive developments in the drinking behaviour of younger Australians, there remains a clear need to bring down the numbers of lifetime risky drinkers and single occasion risky drinkers.

In New Zealand, the term 'hazardous drinking' is used. The 2012–13 New Zealand Health Survey showed a reduction in consumption of alcohol, as well as in drinking-related injuries, in people aged 15 years and over, when compared with the 2007–08 results.[7] However, indicators of hazardous drinking by adults remain, with 15 per cent of adults reporting drinking at a level that was hazardous to their health, and half reporting having drunk to intoxication at least once in the preceding 12 months.[8]

The incidence of risky drinking among young people and vulnerable individuals (including those with mental illness), as well as in disadvantaged communities, deserves particular attention, as risky drinking may have disproportionate incidence and/or impacts on these groups.

For example, the most recent National Drug Strategy Household Survey found that the level of risky drinking among 18 to 24 year olds in Australia was 21.3 per cent in 2013,[9] that is, more than 1 in 5 of that age group, while in New Zealand in 2013 the equivalent rate for people aged 15 to 24 was approximately 1 in 4.[10] This is of particular concern given that there is emerging evidence that heavy drinking during adolescence is associated with poorer cognitive functioning and possible brain response abnormalities while performing challenging cognitive tasks.[11]

In addition, although Aboriginal and Torres Strait Islander populations have a 28 per cent rate of alcohol abstinence, compared with 22 per cent abstinence in non-Indigenous people,[12] those who do drink are more likely to consume alcohol at risky levels, with episodic heavy drinking a common pattern.[13]

While there may be different strategies to reduce or address alcohol-related harms among different groups, there are many common principles. This policy integrates comments and recommendations into each chapter, which may apply differentially to particular population groups.

1.2 Health burdens of alcohol harms

Alcohol is the world's third largest risk factor for disease burden after childhood underweight and unsafe sex, accounting for 4.5 per cent of global Disability Adjusted Life Years (DALYs).[14] Alcohol use is also the eighth largest risk factor for deaths, accounting for 3.8 per cent of global deaths.[15] In high-income countries, it is the second largest risk factor after tobacco, accounting for 6.7 per cent of DALYs.[16]

In New Zealand, alcohol consumption is identified as one of the most significant risk factors for avoidable mortality and disease in early and middle adulthood, and contributes substantially to loss of good health across the life course. For example, it has been estimated that 5.4 per cent of deaths under 80 years of age were attributable to alcohol (802 deaths), with alcohol-related injuries

accounting for 43 per cent of these deaths, alcohol-attributable cancer for 30 per cent and other alcohol-attributable chronic disease for 27 per cent of these deaths.[17]

Alcohol was the sixth leading risk factor for health loss in New Zealand in 2006, after tobacco use, high body mass index, high blood pressure, high blood glucose and physical inactivity.[18]

In Australia, alcohol use is the sixth highest risk factor at an estimated 3.3 per cent of the total burden of disease.[19] This estimate is based on 2003 data, as the more recent 2010 study does not provide an estimate of the percentage of total burden of disease attributable to alcohol. In New Zealand, alcohol use accounts for 5.6 per cent of the total burden of disease, or 3.9 per cent after taking account of its purported health benefits, making it the sixth highest risk factor.[20]

These statistics may not, however, fully reflect the extent to which alcohol contributes to health burdens around the world. They may in fact be substantially underestimated as they only take into consideration the harm to the drinker and not harms to others, which can make up a sizeable proportion of the impact experienced in the community.[21] These harms to others are discussed in more detail in Chapter 2.

Fetal Alcohol Spectrum Disorders (FASD), including Fetal Alcohol Syndrome (FAS), represent a group of preventable disorders caused by the consumption of alcohol during pregnancy. These disorders are characterised by a broad range of lifelong physical, neurodevelopmental and behavioural problems. Despite the paucity of accurate data on the prevalence of FASD in Australia and New Zealand, these conditions are considered a significant public health problem as discussed in more detail in Chapter 8.

The health impacts of alcohol are greater among younger people and other at-risk population groups. One in eight deaths of 25 year olds in Australia is due to alcohol consumption.[22] In 2003, the burden of ill health due to alcohol dependence and harmful use in the Aboriginal and Torres Strait Islander population was 4.5 times greater than that experienced by non-Indigenous Australians.[23] In New Zealand, after adjusting for differences in age structure, the net burden of alcohol on the total burden of disease is almost three times greater for Māori[24] and accounts for 11 per cent of the total inequality in health between Māori and non-Māori.[25]

In 2010, the most recent year for which statistics were available in Australia, there were 5,554 alcohol-attributable deaths, and 157,132 alcohol-attributable hospitalisations.[26] While there has generally been a decline in most Australian states and territories in the alcohol-attributable death rate since 1996, the hospitalisation rate as a result of alcohol has increased in all Australian jurisdictions.[27] A recent study has found that 1 in 7 emergency department (ED) presentations in Australia and New Zealand at 2 am local time were alcohol related, with some EDs reporting that more than 1 in 3 presentations were related to alcohol.[28]

Beyond hospitalisation, treatment of alcohol abuse and dependence is conducted in specialised agencies. In Australia in 2013, alcohol was a drug of concern in 91,091 (59 per cent) of all treatment episodes in government-funded alcohol and other drug treatment agencies and was the most common principal drug of concern in 63,755 (41 per cent) of all episodes.[29]

Table 1 shows that suicide is the third highest cause of alcohol-attributable deaths in males and the fifth highest cause of alcohol-attributable hospitalisations in females. This underscores the well-

documented relationship between alcohol abuse and mental health issues, with alcohol use increasing the risk of many mental health and social problems.[30] Alcohol can promote the development of mental health conditions including depression and/or anxiety,[31] and people with pre-existing mental health conditions are also more likely to use alcohol.[32] The combination of alcohol misuse and depression presents a tragically high-risk profile for suicidal behaviour and completed suicide.[33]

Table 1: Top 5 causes of alcohol-attributable deaths and hospitalisations (per cent), males and females

	Deaths	per cent	Hospitalisations	per cent
	Males		***Males***	
1	Alcoholic liver cirrhosis	25	Alcohol dependence	17
2	Non-pedestrian road injury	12	Falls	16
3	Suicide	7	Assault	10
4	Haemorrhagic stroke	6	Alcohol abuse	10
5	Colon cancer	6	Non-pedestrian road injury	8
	Females		***Females***	
1	Alcoholic liver cirrhosis	22	Alcohol dependence	24
2	Haemorrhagic stroke	9	Falls	20
3	Breast cancer	7	Alcohol abuse	10
4	Colon cancer	7	Assault	7
5	Non-pedestrian road injuries	5	Suicide	6

Source: National Drug Research Institute 2009. Trends in estimated alcohol-attributable deaths and hospitalisations in Australia, 1996–2005.

The relationship between alcohol misuse, interpersonal violence and risk-taking behaviour is also well established. Australian research commissioned by the Foundation for Alcohol Research and Education (FARE) found that alcohol is implicated in a high percentage of physical assaults, with estimates varying between 40 per cent based on police data[34] and 70 per cent based on survey data.[35]

Drink driving is estimated to be responsible for about 30 per cent of deaths in car crashes in Australia.[36] In 2008, an estimated 28 per cent of drivers and motorcyclists killed in Victoria had a blood alcohol content (BAC) level over the legal limit[37] and in the Northern Territory (2004 data) the number was 55 per cent.[38]

1.3 Social costs

Alcohol is a substantial contributor to the economies of both Australia and New Zealand. In Australia, the value of liquor retailing turnover in the 2014-15 calendar year was approximately A$10.4 billion.[39] In New Zealand, it is estimated that retail alcohol sales are worth NZ$4–5 billion a year.[40]

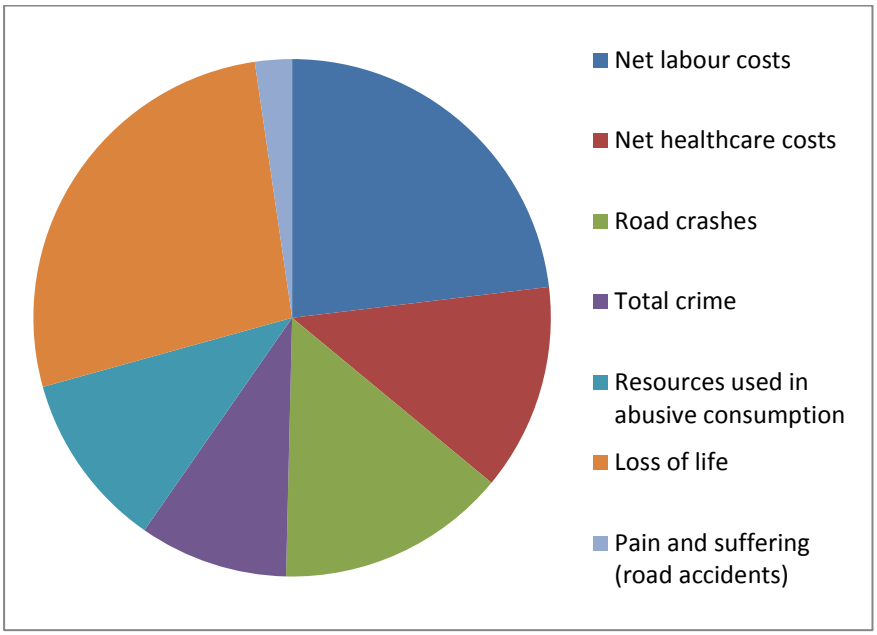
The social costs of harmful consumption of alcohol are also substantial. As discussed above and throughout this report, alcohol-related disease and injury are prevalent and result in direct medical costs as well as intangible costs of pain and suffering. Alcohol misuse leads to loss in the community in a range of forms, from reduced workforce productivity to the costs of road crashes and law enforcement. Alcohol intoxication is also a well-recognised and significant cause of violence, including domestic violence.

Studies estimate the social costs of alcohol misuse in Australia at between $15 billion[41] and $36 billion.[42] The higher estimates include the harm to those other than just the drinker. This cost significantly exceeds the almost $6 billion in taxation revenue collected from the alcohol excise and the Wine Equalisation Tax (WET) in 2013–14 (net of WET rebates).[43] The need for more appropriate taxation of alcohol is considered in detail in Chapter 3 of this report.

Figure 1 shows the relative contribution of the social costs of alcohol misuse in Australia. They include:

- Lost productivity arising from sickness and premature death, and reductions in the workforce and absenteeism caused by alcohol
- Healthcare costs from medical, nursing, hospital, pharmaceutical and ambulance services
- Costs of crime associated with police, criminal courts and prisons, property damage, and insurance administration
- 'Intangible' costs which reflect an economic valuation of the pain and suffering and loss of life.

Figure 1: Estimated social costs of alcohol abuse in Australia



Source: Collins D, Lapsley H 2008. The avoidable costs of alcohol abuse in Australia and the potential benefits of effective policies to reduce the social costs of alcohol.

The annual social costs of alcohol misuse in New Zealand were estimated in 2013 at approximately NZ$4.76 billion.[44] This included premature death (34.2 per cent), net labour costs (33.3 per cent) and costs associated with crime (12.7 per cent).

1.4 Conclusions

To address the misuse of alcohol and the resulting harm in Australia and New Zealand, strong and unified political leadership is required. Mortality and morbidity statistics demonstrate that the 'drinking culture' in both countries is pervasive and damaging, and results in serious impacts on vulnerable populations and the broader community. This policy will examine the significant and varying harms of

alcohol misuse. It will discuss the wealth of evidence showing that various well-targeted changes to existing policy settings can make a big difference in reducing the current level of alcohol-related harms.

The RACP and the RANZCP call on governments to work in partnership with communities, health professionals and consumer groups to address these harms, ensure timely and equitable access to appropriate treatment, and develop and implement comprehensive and effective strategies both at a national and local level.

The obvious conflict of interest must preclude the alcohol industry having any place at the table in policy development. For similar reasons, political parties and governments should reconsider accepting financial contributions from the alcohol industry.

2. Harm to others from alcohol consumption

Alcohol consumption results in harm not only to drinkers, but also to others in the community. This includes people with a relationship with those drinking (such as their children, partners or other family members), as well as bystanders, co-tenants or people sharing public facilities with drinkers. The full span of harms to others ranges from inconveniences (e.g. having to work extra hours to cover for a colleague) to more serious harms (e.g. domestic violence, child maltreatment and suffering, fatal injuries due to road crashes caused by drunk drivers).

Of all drugs (legal and illegal), alcohol has been estimated as the most harmful to others – with more than half of the harms of alcohol borne by non-drinkers.[45]

2.1 Costs associated with the drinking of others

A recent study in New Zealand has estimated that on average the magnitude of harm to others from alcohol consumption outweighs harm to the drinker.[46] Laslett et al have also examined this issue in Australia,[47] and the discussion that follows draws on the literature review they undertook and summarises their findings.

Studies measuring and quantifying the harms caused by the drinking of others typically include the following categories:[48]

- Hospitalisation or health service costs
    - Specific resources expended on hospitalisation and other health services needed because of the harm caused by drinkers.
- Cost of time lost and lost output
    - Mortality or morbidity caused by drinkers' behaviour can give rise to time lost or spent, and lost output (e.g. due to individuals being incapacitated in hospital and therefore absent from the workplace).
- Out-of-pocket costs
    - Including damage to property (e.g. damaged cars in road crashes due to drunk driving) and other financial costs directly caused by the behaviour of drinkers.
- Intangible costs
    - The fear, pain, suffering or impact on quality of life due to alcohol. These costs are estimated based on survey respondents' self-reported reduction in quality of life, translated into Quality Adjusted Life Years (QALYs) lost.
- Child protection costs
    - The recurrent expenditure on child protection, out-of-home care services and intensive family support services needed due to child abuse, maltreatment and neglect by drinkers.

2.2 'Headline' problems resulting from the drinking of others

Drinking can lead to various serious harms to others. Notable harms include those listed below (this list is not exhaustive):

- **Road crashes** – Alcohol consumption has a direct effect on the number of road crash incidents. It increases the response time of drinkers as well as the incidence of errors of judgement. Data collected in 2005 estimates that, in Australia, the drinking of others leads to 286 deaths and 4,184 hospitalisations a year due to road crashes,[49] while 14 per cent of road crash deaths involving children can be linked to drinking.[50] The total annual hospitalisation costs from road crashes due to the drinking of others was estimated to be $33 million, with more than 10 per cent of this figure incurred by pedestrians.[51]

- **Violence in the community** – Alcohol is a disinhibitor and can facilitate aggressive behaviour, including violence.[52] In Australia, between 3.3 per cent[53] and 4 per cent[54] of the community report being physically abused by someone affected by alcohol, while 24 per cent of people report being verbally abused, and 12 per cent report being 'put in fear' by someone affected by alcohol.[55] Between 40 per cent (according to police data) and 70 per cent (according to survey data) of physical assaults in Australia are alcohol related.[56] Based on 2005 data, the total annual costs of police-recorded assaults attributable to alcohol in Australia is more than $117 million, excluding intangible costs and out-of-pocket costs.[57] Hospitalisation costs account for almost half this figure, whilst lost output and time account for the rest. New Zealand statistics from 2008 show that one-third of violent offenders had consumed alcohol before committing the offence.[58]

- **Domestic violence** – Alcohol has been found to be a significant factor in 50 per cent of cases of domestic physical and sexual violence in Australia.[59] The annual costs of alcohol-attributable domestic violence are estimated to be more than $46.4 million.[60] Of this figure, 50 per cent comprises hospitalisation costs, 49 per cent is due to costs of lost time and output, and the remaining 1 per cent is due to out-of-pocket costs.

- **Child abuse, maltreatment and neglect** – Most recent national research in Australia estimates that between 15 and 47 per cent of child protection cases involve alcohol.[61] Annual child protection costs associated with alcohol-attributable child abuse, maltreatment and neglect equate to more than $671 million.[62]

- **Workplace-related costs** – Drinking has been shown to lead to a lack of productivity and increase in absenteeism, leading to knock-on additional work for colleagues and also an increase in workplace accidents. The annual lost output and time from these impacts in Australia has been estimated at $801 million, with 43 per cent of this due to absenteeism created by others' drinking.[63]

2.3 Total costs of alcohol-related harms

Taking into account the overlap between some of the categories of costs discussed here, it is estimated that, in Australia, harm from the drinking of others results in a total of $14.2 billion in tangible costs (relating to healthcare, child protection and out-of-pocket costs) and at least $6.4 billion in intangible costs each year.[64] This includes the major 'headline' costs discussed in the previous

section as well as miscellaneous out-of-pocket, productivity and 'intangible' costs (which attempt to capture the impact of alcohol-related disturbances on individuals' quality of life).

Table 2 below provides a summary of both the costs of harm to others and the costs of harm to the drinkers themselves. It attempts to remove possible areas of double counting within the study by Laslett et al, [65] and any overlap between Laslett et al and Collins and Lapsley.[66] The resulting cost estimates total almost $36 billion (in 2010 dollars), of which approximately $18.7 billion is from harm to others.

Table 2: Estimated total social costs of alcohol in Australia (2010 $)

Social cost item	Tangible $ m	Intangible $ m	Total $ m
Collins and Lapsley			
Labour (i.e. lost productivity) costs	3,975		3,975
Healthcare costs	2,221		2,221
Road accident costs	2,474	397	2,871
Crimes not elsewhere included	1,600		1,600
Resources used in abusive consumption[67]	1,897		1,897
Loss of life		4,646	4,646
Collins and Lapsley sub-total	***12,167***	***5,043***	***17,210***
Laslett et al			
Child protection system	672		672
Effects on household/family member or friend with most effect	9,424	7,364	16,788
Property damage by stranger's drinking	1,133		1,133
Counselling advice, treatment expenses	110		110
Laslett et al sub-total	***11,339***	***7,364***	***18,703***
Total	**23,506**	**12,407**	**35,913**

Source: Doran C, Jainullabudeen T, Room R, Chikritzhs T, Laslett A, Livingston M, Ferris J, Hall W (unpublished). How much does alcohol really cost Australian drinkers and others affected by drinking? Extracted from Marsden Jacob Associates. Bingeing, collateral damage and the benefits and costs of taxing alcohol rationally. Report to the Foundation for Alcohol Research and Education; October 2012.

2.4 Harms over time

A 2011 update of the Laslett et al study, in which 1,106 respondents were surveyed a second time, found that personal experience of harm (or lack of harm) did not change for 70 per cent of respondents between 2008 and 2011. Past experience of harm was found to be a strong predictor of continued harm, with 65 per cent of respondents experiencing harm in 2008 reporting this again in 2011.

For each additional heavy drinker within a household, the risk of experiencing persistent harm increases almost six-fold.[68]

2.5 Conclusions

The magnitude of harm to others caused by alcohol is insufficiently recognised in Australia and New Zealand. It is paramount that work on policies to reduce alcohol-related harm fully takes into account the harms to non-drinkers, given the estimates that these account for at least half the total harms.

3. Putting the right price on alcohol

Australia's current alcohol taxation system is illogical and complex. It has changed over time, with the changes seeming to reflect alcohol industry considerations rather than any response to the extent of alcohol-related harms.

The system sets up a range of perverse price signals and results:

- Beer tax is based on volume of alcohol; but while there are three broad categories of alcohol content (low, medium or full strength), there are eight different tax rates.
- All spirits are taxed at a single rate according to their volume of alcohol content, with the exception of brandy which has a concessional tax rate.
- Wine is taxed through the Wine Equalisation Tax (WET), which is based on wholesale price rather than volume of alcohol. This favours the consumption and production of cheaper wine. An annual rebate of up to a maximum of $500,000 each financial year is also available via the WET, resulting in smaller wine producers paying very little tax or none at all.

The WET is the most distorted feature of the alcohol taxation system. Introduced alongside the Goods and Services Tax (GST), the WET applies to grape wine, grape wine products, cider and mead, and other alcoholic drinks made from fruit and vegetables with greater than 1.15 per cent alcohol by volume.

In New Zealand, products with an alcohol content below 14 per cent are taxed at a rate per litre of alcohol (i.e. on a volumetric basis), while products above 14 per cent are taxed at a higher rate per litre.

More appropriate alcohol pricing has the greatest potential to reduce consumption and alcohol-related harms. The direct relationship between alcohol price and its consumption and associated harms has been demonstrated over many decades and in different settings.[69] Low alcohol prices lead to higher consumption, including heavier drinking per occasion and more underage drinking.[70] Younger people and heavy drinkers are particularly sensitive to alcohol pricing,[71] with changes to alcohol pricing yielding significant changes in total alcohol consumption in these groups.

The magnitude of the effect of pricing changes on alcohol consumption varies for different countries and different beverages. Beer consumption is usually less responsive to price changes than wine or spirits. The direction of the effect, however, is highly consistent across many studies, suggesting an elasticity of –0.44.[72] This equates to a 4.4 per cent reduction in alcohol consumption per 10 per cent increase in price.

A change to a standardised volumetric alcohol taxation policy would lead therefore to significant reduction in alcohol-related harms insofar as it increases the effective price of alcohol. This has been demonstrated in a number of cases.

- The 2009 increase in alcohol taxes in Illinois in the US was associated with a 26 per cent reduction in fatal alcohol-related motor vehicle crashes, with drivers younger than 30 showing larger declines.[73]

- The reduction in alcohol tax in Finland in 2004 by approximately one-third, as well as the abolition of duty-free allowances for travellers from the European Union, led to a significant reduction in alcohol prices. During this period, the chronic (total) hospitalisation rate for Finnish men increased by 22 per cent among those aged 50–69 years, 11 per cent for 40–49 year olds and 16 per cent for 15–39 year olds.[74]

- The 'alcopops tax' introduced in Australia in 2008, which increased the taxation rate on ready-to-drink spirit beverages (RTDs) by 70 per cent, led to a 30 per cent reduction in RTD consumption. Despite some evidence of drinkers switching to other alcoholic products, total sales of alcohol one year after its introduction fell by 1.5 per cent net.[75] Research also shows that that the introduction of the tax was associated with a statistically significant decrease in ED presentations in NSW, particularly of younger people and more so for 18–24 year-old females.[76]

- An Estonian study found a statistically significant negative relationship between the real average alcohol excise tax rate and alcohol-related traffic accidents.[77]

- The *Living With Alcohol* program, implemented in the Northern Territory in 1992, introduced a levy of five cents per standard drink on all alcoholic drinks of greater than 3 per cent strength, with an extra levy of 35 cents per litre on cask wine. Though the effects of this levy were not disaggregated from the effects of other measures in the program, an evaluation to the end of 1996 found that it led to reductions in:
    - apparent per capita alcohol consumption of 22 per cent
    - alcohol-related road deaths (34.5 per cent) and hospitalisations (23.4 per cent)
    - deaths (19 per cent) and hospitalisations (2 per cent) from acute alcohol-related conditions other than road crashes (e.g. other injuries, alcohol withdrawal) and hospitalisations (66 per cent) for chronic alcohol-related conditions (e.g. dependence, cirrhosis, various cancers).[78]

Given the evidence surrounding the impact of price on consumption and harm, addressing the distortion in the Australian alcohol taxation system should be a priority area for reform.

In New Zealand, alcohol is already taxed on a volumetric basis under the two-tier alcohol excise system and debate about how this system can be improved revolves more around the levels at which the tax should be set.

3.1 The aggregate health and fiscal benefits of alcohol tax reform

The evidence shows that the costs associated with alcohol-related harm outweighs the revenue generated by the tax on alcohol.

The taxation revenue generated from sales of alcohol in Australia is approximately $6 billion a year (net of rebates provided to wine producers),[79] while the social costs from alcohol-related harm is estimated at $15 to $36 billion. In effect, the community is subsidising alcohol drinkers.

As a first step to reforming Australia's system of alcohol taxation, as recommended by nine separate government reviews,[80] the WET should be replaced with a volumetric tax on wine and the WET rebate abolished.

A recent study has estimated that subjecting wine to a volumetric excise rate equal to the current rate for low-strength beer sold off site would generate an additional $1.3 billion in revenue, whilst also leading to net savings of $820 million in lifetime healthcare costs for the population.[81] This and the other evidence summarised here strongly suggests that moving to a fully volumetric-based alcohol tax system would generate additional revenue and reduce alcohol consumption, resulting in health benefits and cost savings from reduced healthcare and other expenditure.[82] Ideally, this tax system should also incorporate differentiated rates contingent on the evidence of harm associated with particular beverage types.

Funds from increased alcohol tax revenues should be invested in alcohol treatment services and harm prevention programs. This approach is supported by the World Health Organization (WHO) which argues that hypothecation generates increased support for alcohol taxation measures, and increased accountability and transparency of the services being funded.[83]

3.2 Minimum pricing policy

A further measure for addressing alcohol price is through government legislation which imposes a minimum retail price for a standard drink of alcohol. By reducing the availability of cheap alcoholic drinks and setting a 'floor price' on their affordability, minimum pricing policies can have significant impacts on alcohol consumption, particularly that of hazardous drinkers who tend to buy the cheapest alcohol.[84]

Minimum prices also restrict the liquor industry from pricing promotions such as the 'buy-one-get-one-free' offers. While there is relatively little experience globally of minimum pricing policies and their impact, one example from British Columbia, Canada, showed a 10 per cent increase in average minimum price for all alcoholic beverages was associated with reduced consumption of all alcoholic drinks by 3.4 per cent[85] and a reduction in wholly alcohol-attributable deaths of almost a third.[86]

Despite suggestions that this policy would impose hardships on low-income drinkers, a 2014 Lancet study found that its greatest impact would be on 'high risk' low-income drinkers who are in need of intervention.[87] Modelling of this policy option suggests it would have little effect on low-income moderate drinkers.[88]

Recommendations

1. **That national, comprehensive alcohol pricing policies be introduced in Australia and New Zealand comprising:**
    a. **An underlying volumetric-based tax system for all alcoholic drinks**
    b. **The ability to apply higher tax rates on alcoholic drinks with higher health risks**
    c. **A minimum price per standard drink, implemented nationally in New Zealand and at the state/territory level in Australia.**
2. **That a proportion of revenue raised be used to fund improved access to alcohol treatment and harm prevention programs.**

4. Further restricting the physical availability of alcohol

There is strong evidence that policies restricting the physical availability of alcohol for sale can lead to significantly reduced levels of alcohol consumption and associated harms. These restrictions fall into two categories:

- Restrictions on the trading hours of both on-licence and off-licence outlets.
- Restrictions on the density of licensed alcohol-serving outlets.

Restrictions can be achieved via changes to liquor licensing laws. In Australia, this is a state and territory issue, and would require changes in each jurisdiction. This presents opportunities to compare the effects of the different state and territory licensing laws.

In New Zealand, the framework for Local Alcohol Policies (LAPs) allows for controls on location and density of alcohol outlets, empowered by the *Sale and Supply of Alcohol Act 2012*. Most LAPs notified to date have been subject to legal challenge by the alcohol and hospitality industries and have yet to be implemented, and thus the full potential of this framework is yet to be seen.

4.1 Restrictions on trading hours

Australian and international studies indicate that increased trading hours for licensed outlets are accompanied by substantially higher levels of alcohol consumption and associated harms such as drink-driver road crashes,[89] serious violent offences committed in the early hours of the morning,[90] and assaults per 100,000 inhabitants.[91] Further studies provide indirect evidence of this relationship, showing that over 40 per cent of assaults at licensed premises occur after midnight.[92] Regular heavy drinkers are especially likely to take advantage of longer trading hours.[93]

A Norwegian study has found that every additional hour of trading in on-licence premises is associated with a 16 per cent increase in assaults.[94] The relationship also holds for off-licence outlets. For example, a study in New Zealand found that people purchasing alcohol in off-licences at later hours are more likely to drink in a hazardous fashion, both in quantity and frequency.[95]

Reductions in outlet trading hours can have a significantly beneficial impact on reducing alcohol-related violence. Since 2008, pubs in Newcastle, NSW, have been required to close at 3.30 am. Three years after the introduction of these restrictions, non-domestic assaults requiring police attention had fallen by 35 per cent and street offences had fallen by 50 per cent.[96] The Newcastle trial has also led to reductions in the number of ambulance call-outs and emergency department presentations.[97] A more recent study of Newcastle five years after the trading-hour reductions were imposed found that a one-third reduction in recorded assaults had been sustained.[98] Research also suggests that larger modifications of trading hours can have disproportionately greater impacts than smaller changes.[99]

Restrictions can also be implemented through the imposition of ‘lockouts’, which were also introduced in Newcastle. The implementation of lockouts means that new entrants to a licensed premises are not allowed after a certain time, but those already on the premises are allowed to continue drinking for some time, usually hours more. They have been a component of the NSW liquor reforms; however, there is no evidence of their effectiveness in reducing alcohol-related harms when their impacts are

considered separately from those of earlier closing times. Recent research into the effects of lockouts imposed in Ballarat, Victoria, found that they had no discernible long-term impact on alcohol-related emergency department attendances.[100]

Research into earlier closing and lockout times for licensed establishments in the Kings Cross and Sydney CBD Entertainment precincts in Sydney found that, following the imposition of 3 am closing times on pubs in these precincts and a ban on takeaway alcohol sales after 10 pm across NSW, there had been substantial reductions in assaults in both Kings Cross (down 32 per cent) and Sydney CBD Entertainment precincts (down 40 per cent). A smaller but still significant reduction in assaults also occurred across the rest of NSW (9 per cent decrease).[101]

4.2 Restrictions on outlet density

Outlet density can be measured by examining the issuing of liquor licences. Between 1996 and 2010, the number of liquor licences issued in Victoria grew by 120 per cent.[102] In South Australia, between 1996 and 2009, the number of licences grew by 60 per cent. These figures suggest there has been an increase in the density of licensed outlets in Australia.

A recent review of available studies concluded that 'regulation of alcohol outlet density may be a useful public health tool for the reduction of excessive alcohol consumption and related harms'.[103] While there are limited studies directly assessing the effectiveness of controls on alcohol outlet density as a means of reducing excessive consumption and related harms, indirect evidence can be gleaned from studies examining the relationship between controls on alcohol outlet density and consumption.

Studies in Australia[104] and New Zealand[105] have found that outlet density is significantly related to high-risk drinking among the young, including illegal underage purchasing of alcohol[106] and secondary supply of alcohol to adolescents.[107] An Australian study found that people living closest to licensed premises reported the highest levels of drunkenness and property damage in their neighbourhoods. This relationship held even after adjusting for possible confounding factors.[108] A Western Australian study also found a relationship between outlet density and levels of assault and drink-driving offences.[109] This was strongest for off-licences such as bottle shops, and was more context dependent for on-premises licences.[110] This is especially relevant as 78 per cent of all alcohol in Australia is bought as packaged liquor for off-premises consumption.[111] Outlet density also contributes to the level of alcohol-related harm by increasing competition between outlets, including the discounting of alcohol products,[112] with prices lower in areas with a higher density of liquor outlets.[113] A Victorian study has estimated that a 10 per cent increase in general licence rates in one area increases assault rates by 0.6 per cent, while a 10 per cent increase in off-licence rates increases assault rates by 0.8 per cent.[114]

New Zealand research suggests that increases in outlet density can lead to increased rates of binge drinking even if there are no significant changes in average alcohol consumption.[115]

Two main approaches have been adopted internationally for regulating outlet density. In the UK, local authorities can designate 'saturation zones' within licensing policies, within which no new licensed premises are permitted.[116] Alternatively, cluster controls can be established, which prohibit the granting of new liquor licences within a given distance of licensed premises of the same category. This approach has been adopted in the UK, Paris and New York.[117]

4.3 Community-based alcohol restriction plans

Various initiatives have been trialled to restrict the availability of alcohol at the local community level. For these measures to be successful they require strong community support and restrictions that cannot be easily bypassed. While some have been successful, others have led to residents sourcing their alcohol from neighbouring areas.

Alcohol Management Plans (AMPs), under which all or part of a community is declared a 'restricted area' or 'dry place' with alcohol banned, were adopted in Queensland in 2002. Twelve months after an AMP was applied in one Cape York community, the proportion of alcohol-related offences and number of assaults in the area covered by the plan remained unchanged, while property offences increased.[118] While there was a reduction in the number of assaults and injury presentations to the Community Health Clinic, this downward trend had commenced six months prior to the introduction of the AMP. It was concluded that the continuation of 'sly-grogging' (that is, the illicit sale of alcohol) and the practice of storing and drinking alcohol outside the restricted area may have undermined the restrictions.

A more successful community-based alcohol restriction plan was put in place in October 2007 in Fitzroy Crossing in Western Australia. This prohibited the sale of packaged liquor exceeding a concentration of ethanol of 2.7 per cent. An evaluation of the restriction two years after it was introduced found some benefits, including reduced severity of domestic violence, a reduction in the severity of wounding from general public violence, reduced street drinking, and a reduction in the amount of alcohol being consumed by Fitzroy and Fitzroy Valley residents.[119]

A 12-month trial restricting alcohol sales in Mount Isa, Queensland, commenced in August 2002.[120] It was found that the total volume of alcohol purchased was 8.8 per cent lower after the restrictions were introduced. This was partially offset by increases in alcohol purchases in the nearby town of Cloncurry, with an overall decline in the two regions of only 0.9 per cent.

Effective supply reduction initiatives at the local level have typically been characterised by high community support and implementation in more isolated geographical locations where supply restrictions are easier to enforce.[121] The results suggest that community-based initiatives may be less effective if they are not supported by legislative change to outlet density, pricing and marketing at higher levels of government.[122]

As well as alcohol restrictions, AMPs can include other policy tools such as treatment programs. AMPs are discussed further in Chapter 11 as part of a comprehensive approach to alcohol policy.

4.4 Conclusions

Restricting the density of licensed alcohol-serving outlets and the trading hours of on- and off-licence liquor sales premises can lead to significantly reduced levels of alcohol consumption and associated harms. This is especially the case where restrictions in trading hours are significant. These interventions are essential to any overall package of liquor licensing reforms to address alcohol-related harm.

The evidence for community-based alcohol restriction plans is mixed. While they can lead to some reductions in consumption and alcohol-related harm, at least in the short term, their effectiveness is reduced if they can be easily circumvented.

Recommendations

1. **That the Government of New Zealand and Australian state and territory governments should further restrict trading hours for licensed establishments and off-licence liquor sales premises.**

2. **That local governments in Australia and New Zealand should be empowered to develop local supply reduction measures, such as challenging inappropriate liquor licences or implementing caps on the number of licensed premises allowed in a local community.**

5. Penalising breaches of advertising and marketing restrictions on alcohol

Advertising and marketing of alcohol is highly pervasive in Australia and New Zealand. As well as traditional media of television, print, radio and outdoor billboards, alcohol companies also utilise marketing techniques such as sponsorships and digital and social media strategies. Television remains the most common source of exposure to alcohol advertising for Australians, accounting for 59 per cent, sporting events are second at 45 per cent, and newspapers and magazines are third at 42 per cent.[123]

In 2007, the estimated total annual alcohol advertising expenditure in Australia was $128 million.[124] The true figure is likely to be significantly higher as this figure does not include expenditure on sponsorship, social media and point-of-sale promotions. Expenditure on alcohol sponsorship alone has been estimated at $300 million per year.[125]

Alcohol advertising expenditure on traditional media in Australia remains significant:

- **Television**: Alcohol advertising ranks in the top 10 by expenditure on free-to-air television, with a total of $15.8 million spent on metropolitan television alcohol advertising over just two months in 2012.[126]

- **Sponsorship**: Alcohol companies contribute $50 million a year in sponsorship for major sporting events. Of this amount, 80 per cent is invested by three companies.[127] According to estimates, some sports may get around 25 per cent of their income from alcohol beverage sponsorship agreements or associated income.[128] Sponsorship of sporting events is a particularly potent tool for advertisers – 49 per cent of people surveyed recalled being exposed to alcohol advertising through sports.[129]

- **Outdoor**: In 2012, outdoor alcohol advertising was the fifth largest outdoor advertiser category by expenditure at $39.4 million.

- **Print**: Print accounts for a small proportion of alcohol advertising expenditure, but is a frequent and widespread method of advertising by the major alcohol retailers.[130]

- **Social media**: Alcohol companies are increasingly utilising social media for promotion. The top 20 alcohol brands in Australia have more than 2.5 million followers and post four items of content per week.[131] As at June 2013, official Facebook pages for Australian alcohol brands (beer, wine, cider and spirits combined) had attracted over 3.8 million followers. This is over a million more followers than for Australian non-alcoholic beverages (2.6 million) and automotive Facebook pages.[132] Moreover, half of the available alcohol-related smartphone apps endorsed or encouraged alcohol consumption.[133]

In New Zealand, expenditure on alcohol advertising in 2008 was estimated to be about NZ$33 million, although this figure does not capture sponsorship activity.[134] It is estimated that alcohol promotions including sponsorship may be worth approximately $73 million a year.[135]

5.1 Impact of advertising and marketing on alcohol consumption

The significant expenditure on advertising in Australia and New Zealand demonstrates that alcohol companies clearly recognise its influence in driving sales. Research confirms that alcohol advertising leads to increased awareness of alcohol and more positive attitudes towards drinking.[136] Advertising also contributes to an increase in alcohol consumption among existing drinkers and encourages non-drinkers – particularly young people[137] – to become drinkers.[138]

One US study found that each additional advertisement viewed by a young person resulted in 1 per cent more drinking. Another study estimated that each additional dollar per capita spent on alcohol advertising in a local market resulted in 3 per cent more drinking by young people.[139]

Studies also show that alcohol marketing strategies lead to underage drinkers starting to drink, regular young drinkers becoming prone to binge-drinking patterns, and established young drinkers accruing a heavy level of consumption which can place them at risk of harms.[140]

It is also clear that children are seeing a lot of alcohol advertisements when they watch sport on television. Alcohol advertising on Australian free-to-air television in the daytime is predominantly (87%) shown during televised sport, which has a higher number of average alcohol advertisements per hour than non-sport programs.[141] Recent research has established that Australian children and adolescents are being exposed to as much alcohol advertising when viewing televised sport as young adults.[142]

5.2 Self-regulation of alcohol advertising and marketing is insufficient

Despite regulations around the times alcohol can be advertised on television, young people, including adolescents, are exposed to almost the same level of alcohol advertising as the adult population.[143] The majority of Australians aged 12–17 have been exposed to alcohol advertising through a range of media channels, with television being the highest (94 per cent), followed by 75 per cent for magazines, 61 per cent for billboards or posters, 55 per cent on the internet, 53 per cent in newspapers and 51 per cent through promotional material.[144]

A study of 2,810 alcohol advertisements aired on Australian television over 2 months found that 50 per cent appeared during viewing times when children were regularly watching; these were 7–9 am and 3.30–10.30 pm on weekdays and 7.30–10.30 am and 3.30–10.30 pm on weekends.[145]

Other avenues for exposure to alcohol advertising include product placement in films, music videos and television programs, social media and in-store promotions.[146]

Current regulations on alcohol advertising rely heavily on self-regulation in respect of both content and placement of advertising, and there is a lack of legally enforceable sanctions for instances when regulation breaches occur. In Australia, alcohol advertising content is predominantly regulated through the Alcohol Beverages Advertising (and Packaging) Code (ABAC). The scheme is administered by a Management Committee which includes industry, advertising and government representatives.

Regulation of placements of alcohol advertising (i.e. when and where such advertising is placed) on free to air television is done primarily through the Children's Television Standards of the Australian Communications and Media Authority (ACMA) and the Commercial Television Industry Code of

Practice (CTICP), a co-regulatory industry code registered by ACMA. The CTICP restricts the broadcasting of alcohol advertising to after 8.30 pm and before 5 am, and between 12 pm and 3 pm on school days.

New Zealand also operates a primarily self-regulatory framework for advertising. The Advertising Standards Authority (ASA), comprised of industry representatives, is the body responsible for self-regulation of advertising across all media. The ASA has developed Advertising Codes of Practice, including a Code for Advertising Liquor applicable to advertising agencies, magazine and newspaper publishers, television, cinema, outdoor advertising and radio. The ASA also funds a separate body called the Advertising Standards Complaints Board that adjudicates on complaints received about advertisements that may be in breach of the codes.

The studies quoted above clearly demonstrate that these placement regulations are not delivering on their intention; they are not preventing children from being exposed to alcohol advertising. One contributing factor is the exemption which permits alcohol advertising at any time during a live sport broadcast on weekends and public holidays.

Content self-regulation through ABAC does not extend to alcohol branded merchandise and sponsorships. Considering the strong and widespread encouragement for children and adolescents to engage in sports, support their teams and watch televised games, this 'loophole' is clearly a major issue.

5.3 More comprehensive restrictions on alcohol advertising and marketing are needed

In light of the inadequacies in the predominantly self-regulatory approach to alcohol advertising, as well as the documented impacts of advertising in increasing levels of underage and harmful drinking, more comprehensive restrictions on alcohol advertising and marketing are needed.

There is community support for greater restrictions on alcohol advertising and marketing, with a national survey in 2013 finding that 67 per cent of respondents supported a phase out of alcohol sponsorship of sport.[147]

The French *Loi Évin* alcohol advertising legislation is a good model for stronger alcohol advertising and marketing restrictions. This legislation prohibits alcohol sponsorship of cultural and sporting events as well as alcohol advertisements on television and at the cinema. Alcohol advertising is restricted to billboards and some radio and print media for adults.[148] *Loi Évin* also prohibits the targeting of young people in alcohol advertising and imposes strict content regulations so that messages and images may refer only to the qualities of products such as degree, origin, composition, means of production and patterns of consumption. A health message must be included on each advertisement to the effect that 'alcohol abuse is dangerous for health'. Significant fines are imposed for infringements of the law.[149] Under this legislation, all drinks with over 1.2 per cent alcohol by volume are considered alcoholic beverages.

The RACP and RANZCP support a transition towards a *Loi Évin* model of alcohol advertising regulations across Australia and New Zealand. As a first step in Australia, the Commonwealth should adopt the recommendation of the National Preventative Health Taskforce to phase out alcohol

promotions from times and placements which have high exposure to young people aged up to 25 years.[150]

The content of any alcohol advertising should also be subject to more rigorous and socially responsible standards. The Alcohol Advertising Review Board (AARB) Code sets criteria for acceptable alcohol advertising in Australia, and is an initiative of the McCusker Centre for Action on

Alcohol and Youth and Cancer Council WA to provide a system of alcohol advertising review which is independent of industry. However, it does not have any statutory authority. Statutory enforcement of a code similar to the AARB Code could provide a basis for revamping new standards for alcohol advertising content.

5.4 Alcohol labelling needs a stronger impetus

Alcohol health warning labels have an important role to play in reducing alcohol-related harms as they promote health messages at point of sale and at point of consumption. Alcohol labelling requirements in Australia and New Zealand are currently regulated by the *Food Standards Australia New Zealand Act 1991* (Cth) which is overseen and administered by Food Standards Australia New Zealand (FSANZ). In December 2011, the Australia and New Zealand Ministerial Forum on Food Regulation (FOFR), comprising food and health Ministers from New Zealand and Australian jurisdictions, agreed that warnings on alcohol products about the risks of consuming alcohol while pregnant should be pursued. To achieve this, they gave the alcohol industry two years to implement their own voluntary labelling scheme. In July 2014, the alcohol industry was given a further two years, until July 2016, to implement this scheme.

A 2014 evaluation of the effectiveness of the industry labels found that only 38 per cent of all products carried a pregnancy health warning (either text or pictogram), and only 6 per cent of women had seen any messages on alcohol products and only 4 per cent had seen any pregnancy warning labels.[151]

An immediate priority is requiring all alcohol products to be clearly labelled with warnings regarding the risks of alcohol consumption. Research shows that alcohol container warning labels have had some success in increasing awareness, reaching target audiences and, to a more limited extent, influencing individual behaviour.[152] Possible labels may include the warning that alcohol ‘may increase cancer risk’ and ‘can cause birth defects’.[153]

Studies on the effectiveness of health warning labels in the US have shown that their implementation has resulted in increased awareness of the health messages used on the labels.[154] Awareness of the health warning labels was highest among groups deemed high risk, including young people and heavy drinkers. Recall was highest for the message regarding the risk of birth defects resulting from alcohol consumption during pregnancy.[155] Exposure to labels was also found to stimulate conversations about the risks of alcohol consumption.[156] Respondents also reported that they were less likely to have driven ‘when they probably should not have’.[157] According to an analysis of current evidence-based research on alcohol product labelling, the use of specific warning messages is more effective than the use of generic warning messages.[158]

Recommendations

1. **That the current self-regulatory approach to alcohol advertising in Australia and New Zealand should be changed to include statutory restrictions, including the enforcement of costly sanctions for breaches of the advertising code.**

2. **That the sponsorship of sporting events by the alcohol industry should be prohibited in Australia and New Zealand as a first step towards a model of alcohol advertising regulations which would phase out all alcohol promotions to young people.**

3. **That the Australia New Zealand Food Standards Code should be amended to introduce mandatory warning label requirements for alcoholic beverages, with specific guidelines on the placement, size, colour and text of the label so they are visible and recognisable; and a strict timeframe put in place for its comprehensive implementation.**

6. Raising the minimum purchase age for alcohol

Adolescents and young adults are particularly vulnerable to the harmful effects of alcohol. Alcohol affects the development of the brain, which continues to form and mature throughout adolescence. Young people also have a propensity to combine high-risk drinking with other high-risk activities, increasing the potential for accidental injury both to themselves and to others.

The harmful effects of alcohol on young people raises questions about the adequacy of current policies in appropriately curbing access to and use of alcohol by youth. There is a need for a public conversation about whether the existing minimum purchase age for alcohol is appropriate or whether it should be raised, and consideration of other options to encourage a culture of responsible drinking amongst the young.

6.1 Drinking patterns of young people

In Australia, according to the most recent National Drug Strategy Household Survey, 3.4 per cent of 12–17 year olds and 32.7 per cent of 18–24 year olds drink weekly.[159] The level of risky drinking among 18–24 year olds was 21.3 per cent in 2013 compared with 31 per cent in 2010. This represents a statistically significant improvement and demonstrates that it is possible for the 'drinking culture' to shift. This should provide policy makers with increased motivation and momentum to explore policy reforms to reduce alcohol-related harms.

Problems do persist however, with aggregate improvements in drinking habits coupled with more problematic drinking patterns among some segments of young people. Normalisation of harmful alcohol behaviour among Australian youth remains a concern, with a questionnaire survey of 260 youth aged 17–19 years (recruited using intercept sampling during the end-of-school celebrations on the Queensland Gold Coast in December 2010) finding that most played drinking games (74.8 per cent) and consumed more than 10 drinks per night (64.1 per cent).[160]

A 2012 study in New Zealand found that 1 in 4 people aged 15–24 engaged in 'hazardous drinking', with a roughly similar rate for people aged 25–34.[161] Young people aged 18–29 in New Zealand suffer the greatest burden of alcohol-related mortality as a proportion of all-cause mortality. This age group also accounts for a large proportion of hospital presentations for alcohol-related injuries, alcohol-related offending and alcohol-use disorders.[162]

The high rates of risky drinking of young people should be a policy priority given what is known about brain development not being fully complete in adolescence.[163] There is emerging evidence that heavy drinking during adolescence is associated with poorer cognitive functioning and possible brain response abnormalities while performing challenging cognitive tasks.[164] There is also evidence that short- and longer-term cognitive impairment during the post-pubertal and early adult years is associated with an earlier age-of-onset of harmful alcohol consumption.[165]

Alongside education and early intervention programs, an effective means of addressing risky drinking in young people is to rethink the existing minimum age of 18 years for purchasing alcohol.

Over the last decade, there has been a substantial increase in public support in Australia for the minimum age to be raised. The most recent National Drug Strategy Household Survey showed a rise

in support for increasing it to 21 years, from 40.7 per cent in 2004 to 48 per cent in 2013,[166] though the 2013 figure represented a slight fall from 50 per cent public support in 2010.

Intermediate alternatives to raising the minimum purchase age for alcohol can also be considered, including raising the age at which takeaway alcohol is available from 18 to 20, as is currently the case in Sweden.

6.2 Minimum alcohol purchase age link to road traffic accidents

Evidence shows that changing the minimum purchase age for alcohol also changes various indicators of road safety, particularly the incidence of drink driving by young drivers.[167]

A 2010 survey of the driving habits of young Australians found that one in five 23–24 year olds had driven when near or over the legal alcohol limit during the previous month, and over 40 per cent had friends who engaged in drink driving.[168]

When New Zealand reduced its minimum purchase age for alcohol from 20 to 18 in 1997, there was a 12 per cent increase in the rate of traffic crashes and injuries for 18–19 year-old males, and a 14 per cent increase among 15–17 year-old males.[169] Accident rates among young female drivers rose 51 per cent for 18–19 year olds and 24 per cent for 15–17 year olds.[170] There was also a significant increase in hospital presentations of intoxicated people under 20.[171]

Another study into the impact of the reduced age in New Zealand found that the lower age was associated with an increase in drink-driving rates among 18–19 year olds and an increase in prosecution rates for disorder offences for 14–15 year olds.[172] This demonstrates that the change impacted both the unsafe driving behaviour of people who fall within the drinking age and the behaviour of underage drinkers.

A possible reason for this is that a common source of alcohol for underage drinkers is from older friends.[173] Raising the minimum purchase age for alcohol may therefore also reduce opportunities for this source of supply for underage drinkers.

6.3 International experience of alcohol-related harms suffered by young people

Studies conducted around the world support the New Zealand experience outlined above regarding changes to the minimum purchase age for alcohol. A review of the empirical research from 1960 to 2000 shows that almost 60 per cent of high-quality studies undertaken concluded that a higher minimum purchase age for alcohol was associated with reduced road traffic accidents. None found the opposite.[174] This well-documented relationship strongly implies that increasing the minimum purchase age for alcohol can potentially save lives by reducing the incidence of road traffic accidents among young drivers, not to mention the long-term impact of serious injury.

Studies have also found an association between students' use of alcohol and higher rates of sexual behaviour. Students who consumed alcohol at risky levels were four times more likely to have sex that they later regretted compared to other students.[175] Statistics also show that the vast majority of alcohol-related injuries presenting to emergency departments are sustained by males under 30 years of age, while females under 30 are the group most likely to be the victims of alcohol-related violence.[176]

6.4 Minimum purchase age for alcohol, alcohol culture and the prevention of alcohol use disorders

Changing the minimum purchase age for alcohol can have an impact on rates of long-term alcohol abuse and other psychological disorders relating to drug and alcohol consumption.[177] In the years following the lowering of the drinking age in New Zealand, there was a significant increase in the proportion of young men and women aged 15 to 17 years drinking enough to feel drunk at least once a month.[178] One US study found that a reduction in the drinking age from 21 to 18 was associated with an increased risk of binge drinking among young people, which persisted into adulthood.[179]

This result is consistent with other studies which have found that a higher minimum purchase age for alcohol is associated with later initiation into drinking and reduced frequency of heavy drinking.[180]

The effects of early initiation into drinking persist well past young adulthood, with one study finding that exposure to a younger legal purchase age is associated with a more than 30 per cent increase in the risk of a past-year alcohol use disorder, even among respondents evaluated in their 40s and 50s, and an elevated risk for a past-year drug use disorder in middle adulthood.[181] A US study found that states with a lower minimum purchase age for alcohol had an 8 per cent higher suicide rate among persons aged 18-20 and a 6 per cent higher suicide rate among persons aged 21-24.[182]

6.5 Minimum purchase age does not equate to minimum age of consumption

An important issue to note is that the minimum age for purchasing alcohol may provide little protection for the underaged if there is no equivalent culture change among parents and other adult guardians of children. Attempts to restrict supply to minors by adults can be difficult to enforce, so appropriate role-modelling is necessary.

Complementary measures may also be required to publicise the reduction in the minimum age of purchase to induce an effective reduction in the minimum age of consumption.

6.6 Conclusions

These findings strongly suggest that there is a need for a national debate in Australia and New Zealand on raising the minimum purchase age for alcohol. Public discussion should surround the ability of this measure to reduce the incidence of alcohol-related harms for young people, and the impact of this change on personal freedoms.

As the minimum purchase age for alcohol is currently determined at the state and territory level in Australia, more wholesale change would require the Commonwealth government brokering a coordinated agreement to amend all relevant regulations in all states and territories.

Recommendations

1. **That broad public consultation should be initiated on raising the minimum purchase age for alcohol.**

2. **That, as an intermediate step, measures should be introduced in Australia and New Zealand to increase the age for some types of access to alcohol, including raising the age at which takeaway alcohol can be purchased.**

7. Further reducing the incidence of drink driving

Drink driving is a major cause of morbidity and premature loss of life in Australia and New Zealand. Even low blood alcohol levels have been shown to impact cognitive functioning while driving. Alcohol consumption leads to slowed reaction times and dulled thinking processes, causing difficulties multitasking, reduced attention span, blurred vision and reduced hearing.[183]

In Australia, alcohol remains the leading cause of deaths on the road, and is implicated in up to one-third of driver and pedestrian deaths.[184]

In a 2013 study, 12.2 per cent of recent drinkers aged 14 years and over in Australia admitted to driving a vehicle while under the influence of alcohol.[185] In New Zealand, for the period 2007–08, 19.8 per cent of the surveyed population admitted driving a vehicle while feeling under the influence of alcohol.[186] According to Australian statistics, males are twice as likely as females to drive while under the influence (16.3 per cent compared with 7.9 per cent).[187] Young people aged 20–24 years were more likely than people in the other age groups to be charged with driving under the influence of alcohol and/or drugs.[188] A high proportion of repeat drink drivers have clinical alcohol dependence problems.[189]

In 2010, 120 deaths on Australian roads and 2,285 hospitalisations due to motor vehicle accidents were attributable to alcohol.[190] The annual cost of alcohol-related crashes in Australia was estimated to be $2.2 billion,[191] while in New Zealand it was estimated at $204.5 million.[192]

Both Australia and New Zealand have laws on blood alcohol concentration (BAC) limits while driving, which are enforced through random breath testing (RBT). In Australia, it is an offence for any motorist to drive with a BAC of 0.05 or greater, and in most jurisdictions novice drivers (learners and P-platers) and professional drivers are required to have a BAC of zero. Victoria has a graduated licensing program with a zero BAC for all learner and P-plate drivers. P-plates are required for four years (P1 for a minimum of one year and a P2 licence for a minimum of three years), which means that drivers do not become fully licensed (and therefore no longer required to have a zero BAC) until at least 22 years of age, since the age at which Victorians are eligible for a P1 licence is 18.

Until recently, New Zealand's system required a zero alcohol limit for those under 20 but a higher 0.08 limit for those aged 20 and over. However, in November 2013, the Government announced that the limit for drivers over 20 would be reduced to 0.05 BAC, with instant fines and demerit points being imposed on those between 0.05 and 0.08. The zero alcohol requirement for younger drivers remains.

There is strong evidence that the adoption of limits on BAC while driving has led to significant reductions in road traffic accident rates and rates of unsafe driving:

- An analysis of the experience of 15 European countries found that the adoption of a 0.05 BAC driving limit reduced alcohol-related driving death rates by 11.5 per cent among young people aged 18–25, and reduced driving fatalities among men of all ages by 5.7 per cent.[193]
- In Australia, reducing the BAC limit from 0.08 to 0.05 led to an 18 per cent reduction in Queensland and an 8 per cent reduction in NSW.[194]

- Reducing the BAC limit from 0.08 to 0.05 in 1991 in the Australian Capital Territory led to a 34 per cent decrease in the proportion of random breath tested drivers with BACs between 0.15 and 0.19, and a 58 per cent decrease in the proportion testing above 0.2.[195]

Lower BAC limits for younger drivers are particularly necessary as the risks of being involved in a casualty-resulting crash increases more rapidly with increasing BAC levels in the case of young drivers.[196] Lower limits for younger drivers have been shown to reduce the risk of road fatalities, especially if the BAC limit is set at zero.[197]

7.1 Potential improvements from further reducing BAC limits

The rate of progress in safety improvements has slowed down in recent years in Australia.[198] The target of the last National Road Safety Strategy 2001–10 of no more than 5.6 deaths per 100,000 has not yet been met, and the road death rate for children aged 0 to 14 years is high by OECD standards.[199]

The studies highlighted above indicate that one means of generating additional improvements in road safety is to further reduce BAC limits. Research suggests that drivers with a BAC of between 0.02 and 0.05 have at least a three times greater risk of dying in a vehicle crash than drivers who do not consume alcohol.[200] Further reducing the legal BAC limit towards 0.02 or below could therefore lead to further reductions in road crash rates. International experience supports this claim:

- In Sweden there was a 10 per cent reduction in fatal crashes related to drink driving after the BAC limit was reduced to 0.02.[201]

- In 2002, Japan reduced the BAC limit from 0.05 to 0.03 and increased the penalties for alcohol-impaired driving. The combined effect of these measures was a significant reduction in alcohol-impaired driving traffic fatalities, severe injuries and total injuries on the road.[202]

- Another Japanese study which focused on the impact of the reduction in BAC on teenage road traffic accident rates found statistically significant reductions in alcohol-related crashes, alcohol-related injuries and single-vehicle night-time crashes among young drivers aged 16–19.[203]

The European Transport Safety Council has recently recommended that all European Union (EU) member countries move to zero BAC limits (possibly with a small tolerance). Hungary, Czech Republic, Romania and Slovakia have already adopted zero BAC limits, while Sweden, Poland, Slovenia and Estonia have set a 0.02 limit.

Reducing the BAC limit to zero has an added advantage of not relying on drivers' perceptions of how much alcohol they can consume to stay under a legal limit. Having this clear prohibition in place would provide motorists with greater certainty while strongly reinforcing the message that drinking and driving should not occur.

The RACP and RANZCP recognise that this measure may need to be implemented in phases, in close consultation with the community. A possible phased approach may be to adopt a system similar to that in Victoria, requiring licensed drivers to maintain a blood alcohol concentration (BAC) of zero until at least the age of 21 years (preferably until 25 years).[204]

7.2 Other measures

A range of other measures have been implemented in Australia and other countries to reduce drink driving, with varying degrees of effectiveness. They include licence suspensions and increased penalties for drink driving, education and mandatory treatment of people convicted of drink-driving offences, and ignition interlock devices.

Licence suspensions have been found to have the most consistent impact, while other penalties such as increasing the severity of fines and imprisonment for drink driving have not been found to be as effective.[205] However, there are limits to the effectiveness of a measure such as licence suspension, given the finding that up to 70 per cent of people who lose their licence continue to drive while unlicensed as the risk of apprehension is relatively low.[206]

Education and mandatory treatment interventions for drink drivers and the incapacitation of vehicles using ignition interlock devices have been found to be effective means of increasing compliance with licence suspension and reducing recidivism.[207] Ignition interlock programs require people convicted of drink-driving offences to install an alcohol ignition interlock on their vehicle. This is a breath test device connected to the ignition of a vehicle to stop it from starting if the driver has been drinking alcohol. The intent of such programs is to enforce and specifically target a zero alcohol limit on people identified as high-risk drinkers. Installation of ignition interlocks may be court ordered or voluntarily installed in exchange for benefits such as reduced licence disqualification/suspension periods. Currently, the use of ignition interlocks in Australia has been limited compared with the United States and Canada.[208]

7.3 Conclusions

Drink driving persists as a major contributor to deaths and injuries on the road. Despite a range of measures to address this, the rate of harm caused by drink driving is still high. More must be done to reduce this in Australia and New Zealand.

Particular attention should be given to the evidence demonstrating that further reductions are achievable by tightening legal BAC limits and by the expansion of ignition interlock programs.

Recommendations

1. **That the permitted blood alcohol concentration (BAC) limit in Australia and New Zealand should be reduced to 0.02 for all non-learner drivers and zero for all learner drivers.**

2. **That the Governments of Australia and New Zealand should consider gradually reducing the BAC limit to zero for all drivers.**

3. **That interlock-specific legislation mandating the installation of the device for recidivist and high-range drink-driving offenders should be considered for introduction in Australian states and territories and in New Zealand**.

8. Improving prevention of Fetal Alcohol Spectrum Disorders

Alcohol is a teratogen; that is, it can cause birth defects. Its use during pregnancy can harm prenatal development and may cause Fetal Alcohol Spectrum Disorders (FASD), which include a spectrum of conditions, including Fetal Alcohol Syndrome (FAS), Partial FAS (pFAS) and neurodevelopmental disorder associated with alcohol exposure (ND-AE).[209] FASD encompass a broad range of physical and neurodevelopmental problems that are lifelong and range from severe intellectual impairment and major birth defects to subtle learning and developmental disorders.[210] Children with FASD may have low birth weight, distinctive facial features, heart and other birth defects, growth delay, hearing and visual impairment, behavioural problems and intellectual disability.[211] A range of secondary disabilities has also been described in FASD. In one American study, 60 per cent of adults with FASD had been in trouble with the law and half had experienced confinement or admission to a psychiatric or alcohol and other drug facility.[212] Of this cohort, fewer than 10 per cent were able to live and work independently at the age of 21.[213]

In Australia, there has been increasing interest in FASD,[214] including publication of a monograph by the Intergovernmental Committee on Drugs;[215] a House of Representatives Inquiry into FASD in Australia;[216] and provision of targeted funding from the National Health and Medical Research Council of Australia (NHMRC) for FASD research. In 2014, the Commonwealth Department of Health committed $9.2 million to advance a national strategy for FASD, 'Australian Government responding to Fetal Alcohol Spectrum Disorders in Australia: A Commonwealth action plan', including formation of a National FASD Technical Network. In 2014, the Department also funded resources to assist doctors and midwives to ask and advise about alcohol use in pregnancy – this was known as the 'Women Want to Know' campaign (www.alcohol.gov.au).

In 2010, the New Zealand Ministry of Health produced a guide for healthcare professionals engaging with clients on the topic of drinking during pregnancy and the associated risks: 'Alcohol and pregnancy: a practical guide for health professionals'. To support this guide, the Ministry of Health also funded the development of 'The pregnancy and alcohol cessation toolkit', an educational resource for health professionals, which was developed as a collaborative project between Alcohol Healthwatch (a non-government organisation) and the University of Otago. More recently, a Consensus Statement based on a FASD Symposium and FASD Policy and Research Roundtable, hosted by the University of Auckland's Centre for Addiction Research, was released in September 2014.

8.1 Alcohol use in pregnancy in Australia and New Zealand

No 'safe' low level of alcohol consumption during pregnancy has been established. The 2009 NHMRC guidelines on alcohol consumption[217] state that, for women who are pregnant or planning a pregnancy, not drinking is the safest option. Yet the most recent National Drug Strategy Household Survey[218] from 2013 reports that 47 per cent of Australian women drank during pregnancy. This represents a fall from the 2010 level (53 per cent). Over half (56 per cent) of all pregnant women drank before they were aware of their pregnancy. After they became aware they were pregnant, most ceased drinking but 26 per cent continued. The majority drank 1–2 standard drinks monthly or less; however, 17 per cent drank 2–4 times a month and 1.4 per cent consumed 6 or more standard drinks at least once during their pregnancy.[219] As nearly half of all pregnancies are unplanned,[220] there is

potential for inadvertent fetal exposure in early pregnancy. Other Australian research backs up the finding that, despite a decline in the number of Australian women drinking during pregnancy, the proportion drinking at high levels remains unchanged.[221]

In New Zealand, 55 per cent of women surveyed believe it is safe to drink during pregnancy, contrary to advice from the Ministry of Health.[222] A recent survey of midwives found that 36 per cent of pregnant clients, and 82 per cent of pregnant teenage clients, drank during their pregnancies.[223] The risk to the fetus is greatest in women who drink at risky levels during pregnancy, but the outcomes vary according to the timing, frequency and duration of alcohol use.[224]

8.2 Epidemiology of FASD in Australia and New Zealand

There are conflicting studies regarding prevalence of FAS in Australia, and no reliable data for the full FASD spectrum.[225] In short, no national estimates exist on the incidence or prevalence of FASD. This is because both Australia and New Zealand lack standardised data and recording of alcohol consumption during pregnancy and on the diagnosis and recording of people with FASD. However, data available in Australia suggests that there are disparities between the states and territories and between different populations. For instance, while one study based on Victorian data found a birth prevalence for FAS of 0.01 to 0.03 per 1,000 live births in the general population and identified no Indigenous cases of FAS,[226] a study in the Top End of Australia's Northern Territory found a birth prevalence of FAS of 0.68 per 1,000 live births, with a higher rate in Aboriginal and Torres Strait Islander children (1.9 per 1,000 Indigenous live births).[227] In Western Australia, FAS was identified in between 0.13 and 0.18 per 1,000 live births,[228] while in Victoria a rate of 0.006 per 1,000 live births was found.[229] Clinicians estimate that the prevalence of FAS may be as high as 15 per 1,000 children among Aboriginal and Torres Strait Islander communities in far north Queensland.[230] A population-based study of FAS prevalence was recently completed in the remote Fitzroy Valley communities of WA, where over half of mothers of primary-aged children reported risky drinking during pregnancy.[231] In this high-risk population the prevalence was 120 per 1,000, amongst the highest in the world.[232] One study has attempted to estimate the national incidence of FAS rather than the full spectrum of FASD.[233] The variation in incidence and prevalence rates likely reflects several factors, including small sample size; the use of different methods of case ascertainment; application of different diagnostic criteria; variations in health professionals' knowledge; access to diagnostic services; and regional differences in drinking patterns.

In New Zealand, the true extent of the incidence and prevalence of FASD is also unknown. There are no nationally consistent definitions or diagnostic criteria for FASD, and children are not routinely screened in infancy or early childhood.[234] Based on overseas incidence rates of 3 per 1,000 live births, it is estimated that at least 173 babies are born with FASD every year in New Zealand.[235] While the New Zealand Paediatric Surveillance Unit (NZPSU) collected data on the incidence and prevalence of FAS in New Zealand from July 1999 to December 2001 and reported that the incidence of FAS was low compared to other countries,[236] this was possibly because only a small number of New Zealand paediatricians were diagnosing children with FAS.[237]

8.3 Barriers to the diagnosis of FASD

Most studies acknowledge the likely underestimation of the true frequency of FASD in Australia[238] and New Zealand. It is very probable that there is substantial under-diagnosis of FASD because of the lack of awareness by clinicians[239] and their fear of stigmatising children and families. In one WA

survey only 12 per cent of health professionals could identify the four diagnostic features of FAS, only 44 per cent who saw pregnant women routinely asked about alcohol use in pregnancy, and only 25 per cent routinely provided information on the consequences of alcohol use in pregnancy.[240] In a similar survey paediatricians had limited knowledge about alcohol use during pregnancy and its effects, and felt poorly prepared to manage affected children.[241] The limited training and experience of health professionals in diagnosing FASD is of concern because delay in diagnosis and provision of appropriate health and educational interventions increase the risk of adverse secondary outcomes.[242] Other general barriers to the better diagnosis of FASD in the population are:

- The lack of standardised screening and diagnostic instruments for FASD, which results in health professionals using a combination of overseas diagnostic instruments with no standardisation
- The lack of awareness about FASD and alcohol harms during pregnancy within the general population
- Limited FASD diagnostic services. There are currently two FASD diagnostic clinics in Australia (one in Sydney and one in Gold Coast). This reflects the fact that FASD diagnosis is determined through a multidisciplinary team approach, with assessments needing to be undertaken by paediatricians, neuropsychologists, occupational therapists, speech and language therapists, physiotherapists and social workers.

8.4 Policy responses to FASD

As previous chapters demonstrate, the most effective strategies to reduce alcohol-related harms are policies aimed at reducing alcohol consumption overall, insofar as these measures are also likely to translate to a corresponding reduction in alcohol consumption before and during pregnancy. The rest of this chapter focuses on policy responses specifically for enhancing diagnosis/detection of FASD and consequent early intervention treatment services.

While there is no cure for FASD, early intervention treatment services can improve a child's development. However, prevention of FASD must be the priority.[243] This will require a multifaceted approach that acknowledges the complex causal pathway to alcohol use during pregnancy and the existence of high-risk groups within our society.

Primary prevention strategies include community and individual education (e.g. mass media campaigns, education in schools, and warning labels on alcohol); provision of services and treatment for women with alcohol misuse and dependency; education of health professionals regarding the potential harms of alcohol use in pregnancy; [244] and dissemination of NHMRC guidelines that recommend women who are pregnant or planning a pregnancy should avoid alcohol.[245] Measures to reduce access to alcohol in the community, including restrictions on the number and opening hours of liquor outlets, minimum pricing of alcohol and volumetric taxation have been shown to decrease harms and should be considered. Akin to the campaign to reduce harm from tobacco, restriction on the advertising and promotion of alcohol should be introduced.[246] It is crucial that Aboriginal community-led restrictions on access to alcohol should be supported.[247]

8.5 Role of clinicians in managing and diagnosing FASD

It is important that women be asked about alcohol use prior to and during pregnancy so that appropriate advice can be offered.[248] A brief intervention or, where necessary, referral to drug and alcohol services may be indicated to prevent harms to both mother and developing child.

Women identify that health professionals are their preferred source of advice regarding alcohol use in pregnancy. One study found that education resulted in almost half of health professionals changing or intending to change their practice and the advice they offered.[249] The target audience for resources such as 'Women Want to Know' (discussed previously) are all health professionals who see women who are pregnant or planning pregnancy, but particularly midwives, general practitioners, obstetricians and gynaecologists.

As discussed above, one of the many barriers to better diagnosis of FASD in the population is the limited number of specially trained health professionals and specialist diagnostic clinics for FASD. Assessment and diagnostic guidelines developed internationally for FASD recommend the use of multidisciplinary teams of specially trained professionals who also take responsibility for training other health professionals.[250] Service models can be adapted depending on the circumstances, for example supplementing assessment services with telemedicine in rural and remote communities. Services should be underpinned by the use of standardised, nationally agreed diagnostic criteria for FASD and protocols for assessment. A diagnostic tool for Australia is in the piloting phase[251] and could help in expanding the number of such services.

8.6 Conclusions

Particularly because there is no cure for FASD, stronger measures must be taken across Australia and New Zealand to prevent it. In addition, policies must also adequately address the current barriers to its early diagnosis and improve access to early intervention services.

Recommendations

1. **That governments at all levels in Australia and New Zealand work together to develop and implement policies to prevent FASD. This requires:**

    - **Educating communities, particularly high-risk communities, on the harms of alcohol use in pregnancy**
    - **Educating and supporting health professionals to provide primary care and specialised services for women and antenatal care**
    - **Establishing state- and territory-based specialist multidisciplinary clinics**
    - **Ensuring better dissemination of national NHMRC guidelines on alcohol use in pregnancy to health professionals and the general public**
    - **Providing routine screening and early interventions for women of reproductive age who misuse alcohol or have alcohol dependency.**

2. **That governments at all levels in Australia and New Zealand support education and training of health professionals to improve early diagnosis of FASD and appropriate intervention by:**

    - **Providing all health professionals with information and training about the potential harms of alcohol use in pregnancy and the diagnosis and management of FASD**

    - **Investing in the establishment and training of multidisciplinary teams of health professionals to conduct assessment and diagnostic clinics for FASD (incorporating a train-the-trainer component and information about specialist services)**

    - **Implementing a standardised national tool to assist health professionals in the assessment and diagnosis of FASD**

    - **Investing in services for the diagnosis and management of FASD.**

9. Providing more effective and accessible alcohol treatment services

There are over 1.6 million alcohol and other drug (AOD) treatment visits annually in Australia.[252] Alcohol is the principal drug of concern for most of these treatment sessions, accounting for 46 per cent of government-funded specialist agency episodes and 72 per cent of inpatient hospital episodes.[253] Specific alcohol treatment services include helplines, detoxification, withdrawal management, and counselling delivered by government, non-government and private providers in a range of settings such as hospitals, general practices and residential programs.

In New Zealand, the Alcohol and Drug Helpline takes around 15,000 calls per year, and specialist treatment services reach around 40,000 people per year.[254]

However, these figures do not reveal the unmet need, with only about 1 in 10 Australians with alcohol dependence receiving any treatment within a given year.[255] On average, there is a 20 year lag between the onset of an alcohol use related disorder and the first episode of treatment.[256] Moreover, there is a low uptake of evidence-based treatment, as discussed later in this Chapter. Current approaches often include an emphasis on withdrawal management, which is largely ineffective in the absence of ongoing relapse prevention strategies and support.

9.1 Evidence on effectiveness of alcohol treatments

Without specific screening techniques, the majority of people who drink excessively will not be detected in general practice[257] or hospital settings.[258] Thus, systematic screening followed by brief intervention plays a critical role in identifying high-risk drinkers or those who have engaged in risky or potentially risky consumption and introducing treatment and management of their conditions. General practitioners (GPs) may be best placed to undertake this important first step given that they are the most frequent point of contact with the healthcare system.

The Australian evidence suggests that screening and brief interventions in primary care settings for alcohol use disorders can be cost effective[259] as a means of reducing alcohol-related harm. Even for heavy drinkers, brief interventions can be as effective as more intensive interventions[260] and an effective instigator of commitment to behaviour change.[261] It is worth noting that interventions can be as simple as a brief discussion of the Alcohol Use Disorder Identification Tool (AUDIT). The additional advantage of the AUDIT is that it can be used in a wide variety of primary and community care settings and so reach a larger number of patients.

For non-dependent but harmful drinkers, a brief intervention is usually more acceptable than referral to a specialist alcohol treatment service as there is less social stigma associated with it. Research suggests that brief interventions are capable of achieving reductions of up to 30 per cent in alcohol consumption.[262] New Zealand research suggests that brief interventions are being underutilised and could be used more in primary care, hospital emergency departments[263] and inpatient wards.[264]

The effectiveness of brief interventions is limited in certain settings however. In emergency departments, this approach leads to reduced readmission for alcohol-related trauma but does not reduce long-term risky levels of alcohol consumption. Similarly, the evidence suggests that brief interventions do not result in improved health outcomes for hospital inpatients admitted for surgery.[265]

Their main benefits lie in earlier recognition, prevention of future harms, and treatment of alcohol withdrawal and alcohol-related medical toxicity.

Once alcohol dependence has developed, more extensive treatment may be required.[266] Other recognised forms of treatment include alcohol withdrawal management, psychosocial intervention and pharmacotherapies. Psychological treatments such as motivational enhancement treatment and cognitive behaviour therapy remain the mainstay of non-residential approaches to relapse prevention. There is evidence of effectiveness for three types of pharmacotherapies – naltrexone, acamprosate and disulfiram – in reducing alcohol consumption in patients with alcohol dependence.[267] However, it is worth noting that of these pharmacotherapies, disulfiram is still an unlisted medication in Australia. The evidence also suggests that effective treatments and strategies should be tailored to meet an individual's needs and goals, be available across a spectrum of service types and be integrated with primary care services to reduce social marginalisation,[268] for example, to ensure a culturally safe and effective approach for Aboriginal and Torres Strait Islander people.

Other complementary elements of healthcare also need to be better recognised and coordinated. Notably, there are high rates of mental health comorbidity in individuals with alcohol dependence, with studies suggesting that over 20 per cent of people who drink nearly every day have a co-occurring mental health disorder.[269] Identification and effective treatment of these co-occurring disorders or conditions are essential to recovery from alcohol dependence.

9.2 Availability and utilisation of effective treatments for alcohol use disorders

Although 14 per cent of the burden of disease in Australia is due to drug and alcohol problems, less than 1 per cent of our health budget is spent on drug and alcohol treatments.[270] Clearly, the funding currently provided for alcohol and other drug treatment services is not commensurate with the needs of the population. For example in NSW, mental health treatments receive approximately 10 times the funding of alcohol and drug treatments, despite the fact that both these conditions account for similar amounts of the total burden of illness.[271] According to evidence submitted to the recent NSW Government Inquiry into Drug and Alcohol Treatment, there are current shortages of treatment services in NSW, such as youth detoxification, residential rehabilitation places and ancillary services, including support for families of individuals affected by drug and alcohol use.[272] There are also significant workforce issues such as insufficient numbers of trained addiction medicine physicians in NSW,[273] and poor retention of qualified staff, including nurse practitioners, due to a lack of continuity of funding.[274]

Similarly in New Zealand it is estimated that only 15 to 20 per cent of people with alcohol problems are being identified and treated.[275] Treatment capacity would need to double to treat just the 1 per cent of the population with the greatest need.[276]

Utilisation of health services is strongly related to availability.[277] Existing rates of treatment utilisation can therefore be a useful indicator of availability in the case of health services. Given this, it is worth noting a past estimate that only about 30 per cent of people with AOD problems seek treatment,[278] with utilisation rates of mental health treatment lower in rural than metropolitan areas.[279] In particular, rates of utilisation of withdrawal management services were lowest in very remote (0.7 per cent) and remote areas (6 per cent) compared to those of major cities (17.7 per cent). These low utilisation rates may be reflective therefore of the current limited availability of AOD treatment services, especially of poor availability of withdrawal management in rural areas. The NSW government

committee set up to review alcohol and other drug treatment services has recognised this access problem and recommended that funding levels keep pace with the increasing demand for drug and alcohol treatment services.[280]

9.3 Poor uptake of most recent evidence-based treatments

A recent study of metropolitan hospitals in Sydney on the implementation of new evidence-based guidelines for nurses screening for alcohol treatment found no differences in screening rates three months after the guidelines had been implemented.[281]

Moreover, while effective pharmacological treatments are available to assist in the symptoms associated with withdrawal from alcohol (e.g. benzodiazepines, valproate) and to maintain abstinence from alcohol (e.g. disulfiram, naltrexone and acamprosate), they are still underutilised.[282]

9.4 Improving access to services for the people who need it: Across the community and across the lifespan

Research suggests that difficulties in gaining access to treatment for alcohol use disorders are faced by many groups, including:

- People living in rural and remote locations – Research has identified a 'distance decay' effect whereby the number of consumers using healthcare services, including AOD services, decreases with increased distance from a service.[283] The underuse of withdrawal management services in these areas, which was previously noted, may reflect this. In addition to problems with transportation, concerns about social stigma, a culture of self-reliance and stoicism, and financial problems due to unemployment or low income may also hold back use of alcohol treatment services in these areas.[284] Studies suggest that AOD treatment services are scarce in rural Australia[285] and staff of such services may not have appropriate training or support opportunities.[286]

- Aboriginal and Torres Strait Islander peoples – There is cumulative evidence of deficiencies in treatments available for Aboriginal and Torres Strait Islander people. For example, a recent survey of AOD centre staff found that 64 per cent of agency workers felt that Indigenous clients' needs were only partially met, and 9 per cent reported that such needs were not met at all. Workers in remote locations were significantly more likely to report a strong need for AOD services for Indigenous Australians.[287] Another study of a mainstream area health service found that outpatient treatment options for alcohol problems were rarely used by Indigenous individuals, who tended to use emergency and inpatient services for advanced complications from drinking or unplanned alcohol withdrawal instead.[288] It is argued that a lack of treatment uptake among Indigenous people could be due to poor cultural appropriateness[289] and a lack of community awareness of the range of treatment services available.[290] Aboriginal and Torres Strait Islander people across Australia are not routinely receiving access to the full range of treatment services available to mainstream populations – this is true in urban as well as rural/remote areas.[291]

- Pregnant women (see also Chapter 8 on Fetal Alcohol Spectrum Disorders) – Women are less likely to use specialised alcohol and drug treatment services and are more likely to use primary healthcare than their male counterparts.[292] This can be a barrier to identifying and

treating pregnant women who are problem drinkers, with one study estimating that between 10 per cent and 50 per cent of substance-using pregnant women will access treatment services.[293] Pregnant women may also face barriers to seeking treatment because of fear of losing custody of their children, social stigma, lack of childcare, lack of transportation, and a lack of access or priority for pregnant women.[294] On the other hand, women with a comorbid mental health disorder are more likely to seek treatment than men,[295] though they are more likely to attribute their problems to mental health rather than alcohol use and hence are more likely to be seen in mental health or general practice settings rather than specialist substance treatment centres.[296]

- Young people – The peak age of onset for alcohol use disorders is 18 years.[297] The reported lag between onset of an alcohol use disorder and the first episode of treatment is approximately 20 years.[298] Strategies to engage young people in treatment in an age appropriate way are needed. Headspace is an Australian national mental health program that seeks to address this problem in a general sense and is an example of the type of programs that should be made more widely available, but with a focus on alcohol use disorders. Web-based and e-health interventions have also been shown to be effective, acceptable and accessible forms of treatment for young people.[299]

- Older people – Overall, substance use declines with age. However, the rates of alcohol problems commencing or progressing later in life are increasing. Engaging and treating older people has particular challenges in relation to mobility, communication and comorbidities. Effective strategies include integration of alcohol use disorder treatment with aged care services

- People in custody – Diversionary programs for people in custody that are focused on appropriate treatment for alcohol use disorders can improve not only their future health but other socioeconomic outcomes including reoffending rates. For instance, a recent study found that state and territory governments could save more than $110,000 per year for every non-violent alcohol or drug-addicted Aboriginal and Torres Strait Islander offender if they were given rehabilitation instead of jail.[300]

It is important to ensure that alcohol treatment services are tailored to meet the needs of diverse populations, including people with disabilities, mental illness, and culturally and linguistically diverse backgrounds. Treatments must take into consideration accessibility, communication and other barriers people may face in obtaining treatment.

Recommendations

1. **That the Governments of Australia and New Zealand identify opportunities for more targeted treatment services to meet the different needs of clients who are at different stages in addressing their alcohol consumption including, but not limited to, screening for harmful drinking levels and brief intervention for high-risk drinkers.**

2. **That greater funding by all levels of government in Australia and New Zealand is dedicated to alcohol treatment services and workforce development to address unmet demand for treatment.**

3. **That the Governments of Australia and New Zealand identify opportunities at a local health district level to ensure that all pregnant women receive screening for alcohol use, together with education, brief intervention and continued monitoring where appropriate.**

4. **That the Governments of Australia and New Zealand invest in research to develop and implement treatment services using new technologies for interventions for alcohol disorders and related comorbidities.**

10. Strengthening data collection and evidence

Alcohol-related data should be sufficiently specific, reliable and valid to allow adequate judgement of the effectiveness of policy and population-level interventions.[301] There is a real lack of such data and a greater focus is needed to drive a systematic and consistent collection of alcohol-related data covering not only alcohol sales but also hospital presentations and admissions, and alcohol-related crime data. To achieve these objectives, improved infrastructure and data collection systems are needed.

As a start, detailed and localised data regarding the volume of alcohol sales is fundamental because of the strong relationship between per capita consumption and alcohol-related harms, such as traffic accidents, illnesses and assaults. Detailed alcohol sales data which allow policymakers to estimate how much alcohol is consumed per capita within a particular region or community is crucial for:

- Identifying emerging trends in use and harms to support intelligence-led policing and health service delivery
- Assisting authorities to identify 'hot-spot' communities and regions where alcohol consumption is associated with high levels of harm, which may require proactive intervention to address
- Gauging potential impacts of new liquor licences and changes to existing licences in local areas, thereby providing evidence to support licensing decision-making processes
- Assisting prosecutions against problematic or unlawful licensees and venue operators where necessary
- Facilitating the evaluation and monitoring of policy changes and interventions.

Regularly collected alcohol sales data provides for a more reliable, independent and objective measure of consumption than survey data or other administrative datasets employed for other purposes, such as hospital, police or survey data which may be affected by internal processes that differ by region or over time.

Current data on alcohol use in Australia comes from national estimates of per capita consumption by the Australian Bureau of Statistics (ABS) based primarily on data from the tax system and survey-derived estimates of alcohol consumption which have been periodically collected by the Australian Institute of Health and Welfare (AIHW). Similarly, data on alcohol use in New Zealand comes from a combination of sales data and periodic national surveys. As noted, alcohol consumption data based on sales is more reliable than data from surveys. There is a deficiency in the current data collection system in Australia, as the ABS only collects national data using tax information and does not break it down by state and territory or local government area. ABS estimates were complemented by state and territory alcohol sales data collected by liquor licensing authorities until 1996, when the High Court ruled that liquor licensing fees and levies were illegal under the terms of the Australian Constitution. While this ruling did not preclude the collection of wholesale alcohol purchase data, it removed the incentive for the continued collection of such data. Similarly, a breakdown of the New Zealand national-level alcohol use data into data at the local community level would further assist the formulation and assessment of evidence- and needs-based policy to reduce alcohol-related harms.

The federally funded National Alcohol Sales Data Project (NASDP) introduced recently in Australia aims to remedy this deficiency in alcohol sales data through an ongoing, regularly updated national database of standardised alcohol sales data. So far, however, only Queensland, Western Australia, the Northern Territory and the Australian Capital Territory have signed up to this project. Some recent progress has also been made in Victoria with the amendment of the liquor control legislation to require Victorian alcohol wholesalers to report their wholesale liquor supply information to government. Participation by all states and territories in the NASDP is needed to ensure we collect nationally consistent data on alcohol consumption, which can then be disaggregated and compared and made publicly available. This would put Australia on a par with other developed economies, for example Canada, which already mandate the collection of such data.

Further alcohol-related data could be collected by amending the liquor licensing legislation in each jurisdiction to mandate collection and public reporting not only of alcohol sales data (in local and regional areas) but also data on licensees' occupancy, trading hours and compliance with the liquor laws.

There are also major inconsistencies across jurisdictions in other areas of data collection, particularly regarding data to assess where alcohol has played a role in causing harm. For instance, alcohol-related violence data is collected and reported on quarterly by the New South Wales Bureau of Crime Statistics and Research (BOCSAR), while in Queensland this data is not reported on. However, the most compelling need in this area is for data on alcohol-related presentations to emergency departments and hospital admissions, and also on alcohol-related family violence. This could be facilitated by making the data collected by hospitals publicly available and making mandatory the collection of more alcohol-related items. New Zealand is slightly more advanced than Australia on this as the New Zealand Government is piloting the collection of alcohol-related presentation data at 10 emergency departments from July 2015, with the intent to introduce mandatory collection from 2016.

Recommendations

1. **That nationally consistent data collection that is timely and complete on alcohol sales be implemented in Australia which can be disaggregated and compared at the state and territory level.**

2. **That Liquor Acts in each Australian jurisdiction be amended to include mandatory collection and public reporting of alcohol sales data and data on liquor licensees' occupancy, trading hours and compliance with the liquor legislation.**

3. **That infrastructure and data collection systems be put in place for alcohol-related medical consultations, emergency department presentations and hospital admissions, and for other key issues such as family violence.**

4. **That a system for ongoing monitoring of alcohol-related harm, including harm to others, be introduced, especially within the hospital sector.**

11. Bringing it all together: A comprehensive policy approach to reduce alcohol-related harms

This document has covered the many different individual policies and interventions that can reduce alcohol-related harms. It is argued that the most effective of these are policies which address the drivers of alcohol consumption such as pricing and taxation and access and availability. It has also discussed the great variation in policy responses to alcohol across the different jurisdictions. Unfortunately, what characterises most of these approaches is that the policies or programs have largely been implemented in an ad-hoc manner in response to different issues or interests at different times. There are very few instances where a comprehensive suite of policies and programs have been implemented in a coordinated fashion and none at a national level. A nationally coordinated approach remains the best level at which to implement a comprehensive and effective policy.

The ideal features of a comprehensive policy to reducing alcohol-related harms are:

- A strategic and coordinated approach to reducing alcohol harm, through prevention, early intervention, treatment, monitoring and evaluation
- Clear governance structures
- Evidence-based and cost-effective strategies at the population, community and individual level, with social marketing and education campaigns reinforcing these activities
- Clear targets, resourced and accompanied by an implementation plan developed in conjunction with key stakeholders (excluding the alcohol industry which clearly has competing interests).

The National Strategy for Alcohol is a potential institutional framework for undertaking a comprehensive policy approach in Australia. However, the related elements need refreshing and governments must renew their commitment. For instance, as noted in the introduction, the two major guidelines of importance for the management of alcohol consumption, the National Health and Medical Research Council (NHMRC)'s Australian Guidelines to Reduce Health Risks from Drinking Alcohol and the Australian Department of Health's Guidelines for the Treatment of Alcohol Problems have not been updated since 2009.

There have been some attempts to take a comprehensive policy approach at lower levels of government. Bearing in mind their limitations which, as the discussion below illustrates, arise primarily because they are initiatives at the sub-national levels of government, the lessons learnt from these programs could nonetheless provide a basis for future comprehensive policies. The experience with the Northern Territory's *Living With Alcohol* program is particularly notable because, at least for part of the life of this program, the Northern Territory had access to the full suite of policy instruments needed to put in place a comprehensive policy before constitutional limitations were imposed.

11.1 The Northern Territory's Living With Alcohol (LWA) program

The LWA program ran between 1992 and 2002 in the Northern Territory and was a whole-of-government approach to a comprehensive package of reforms specifically aiming to reduce alcohol consumption and related harms. It included:

- Measures to increase the price and reduce availability of alcohol
- A broad range of health promotion, community development and education strategies
- A range of media strategies aiming to change attitudes towards alcohol
- A range of harm-reduction measures
- Increased access to alcohol treatment programs.

The program was funded by a levy of 5 cents per standard drink on all alcoholic drinks of greater than 3 per cent strength with an extra levy of 35 cents per litre on cask wine.[302] This created a price differential between full strength and light beer, and created an important price signal on cheap cask wines, which were highly problematic at the time. The funds were directly hypothecated to the program, which ensured its funding base and built public support for the increased alcohol prices. Prior to 1997, there were no limitations on the ability of states and territories to levy separate alcohol taxes, thus providing the Northern Territory with the full suite of policy instruments needed to adopt a comprehensive policy approach. The program lost its dedicated funding base following a 1997 High Court decision which removed the ability of states and territories to levy separate alcohol taxes.[303] Subsequently the program lost momentum and ceased in 2002.

An evaluation to the end of 1996[304] showed a saving to the NT economy of $124.3 million and reductions in:

- Apparent per capita alcohol consumption of 22 per cent
- Alcohol-related road deaths (34.5 per cent) and hospitalisations (23.4 per cent)
- Deaths (19 per cent) and hospitalisations (2 per cent) from acute alcohol-related conditions other than road crashes (e.g. other injuries, alcohol withdrawal)
- Hospitalisations (66 per cent) for chronic alcohol-related conditions (e.g. dependence, cirrhosis, various cancers).

Benefits were apparent for both Aboriginal and Torres Strait Islander and non-Indigenous people. A subsequent evaluation to 2002 revealed a similar pattern of benefits sustained throughout the program.[305] However, these impacts have not been sustained since the program ended. The Northern Territory currently has the highest per capita consumption of alcohol in Australia.

11.2 Alcohol Management Plans

Alcohol Management Plans (AMPs) in Australia were briefly discussed in Chapter 4 which focused on restricting the physical availability of alcohol as supply restriction is a key measure of AMPs. However, AMPs typically rely on policy tools in addition to restrictions on the sale of alcohol. The comprehensive nature of AMPs has been recently codified with the passing of the *Stronger Futures in the Northern Territory Act 2012* (Cth), which established for the first time a role for the Australian Minister of Indigenous Affairs in approving or rejecting AMPs in the Northern Territory. Following this, five minimum standards were established to help communities and local governments develop AMPs. These standards focus on the need for consultation and engagement, management and governance structures, monitoring, reporting and evaluation, and geographical boundaries. The standards also suggest strategies for supply, demand and harm reduction – in other words, all the elements of a comprehensive policy approach.

A recent review of studies of the effectiveness of AMPs concluded that, while the evidence was still limited, where AMPs were locally driven and owned, there were stronger and more sustainable outcomes. The weaknesses of AMPs were most evident where their coverage had been narrowed to cover primarily supply issues without complementary demand and harm-reduction measures and where there had been a lack of clarity in the roles and responsibilities of communities and governments, and lack of support in nurturing local community leadership.[306]

Effective AMPs are not programs that simply restrict the sale of alcohol. Successful AMPs have been observed in Aboriginal and Torres Strait Islander communities where they have been voluntarily introduced, driven and led by the communities and Aboriginal and Torres Strait Islander agencies, comprehensive (i.e. including a range of activities and resources to support individuals and communities in making changes and building community capacity), and fully implemented.

11.3 Aboriginal, Torres Strait Islander and Māori communities: Are additional considerations required?

The experience from the *Living With Alcohol* program clearly demonstrates that comprehensive alcohol policies are equally effective whether targeted towards Aboriginal and Torres Strait Islander people or non-Indigenous people. This reflects the findings from other studies.

As a general principle, alcohol policies should be non-discriminatory. Discriminatory approaches – unless they are specifically requested, developed and led by the community and community leaders – can exacerbate existing levels of disempowerment and stress, themselves risk factors for harmful drinking.[307]

Social and economic disadvantage has been found to increase the risk of dependence on substances such as alcohol.[308] The considerable inequities and disadvantage experienced by Aboriginal and Torres Strait Islander and Māori peoples have been recognised as contributing significantly to their harmful use of alcohol.[309]

Because of this, and the significant evidence that addressing the social determinants of health can reduce vulnerability to substance abuse in later life,[310] there is a compelling need for these factors to be addressed when developing effective alcohol policies for Indigenous people.

11.4 Comprehensive alcohol policy trials in the US

A five-year community alcohol trauma prevention trial was conducted in the US from 1992 to 1996 involving three matched intervention communities – one in Northern California, one in Southern California and one in South Carolina. There were five prevention components at each intervention site:

- Mobilising the community to raise awareness of alcohol-related problems
- Encouraging responsible beverage service
- Reducing underage drinking by limiting young people's access to alcohol
- Increasing local enforcement of drink-driving laws
- Limiting access to alcohol by using zoning laws.

Population surveys in the intervention sites found that this comprehensive intervention strategy had significant impacts in reducing the incidence of harmful drinking and alcohol-related injuries caused by traffic accidents and assaults, relative to comparison communities lacking these interventions. In particular:

- The self-reported rate of 'having had too much to drink' fell by almost half.
- Self-reported driving when 'over the legal limit' was 51 per cent lower.
- Night-time road traffic accidents fell by 10 per cent and accidents in which the driver had been drinking fell by 6 per cent.
- Assault injuries observed in emergency departments fell by 43 per cent.

11.5 Conclusions

A comprehensive approach to developing and implementing policies and strategies for reducing alcohol-related harm in Australia and New Zealand should be adopted as this would enable the multiple elements of the situation to be addressed and also allow for important synergies of cost and effect.

The experience of the LWA program in the NT demonstrates the potential strengths of a comprehensive approach, as do the results of the comprehensive intervention trials conducted in the US in the 1990s.

The respective experiences of the LWA, AMPs and comprehensive alcohol policy trials in the US suggest that it is possible to achieve significant reductions in alcohol consumption and alcohol-related harms. They also indicate that a whole-of-government approach is most effective. The implications are, for instance, that measures at the community or local government level could be enhanced considerably by complementary state-wide licensing measures and federally implemented pricing measures.

Recommendations

1. **That comprehensive policies be introduced in Australia and New Zealand that meaningfully address alcohol-related harms, taking a holistic approach to the issue including appropriately addressing alcohol pricing, marketing and promotion, supply, and access to a suitable range of treatment options. This would involve the inclusion of both federal and state/territory level initiatives within any National Strategy for Alcohol.**

2. **That the Commonwealth Department of Health undertake a revision of the Australian Guidelines to Reduce Health Risks from Drinking Alcohol and the Guidelines for the Treatment of Alcohol Problems, both of which have not been revised since 2009.**

3. **That further evaluation frameworks be formulated and implemented to measure and report on the effectiveness of plans and interventions, to ensure continuous quality improvement (CQI) in policy development in this area.**

4. **That further evaluation frameworks be formulated and implemented to determine the effectiveness of plans and interventions to inform comprehensive approaches to reduce alcohol-related harms in Australia and New Zealand.**

References

[1] World Health Organization. Alcohol. Fact sheet; 2015, http://www.who.int/mediacentre/factsheets/fs349/en/.

[2] Babor TF et al. Alcohol: no ordinary commodity – Research and Public Policy. 2nd edn. Oxford: Oxford University Press; 2010.

[3] Ministerial Council on Drug Strategy. Alcohol in Australia: issues and strategies; 2001.

[4] Daube M. Alcohol's evaporating health benefits. BMJ 2015;350:h407.

[5] Australian Bureau of Statistics. Apparent consumption of alcohol, Australia, 2013–14. Cat. no. 4307.0.55.001; 2015.

[6] Statistics New Zealand. Alcohol available for consumption: year ended December 2014. Wellington: Statistics New Zealand; 2015.

[7] Ministry of Health. Alcohol use 2012/13: New Zealand Health Survey. Wellington: Ministry of Health; 2015.

[8] Ministry of Health. Alcohol use 2012/13: New Zealand Health Survey. Wellington: Ministry of Health; 2015.

[9] Australian Institute of Health and Welfare. 2013 National Drug Strategy Household Survey report. Drug statistics series no. 28. Cat. no. PHE 183. Canberra: AIHW; 2014.

[10] Ministry of Health. New Zealand Health Survey: annual update of key findings 2012/13. Wellington: Ministry of Health; 2013, pp. 1–61.

[11] Brown S, Tapert S. Adolescence and the trajectory of alcohol use: basic to clinical studies', *Ann N Y Acad Sci*. 2004 Jun;1021:234–244.

[12] Australian Institute of Health and Welfare. National Drug Strategy Household Survey 2013. Drug statistics series no. 28. Cat. no. PHE 183. Canberra: AIHW; 2014.

[13] Australian Institute of Health and Welfare. National Drug Strategy Household Survey 2013. Drug statistics series no. 28. Cat. no. PHE 183. Canberra: AIHW; 2014.

[14] World Health Organization. Global health risks: mortality and burden of disease attributable to selected major risks; 2009, p. 12.

[15] World Health Organization. Global health risks: mortality and burden of disease attributable to selected major risks; 2009, p. 50, table A3.

[16] World Health Organization. Global health risks: mortality and burden of disease attributable to selected major risks; 2009, p. 12, table 2.

[17] Connor J, Kydd R, Sheild K, Rehm J. The burden of disease and injury attributable to alcohol in New Zealanders under 80 years of age: marked disparities by ethnicity and sex. NZMJ 2015 Feb;128(1409):20. https://www.nzma.org.nz/journal/read-the-journal/all-issues/2010-2019/2015/vol-128-no-1409/6435.

[18] Ministry of Health. Health loss in New Zealand: a report from the New Zealand Burden of Diseases, Injuries and Risk Factors Study, 2006–2016. Wellington: Ministry of Health; 2013.

[19] *Begg S et al. The burden of disease and injury in Australia 2003. Canberra: AIHW; 2007, p. 5.*

[20] Ministry of Health. Health loss in New Zealand: a report from the New Zealand Burden of Diseases, Injuries and Risk Factors Study, 2006–2016. Wellington: Ministry of Health; 2013, p. 36.

[21] Laslett A-M et al. The range and magnitude of alcohol's harm to others. Fitzroy, Victoria: AER Centre for Alcohol Policy Research and Turning Point Alcohol and Drug Centre, Eastern Health; 2010.

[22] Australian National Council on Drugs. Alcohol action plan; 2013.

[23] Vos T, Barker B, Stanley L, Lopez A, Burden of disease and injury in Aboriginal and Torres Strait Islander peoples 2003. Brisbane: Centre for Burden of Disease and Cost-Effectiveness, School of Population Health, University of Queensland; 2007.

[24] Ministry of Health. Health loss in New Zealand: a report from the New Zealand Burden of Diseases, Injuries and Risk Factors Study, 2006–2016. Wellington: Ministry of Health; 2013, p. 37.

[25] Ministry of Health. Health loss in New Zealand: a report from the New Zealand Burden of Diseases, Injuries and Risk Factors Study, 2006–2016. Wellington: Ministry of Health; 2013, p. 37.

[26] Gao C, Ogeil RP, Lloyd B. Alcohol's burden of disease in Australia. Canberra: FARE and VicHealth in collaboration with Turning Point; 2014.

[27] Pascal R, Chikritzhs P, Jones T. Trends in estimated alcohol-attributable deaths and hospitalisations in Australia, 1996–2005. National Alcohol Indicators. Bulletin no. 12. Perth: National Drug Research Institute, Curtin University of Technology; 2009.

[28] Egerton-Warburton et al. Survey of alcohol-related presentations to Australasian emergency departments. Med J Aust 2014;201(10):584–587.

[29] Australian Institute of Health and Welfare. Alcohol and other drug treatment services in Australia 2012–13. Drug treatment series 24. Cat. no. HSE 150. Canberra: AIHW; 2014.

[30] Brown S, Tapert S. Adolescence and the trajectory of alcohol use: basic to clinical studies. Annals NY Acad Sci 2004;1021:234–244.

[31] Nunes EV, Levin FR. Treatment of depression in patients with alcohol or other drug dependence: a meta-analysis. JAMA 2004;291(15):1887–1896; Clark DB et al. Physical and sexual abuse, depression and alcohol use disorders in adolescents: onsets and outcomes. Drug Alcohol Depend 2003;69(1):51–60; Currie SR et al. Comorbidity of major depression with substance use disorders. Can J Psychiatry 2005;50(10):660–666.

[32] Kessler RC et al. Lifetime co-occurrence of DSM-III-R alcohol abuse and dependence with other psychiatric disorders in the National Comorbidity Study. Arch Gen Psych 1997;54:313–321.

[33] Sher L. Alcoholism and suicidal behaviour: a clinical overview. Acta Psychiatrica Scandanavia 2006;113:13–22.

[34] Estimated by Laslett A et al. The range and magnitude of alcohol's harm to others. AER Centre for Alcohol Policy Research, Turning Point Alcohol and Drug Centre, Eastern Health; 2010. Based on police records of assaults collated for 2005 from Western Australia and New South Wales.

[35] Based on secondary survey data collected and estimated by Laslett A et al. The range and magnitude of alcohol's harm to others. AER Centre for Alcohol Policy Research, Turning Point Alcohol and Drug Centre, Eastern Health; 2010. Based on police records of assaults collated for 2005 from Western Australia and New South Wales.

[36] Australian Transport Council. National Road Safety Strategy 2011–2020: p. 25, table 4.

[37] Transport Accident Commission. Drink driving statistics. Melbourne: Transport Accident Commission; 2008.

[38] Northern Territory of Australia. Department of Infrastructure, Planning & Environment. Northern Territory Road Safety Strategy 2004–2010.

[39] Australian Bureau of Statistics 8501.0 - Retail Trade, Australia, Jul 2015 .

[40] Estimated by New Zealand Law Commission's 2010 final report, 'Alcohol in our lives: curbing the harm', using Statistics New Zealand Retail Sales (Actual) by Industry.

[41] Collins D, Lapsley H. The avoidable costs of alcohol abuse in Australia and the potential benefits of effective policies to reduce the social costs of alcohol. DoHA Monograph Series No. 70; 2008, p. ix.

[42] This estimate combines Collins D, Lapsley H 2008. The costs of tobacco, alcohol and illicit drug abuse to Australian society in 2004–2005. Canberra: Commonwealth of Australia; and Laslett A-M et al. 2010. The range and magnitude of alcohol's harm to others. Melbourne: AER Centre for Alcohol Policy Research and Turning Point Alcohol and Drug Centre, Eastern Health. Note however, that it may involve an element of double counting.

[43] Australian Government. The Treasury. Tax white paper; 2015, p. 160.

[44] BERL Economics. Costs of harmful alcohol and other drug use. Report to NZ Ministry of Health and Accident Compensation Commission; 2009.

[45] Nutt D et al. Drug harms in the UK: a multicriteria decision analysis. Lancet 2010;376(9752):1558–1565.

[46] Connor J, Casswell S. Alcohol-related harm to others in New Zealand: evidence of the burden and gaps in knowledge. NZMJ 2012;125(1360):11–27.

[47] Laslett A et al. The range and magnitude of alcohol's harm to others. Fitzroy, Victoria: AER Centre for Alcohol Policy Research, Turning Point Alcohol and Drug Centre, Eastern Health; 2010.

[48] Laslett A et al. The range and magnitude of alcohol's harm to others. Fitzroy, Victoria: AER Centre for Alcohol Policy Research, Turning Point Alcohol and Drug Centre, Eastern Health; 2010.

[49] Laslett A et al. The range and magnitude of alcohol's harm to others. Fitzroy, Victoria: AER Centre for Alcohol Policy Research, Turning Point Alcohol and Drug Centre, Eastern Health; 2010, tables 3.1 to 3.4.

[50] Laslett A et al. The range and magnitude of alcohol's harm to others. Fitzroy, Victoria: AER Centre for Alcohol Policy Research, Turning Point Alcohol and Drug Centre, Eastern Health; 2010, p. 29.

[51] Laslett A et al. The range and magnitude of alcohol's harm to others. Fitzroy, Victoria: AER Centre for Alcohol Policy Research, Turning Point Alcohol and Drug Centre, Eastern Health; 2010, tables 3.5 to 3.7.

[52] Babor TF et al. Alcohol: no ordinary commodity – Research and Public Policy. 2nd edn. Oxford: Oxford University Press; 2010, p. 46.

[53] Australian Bureau of Statistics. Personal Safety, Australia 2012. Cat. no. 4906.0; 2013.

[54] Australian Institute of Health and Welfare, 2010 National Drug Strategy Household Survey. Drug Statistics Series no. 25; Canberra: AIHW; 2011.

[55] Laslett A et al. The range and magnitude of alcohol's harm to others. Fitzroy, Victoria: AER Centre for Alcohol Policy Research, Turning Point Alcohol and Drug Centre, Eastern Health; 2010, p. 63.

[56] Laslett A et al. The range and magnitude of alcohol's harm to others. Fitzroy, Victoria: AER Centre for Alcohol Policy Research, Turning Point Alcohol and Drug Centre, Eastern Health; 2010, p. 73.

[57] Laslett A et al. The range and magnitude of alcohol's harm to others. Fitzroy, Victoria: AER Centre for Alcohol Policy Research, Turning Point Alcohol and Drug Centre, Eastern Health; 2010, table 6.11.

[58] New Zealand Police. National Alcohol Assessment. Wellington; 2009.

[59] SCRGSP (Steering Committee for the Review of Government Service Provision). Overcoming Indigenous disadvantage: key indicators 2005. Canberra: Productivity Commission; 2005. http://www.pc.gov.au/research/ongoing/overcoming-indigenous-disadvantage/keyindicators2005/keyindicators2005.pdf.

[60] Laslett A et al. *The range and magnitude of alcohol's harm to others*. Fitzroy, Victoria: AER Centre for Alcohol Policy Research, Turning Point Alcohol and Drug Centre, Eastern Health; 2010, table 7.14.

[61] Laslett AM, Mugavin J, Jiang H, Manton E, Callinan S, MacLean S, Room R. The hidden harm: alcohol's impact on children and families. Canberra: Foundation for Alcohol Research and Education; 2015.

[62] Laslett AM, Mugavin J, Jiang H, Manton E, Callinan S, MacLean S, Room R. The hidden harm: alcohol's impact on children and families. Canberra: Foundation for Alcohol Research and Education; 2015, tables 3.5 and 8.9.

[63] Laslett AM, Mugavin J, Jiang H, Manton E, Callinan S, MacLean S, Room R. The hidden harm: alcohol's impact on children and families. Canberra: Foundation for Alcohol Research and Education; 2015, p. 143.

[64] Laslett AM, Mugavin J, Jiang H, Manton E, Callinan S, MacLean S, Room R. The hidden harm: alcohol's impact on children and families. Canberra: Foundation for Alcohol Research and Education; 2015, p. 178.

[65] Laslett A et al. The range and magnitude of alcohol's harm to others. Fitzroy, Victoria: AER Centre for Alcohol Policy Research, Turning Point Alcohol and Drug Centre, Eastern Health; 2010.

[66] Collins DJ, Lapsley HM. The costs of tobacco, alcohol and illicit drug abuse to Australian society in 2004/2005. National Drug Strategy Monograph series no. 66. Canberra: Commonwealth Department of Health and Ageing; 2008.

[67] This is a technical term which refers to the opportunity cost of alcohol consumption by 'addicted' drinkers. .

[68] Laslett A, Callinan S, Mugavin J, Jiang H, Livingston M, Room R. Beyond the drinker: longitudinal patterns in alcohol's harm to others. Canberra: Foundation for Alcohol Research and Education; 2015.

[69] Anderson P, Baumberg B 2006. Alcohol in Europe: a public health perspective. Report prepared for the European Commission. London: Institute for Alcohol Studies; Babor et al 2010. Alcohol: no ordinary commodity – Research and Public Policy, 2nd edn. Oxford: Oxford University Press;

Cook PJ, Ostermann J, Sloan FA 2005, Are alcohol excise taxes good for us? Short- and long-term effects on mortality rates. Working Paper No. 11138. Cambridge MA: National Bureau of Economic Research; Grossman M et al. Effects of alcohol price policy on youth: a summary of economic research. J. Res. Adolesc 1994;4(2):347–364; Wagenaar AC, Salois MJ, Komro KA. Effects of beverage alcohol price and tax levels on drinking: a meta-analysis of 1003 estimates from 112 studies. Addiction 1994;104(2):179–190.

[70] Babor TF et al. Alcohol: no ordinary commodity – Research and Public Policy. 2nd edn. Oxford: Oxford University Press; 2010. For New Zealand evidence see Casswell S, Huckle T, Wall M, Yeh LC. International Alcohol Control Study: pricing data and hours of purchase predict heavier drinking. Alcohol. Clin. Exp. Res 2014 May;38(5):1425–1431. DOI: 10.1111/acer.12359.

[71] Chaloupka FJ, Grossman M, Saffer H. The effects of price on alcohol consumption and alcohol-related problems. Alcohol Research and Health 2002;26(1):22–34.

[72] See Wagenaar AC, Salois MJ, Komro KA. Effects of beverage alcohol price and tax levels on drinking: a meta-analysis of 1003 estimates from 112 studies. Addiction 2009;104(2):179–190, which reviewed 1003 estimates from 112 studies and found that on average a 10 per cent increase in the retail price of alcohol reduced consumption by 4.4 per cent. See also Fogarty J. The nature of the demand for alcohol: understanding elasticity. British Food Journal 2006;108(4):316–332; and Gallet CA. The demand for alcohol: a meta-analysis of elasticities. Australian Journal of Agricultural and Resource Economics 2007;51(2):121–135.

[73] Wagenaar AC, Livingston MD, Staras SS. Effects of a 2009 Illinois alcohol tax increase on fatal motor vehicle crashes, Am J Public Health 2015 Mar;19:e1-e6.

[74] Herttua K, Mäkelä P, Martikainen P. The effects of a large reduction in alcohol prices on hospitalizations related to alcohol: a population-based natural experiment. Addiction 2011 Apr;106(4):759–767. doi: 10.1111/j.1360-0443.2010.03296.x. Epub 2011 Feb 14.

[75] Skov S et al. Is the alcopops tax working? Probably yes but there is a bigger picture. *MJA* 2011 July;195(2):84–86.

[76] Gale M et al. Alcopops, taxation and harm: a segmented time series analysis of emergency department presentations. BMC Public Health 2015;15:468.

[77] Saar I. Do alcohol excise taxes affect traffic accidents? Evidence from Estonia. Traffic Inj Prev. 2015;16:213–218. doi: 10.1080/15389588.2014.933817. Epub 2014 Nov 14.

[78] Chikritzhs T et al. The public health, safety and economic benefits of the Northern Territory's Living With Alcohol Program 1992/2 to 1995/6. NDRI Monograph No. 2. Perth: National Drug Research Institute, Curtin University of Technology; 1999.

[79] Australian Government. The Treasury. Tax white paper 2015, p. 160.

[80] These reviews are: 1995 Committee of Inquiry into the Wine Grape and Wine Industry; 2003 House of Representatives Standing Committee on Family and Community Affairs Inquiry into Substance Abuse; 2006 Victorian Inquiry into Strategies to Reduce Harmful Alcohol Consumption; 2009 Australia's Future Tax System (Henry Review); 2009 National Preventative Health Taskforce Report on Preventing Alcohol Related Harms; 2010 Victorian Inquiry into Strategies to Reduce Assaults in Public Places; 2011 WA Education and Health Standing Committee Inquiry Into Alcohol; 2012 Australian National Preventive Health Agency (ANPHA), Exploring the Public Interest Case for a Minimum (Floor) Price for Alcohol, Draft Report; and the 2012 ANPHA Exploring the Public Interest Case for a Minimum (Floor) Price for Alcohol, Final Report.

[81] Doran C. et al. Estimated impacts of alternative Australian alcohol taxation structures on consumption, public health and government revenues. Med J Aust 2013;199(9):619–622.

[82] Byrnes JM et al. Cost-effectiveness of volumetric alcohol taxation in Australia. Med J Aust 2010;192 (8):439–443. See also Doran C et al. Estimated impacts of alternative Australian alcohol taxation structures on consumption, public health and government revenues. Med J Aust 2013;199(9):619–622, which evaluates the cost-effectiveness of four options for reforming alcohol taxation, one of which involves replacing the Wine Equalisation Tax (WET) with a volumetric tax and another which involves the introduction of a two-tiered volumetric tax.

[83] Doetinchem O. Hypothecation of tax revenue for health. World Health Report. Background Paper No. 51. Geneva: World Health Organization; 2010.

[84] Kerr W, Greenfield T. Distribution of alcohol consumption and expenditures and the impact of improved measurement on coverage of alcohol sales in the 2000 National Alcohol Survey. Alcohol Clin Exp Res 2007;31:1714–1722; Meir P, Purshouse R, Brennan A. Policy options for alcohol price regulation: the importance of modelling population heterogeneity. Addiction 2010;105:383–393; and Record C, Day C. Britain's alcohol market: how minimum alcohol prices could stop moderate drinkers subsidising those drinking at hazardous and harmful levels. Clinical Medicine 2009;9:5:421–425.

[85] Stockwell T, Auld MC, Zhao Z, Martin G. Does minimum pricing reduce alcohol consumption? The experience of a Canadian province. Addiction 2012;107(5):912–920.

[86] Zhao J et al. The relationship between minimum alcohol prices, outlet densities and alcohol-attributable deaths in British Columbia, 2002–09. Addiction 2013 Jun;108(6):1059–1069. doi: 10.1111/add.12139. Epub 2013 Mar 21. Indirect evidence is also available from a study of Scotland's recent legislation which prohibits pricing promotions for alcoholic products. The legislation led to a 4 per cent decrease in wine sales and an 8.5 per cent drop in sales of pre-mixers compared to England and Wales where the legislation did not apply. See NHS Health Scotland 2013. Monitoring and evaluating Scotland's Alcohol Strategy: the impact of the Alcohol Act on off-trade alcohol sales in Scotland.

[87] Holmes J et al. Effects of minimum unit pricing for alcohol on different income and socioeconomic groups: a modelling study. Lancet; 10 February 2014. http://dx.doi.org/10.1016/S0140-6736(13)62417-4.

[88] Holmes J et al. Effects of minimum unit pricing for alcohol on different income and socioeconomic groups: a modelling study. Lancet; 10 February 2014. http://dx.doi.org/10.1016/S0140-6736(13)62417-4

[89] Chikritzhs T, Stockwell T. The impact of later trading hours for hotels on levels of impaired driver road crashes and driver breath alcohol levels. Addiction 2006;101(9):1254–1264.

[90] Australian Medical Association (NSW), NSW Nurses' Association, Health Services Union and Police Association of NSW. Last drinks: a coalition of concerned emergency services workers; 2010.

[91] Rossow I, Norström T. The impact of small changes in bar closing hours on violence: the Norwegian experience from 18 cities. Addiction 2011;107(3):530–537.

[92] Moffatt S, Weatherburn D. Trends in assaults after midnight. NSW Bureau of Crime Statistics and Research, Crime and Justice Statistics. Issue paper no. 59; 2011.

[93] Moffatt S, Weatherburn D. Trends in assaults after midnight. NSW Bureau of Crime Statistics and Research, Crime and Justice Statistics. Issue paper no. 59; 2011.

[94] Rossow I, Norström T. The impact of small changes in bar closing hours on violence: the Norwegian experience from 18 cities. Addiction 2011;107:3:530–537. See more at: www.qcaa.org.au/trading-hours/#sthash.ZcMU65dT.dpuf.

[95] Casswell S, Huckle T, Wall M, Yeh LC. International Alcohol Control Study: pricing data and hours of purchase predict heavier drinking. Alcohol Clin Exp Res. 2014 May;38(5):1425–1431.

[96] Hunter New England Local Health District. Presentation slides: Newcastle Intervention; 2011. http://lastdrinks.org.au/wp-content/uploads/2012/07/New-Institute-June-2012_Newcastle-Interventiongipa1.pdf.

[97] Jones, C Kypri K, Moffatt S, Borzycki C, Price B. The impact of restricted alcohol availability on alcohol-related violence in Newcastle, NSW. Crime and Justice Bulletin. No. 137; 2009.

[98] Kypri K, McElduff P, Miller P. Restrictions in pub closing times and lockouts in Newcastle, Australia 5 years on. Drug Alcohol Rev 2014 May;33(3):323–326.

[99] Stockwell T, Gruenewald P. Controls on physical availability of alcohol. In N Heather, T Stockwell (eds). The essential handbook of treatment and prevention of alcohol problems. Chichester, UK: Wiley and Sons; 2003.

[100] Miller P, Coomber K, Sønderlund A, McKenzie S. The long-term effect of lockouts on alcohol-related emergency department attendances within Ballarat, Australia. Drug Alcohol Rev. 2012;31:370–376.

[101] Menéndez P, Weatherburn D, Kypri K, Fitzgerald J. Lockouts and last drinks: the impact of the January 2014 liquor licence reforms on assaults in NSW, Australia. Crime and Justice Bulletin. No. 83; April 2015. Note that the research does not distinguish between the impacts of earlier closing times and impacts of earlier lockout times and so does not necessarily contradict the findings of the Ballarat research on lockout times.

[102] FARE. Submission to the Competition Policy Review Draft Report. November 2014; p. 8.

[103] Campbell CA et al. The effectiveness of limiting alcohol outlet density as a means of reducing excessive alcohol consumption and alcohol-related harms. *Am J Prev Med* 2009;37(6):556–569.

[104] Livingston AM, Laslett AM, Dietze P. Individual and community correlates of young people's high-risk drinking in Victoria, Australia. Drug Alcohol Depend. 2008 Dec;98(3):241–248; McKetin R, Livingston M, Chalmers J, Bright D. The role of off-licence outlets in binge drinking: a survey of drinking practices last Saturday night among young adults in Australia. Drug and Alcohol Review 2014;33(1):51–58. http://dx.doi.org/10.1111/dar.12073; Rowland B et al. Associations between alcohol outlet densities and adolescent alcohol consumption: a study in Australian students. Addictive Behaviors 2014;39(1):282–288. http://dx.doi.org/10.1016/j.addbeh.2013.10.001.

[105] Huckle T et al. Density of alcohol outlets and teenage drinking: living in an alcogenic environment is associated with higher consumption in a metropolitan setting. Addiction 2008 Oct;103(10):1614–1621.

[106] Rowland B, Toumbourou JW, Livingston M. The association of alcohol outlet density with illegal underage adolescent purchasing of alcohol. Journal of Adolescent Health 2015;56(2):146–152. http://dx.doi.org/10.1016/j.jadohealth.2014.08.005.

[107] Rowland B, Toumbourou JW, Satyen L, Livingston M, Williams J. The relationship between the density of alcohol outlets and parental supply of alcohol to adolescents. Addictive Behaviors 2014;39(12):1898–1903. http://dx.doi.org/10.1016/j.addbeh.2014.07.025.

[108] Donnelley N et al. Liquor outlet concentrations and alcohol-related neighbourhood problems. Sydney: Bureau of Crime Statistics and Research, Sydney; 2006.

[109] Chikritzhs P, Catalano P, Pascal R, Henrickson N. Predicting alcohol-related harms from licensed density: a feasibility study. Hobart: National Drug Law Enforcement Research Fund: 2007, pp. x–xv.

[110] Gruenewald P. Ecological models of alcohol outlets and violent assaults: crime potentials and geospatial analysis. Addiction 2006;101(5):666–677.

[111] Euromonitor International 2012. Cited in Victorian Health Promotion Foundation. The social harms associated with the sale and supply of packaged liquor in Victoria. VicHealth and Turning Point: Drug & Alcohol Centre; 2013.

[112] New Zealand Law Commission. Alcohol in our lives: curbing the harm. Final report; 2010.

[113] Cameron M et al. The impacts of liquor outlets in Manukai City. Research Report No. 3. Wellington: Alcohol Advisory Council of New Zealand.

[114] Livingston M. A longitudinal analysis of alcohol outlet density and assault. Alcoholism: Clinical & Experimental Research 2008;32(6):1074–1079.

[115] Connor JL, Kypri K, Bell ML, Cousins K. Alcohol outlet density, levels of drinking and alcohol-related harm in New Zealand: a national study. Journal of Epidemiology and Community 2011;65(10): 841–846.

[116] Hadfield P, Measham F. A review of nightlife and crime in England and Wales. In P Hadfield (ed.). Nightlife and crime: social order and governance in international perspective. New York: Oxford University Press; 2009.

[117] Code de La Sante Publique Article L3335-1 and L3335-2.

[118] Reviews are generally confidential – this was reported in National Drug Research Institute, Restrictions on the sale and supply of alcohol: evidence and outcomes, Perth: National Drug Research Institute, Curtin University of Technology; 2007, p. 78.

[119] Kinnane S, Farringdon F, Henderson-Yates L, Parker H. Fitzroy Valley Alcohol Restriction Report: An evaluation of the effects of a restriction on take-away alcohol relating to measurable health and social outcomes, community perceptions and behaviours after a two year period. Perth: Drug and Alcohol Office; 2010.

[120] d'Abbs P, Smith J, Hollins J. Evaluation of Mt Isa liquor restrictions. Queensland Health and Mount Isa Centre for Rural and Remote Health, James Cook University; 2003.

[121] For instance, the restrictions imposed on Groote Eylandt and Bickerton Islands in the Northern Territory – see Conigrave K et al. An evaluation of the Groote Eylandt and Milyakburra Island Alcohol Management System. A report produced for the Department of Justice, Northern Territory Government; 2007.

[122] Shakeshaft A et al. The effectiveness of community action in reducing risky alcohol consumption and harm: a cluster randomised controlled trial. PLoS Med 2014;11(3):e1001617. doi:10.1371/journal.pmed.1001617

[123] FARE. Annual alcohol poll: attitudes and behaviours; 2013.

[124] National Preventative Health Taskforce. Australia: the healthiest country by 2020. National Preventative Health Strategy – the roadmap for action. Australian Government; 2009.

[125] Australian Medical Association. Alcohol marketing and young people: time for a new policy agenda. Canberra: AMA; 2012.

[126] Pettigrew S et al. The extent and nature of alcohol advertising on Australian television. Drug Alcohol Rev. 2012;31(6):797–802.

[127] Lee J. Alcohol empire strikes back. Sydney Morning Herald (online); 15 March 2008.

[128] ASC submission to Senate Inquiry into the Alcohol Toll Reduction Bill 2007. http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Community_Affairs/Completed_inquiries/2008-10/alcohol_reduction/submissions/sublist.

[129] FARE. Annual alcohol poll 2012. http://www.fare.org.au/research-development/community-polling/annual-alcoholpoll-2012/alcohol-advertising/; accessed 25 November 2013.

[130] Australian Medical Association. Alcohol marketing and young people: time for a new policy agenda. Canberra: AMA; 2012.

[131] Carah N. Like, Comment, Share: Alcohol brand activity on Facebook'. Canberra: FARE; 2014.

[132] Online Circle. Australian Facebook performance report; June 2013. http://theonlinecircle.com/australian-facebookperformance-report-june-2013/; accessed 25 November 2013.

[133] Weaver E, Horyniak D, Jenkinson R, Dietze P, Lim M. Let's get Wasted! and other Apps: characteristics, acceptability, and use of alcohol-related Smartphone applications. Journal of Medical Internet Research 2013;1(1):e9. doi:10.2196/mhealth.2709.

[134] New Zealand Law Commission. Alcohol in our lives: curbing the harm. A report on the review of the regulatory framework for the sale and supply of liquor; 2010.

[135] New Zealand Law Commission. Alcohol in our lives: curbing the harm. A report on the review of the regulatory framework for the sale and supply of liquor; 2010.

[136] Australian Communications and Media Authority. Television advertising to children: a review of contemporary research on the influence of television advertising directed to children; 2007.

[137] Smith L, Foxcroft D. The effect of alcohol advertising, marketing and portrayal on drinking behaviour in young people: systematic review of prospective cohort studies. BMC Public Health 2009; 9:51. doi:10.1186/1471-2458-9-51; Stacy A, Zogg J, Unger J, Dent C 2004. Exposure to televised alcohol ads and subsequent adolescent alcohol use. American Journal of Health Behavior 2004;28(6):498–509; Snyder L, Milici F, Slater M, Sun H, Strizhakova Y. Effects of alcohol advertising

exposure on drinking among youth, Arch Pediatr Adolesc Med. 2006;160(1):18–24; Ellickson P, Collins R, Hambarsoomians K, McCaffrey D. Does alcohol advertising promote adolescent drinking? Results from a longitudinal assessment. Addiction 2005:100(2):235–246.

[138] Meier P et al. Independent review of the effects of alcohol pricing and promotion. Part A: Systematic reviews. The University of Sheffield 2008; Babor TF et al. Alcohol: no ordinary commodity – Research and Public Policy. New York: World Health Organization and Oxford: Oxford University Press; 2003.

[139] Snyder L, Milici F, Slater M, Sun H, Strizhakova Y. Effects of alcohol advertising exposure on drinking among youth. Arch Pediatr Adolesc Med. 2006:160(1):18–24.

[140] Academy of Medical Sciences. Calling time: the nation's drinking as a major health issue. A report from the Academy of Medical Sciences. London; 2004.

[141] O'Brien KS, Carr S, Ferris J,et al. Alcohol advertising in sport and non-sport TV in Australia, during children's viewing times. PLoS ONE 2015;10(8): e0134889. doi:10.1371/journal.pone.0134889.

[142] Carr S, O'Brien K, Ferris J, et al. Child and adolescent exposure to alcohol advertising in Australia's major televised sports. Drug and Alcohol Review 2015: DOI: 10.1111/dar.12326.

[143] Winter M, Donovan R, Fielder L. Exposure of children and adolescents to alcohol advertising on television in Australia. Journal of Studies on Alcohol and Drugs 2008;69(5):676–683; Fielder L, Donovan RJ, Ouschan R. Exposure of children and adolescents to alcohol advertising on Australian metropolitan free-to-air television. Addiction 2009 Jul;104(7):1157–1165; Victorian Department of Human Services. Alcohol beverage advertising in mainstream Australian media 2005 to 2007: expenditure and exposure. Report commissioned by the Commonwealth Department of Health; 2009.

[144] Jones SC, Magee CA. Exposure to alcohol advertising and alcohol consumption among Australian adolescents. Alcohol and Alcoholism 2011:46(5):630–637.

[145] Pettigrew S et al. The extent and nature of alcohol advertising on Australian television. Drug Alcohol Rev. 2012;31(6):797–802.

[146] Jones S, Gordon R. Regulation of alcohol advertising: policy options for Australia. Evidence Base 2013;2:1–37; Smith LA, Foxcroft, DR. The effect of alcohol advertising, marketing and portrayal on drinking behaviour in young people: systematic review of prospective cohort studies. BMC Public Health 2009;9:51; Roche AM et al. Young people and alcohol: the role of cultural influences. Adelaide: National Centre for Education and Training on Addiction; 2007.

[147] The Salvation Army. Alcohol Awareness Week: new research released. Media release; 2013. http://www.salvationarmy.org.au/en/News-and-Media/news-and-media/2013/Alcohol-Awareness-Week-New-research-released-/.

[148] Tayer D-I, Martin-Tardivat B. Loi Evin: 20 years. World Intellectural Property Review; 1 February 2012. http://www.worldipreview.com/article/loi-evin-20-years-on.

[149] World Health Organization. Global status report on alcohol and health; 2014.

[150] National Preventative Health Taskforce. Australia: The healthiest country by 2020. National Preventative Health Strategy – the roadmap for action. Australian Government; 2009.

[151] Siggins Miller. Evaluation of the voluntary labelling initiative to place pregnancy warnings on alcohol products; 2014.

[152] Greenfield TK. Warning labels: evidence on harm-reduction from long-term American surveys. In M Plant, E Single, T Stockwell (eds). Alcohol: minimising the harm. London: Free Association Books; 1997.

[153] Wilkinson C, Room R. Warnings on alcohol containers and advertisements: international experience and evidence on effects. Drug and Alcohol Rev. 2009;28(4):426-435.

[154] Stockwell TR. A review of research into the impacts of alcohol warning labels on attitudes and behaviour. British Columbia, Canada: Centre of Addictions Research of BC, University of Victoria; 2006.

[155] Stockwell TR. A review of research into the impacts of alcohol warning labels on attitudes and behaviour. British Columbia, Canada: Centre of Addictions Research of BC, University of Victoria; 2006.

[156] Stockwell TR. A review of research into the impacts of alcohol warning labels on attitudes and behaviour. British Columbia, Canada: Centre of Addictions Research of BC, University of Victoria; 2006.

[157] Stockwell TR. A review of research into the impacts of alcohol warning labels on attitudes and behaviour. British Columbia, Canada: Centre of Addictions Research of BC, University of Victoria; 2006.

[158] Wilkinson C, Room R. Warnings on alcohol containers and advertisements: international experience and evidence on effects. Drug and Alcohol Rev. 2009;28(4):433.

[159] Australian Institute of Health and Welfare. National Drug Strategy Household Survey report: 2013. Drug statistics series no. 28. Cat. no. PHE 183. Canberra: AIHW; 2014.

[160] Jones S, Barrie L, Robinson L. The schoolies experience: the role of expectancies, gender roles and social norms of recent school leavers. Wollongong, NSW: Centre for Health Initiatives, University of Wollongong; 2011. http://www.fare.org.au/wp-content/uploads/2011/07/The-Schoolies-Experience-The-Role-of-Expectancies-Gender-Roles-and-Social-Norms-of-Recent-School-Leavers.pdf, accessed May 2014.

[161] Ministry of Health. New Zealand Health Survey: annual update of key findings 2012/13. Wellington: Ministry of Health; 2013, pp. 1–61.

[162] IK Lee, L Snape. The role of alcohol in maxillofacial fractures. NZMJ 2008;121:15–23; Humphrey G, Casswell C, Han D. Alcohol and injury among attendees at a New Zealand emergency department. NZMJ 2003;116(1168):298; National alcohol assessment. Wellington: New Zealand Police; 2009, p. 50; Wells JE, Baxter J, Schaaf D. Substance use disorders. In Te Rau Hinengaro: The New Zealand Mental Health Survey. Wellington: Alcohol Advisory Council of New Zealand; 2006.

[163] Gried J. Structural magnetic resonance imaging of the adolescent brain. *Ann N Y Acad Sci*. 2004 Jun;1021:77–85.

[164] Brown S, Tapert S. Adolescence and the trajectory of alcohol use: basic to clinical studies. *Ann N Y Acad Sci*. 2004 Jun;1021: 234–244.

[165] Hermens DF et al. Pathways to alcohol-induced brain impairment in young people: a review. Cortex 2013;49(1):3–17.

[166] Australian Institute of Health and Welfare. National Drug Strategy Household Survey report 2013. Drug statistics series no. 28. Cat. no. PHE 183. Canberra: AIHW; 2014.

[167] Kypri K et al. Minimum purchasing age for alcohol and traffic crash injuries among 15- to 19-year-olds in New Zealand. Am J Public Health 2006 Jan:96(1):126–131; Huckle T, Pledger M, Casswell S. Trends in alcohol-related harms and offences in a liberalized alcohol environment. Addiction 2006;101(2):232–240.

[168] Australian Institute of Family Studies. In the driver's seat II: beyond the early driving years. Research report No. 17; 2010.

[169] Kypri K et al. Minimum purchasing age for alcohol and traffic crash injuries among 15- to 19-year-olds in New Zealand. Am J Public Health 2006 Jan;96(1):126–131.

[170] Kypri K et al. Minimum purchasing age for alcohol and traffic crash injuries among 15- to 19-year-olds in New Zealand. Am J Public Health 2006 Jan;96(1):126–131.

[171] Everitt R, Jones P. Changing the minimum legal drinking age – its effect on a central city emergency department. NZMJ 2002;115(1146):9.

[172] Huckle T, Pledger M, Casswell S. Trends in alcohol-related harms and offences in a liberalized alcohol environment. Addiction 2006 Feb;101(2):232–40.

[173] Wagenaar A et al. Sources of alcohol for underage drinkers. *Journal of Studies on Alcohol* 1996; 57(3):325–333.

[174] Wagenaar AC, Toomey TL. Effects of minimum drinking age laws: review and analyses of the literature from 1960 to 2000. J Stud Alcohol Suppl. 2002;14:206–225.

[175] Southern NSW Medicare Local and Eurobodalla Shire Council submission to New South Wales Parliament Legislative Council on the Standing Committee on Social Issues Inquiry into Alcohol Abuse among Young People in New South Wales; 2012.

[176] National Health and Medical Research Council. Australian guidelines to reduce health risks from drinking alcohol; 2009, p. 86.

[177] Plunk, AD, Cavazos-Rehg P, Bierut LJ, Crucza RA. The persistent effects of minimum legal drinking age laws on drinking patterns later in life. Alcohol Clin Exp Res. 2013 Mar;37(3):463–469; Cook PJ, Moore MJ, Environment and persistence in youthful drinking patterns. In J Gruber (ed.). Risky behavior among youths: an economic analysis. Chicago: University of Chicago Press; 2001, pp. 375–437; Dee TS. State alcohol policies, teen drinking, and traffic fatalities. Journal of Political Economics 1999;72(2):289–315; O'Malley P, Wagenaar A. Effects of minimum drinking age laws on alcohol use, related behavior and traffic crash involvement among American youth. J Stud Alcohol. 1991;52:478–491; Norberg K. et al. Long term effects of minimum drinking age laws on past-year alcohol and drug use disorders. Alcohol Clin Exp Res. 2009 December;33(12):2180–2190; Birkmayer J, Hemenway D. Minimum-age drinking laws and youth suicide, 1970–1990. Am J Public Health 1999;89:1365–1368.

[178] Wilkins C et al. Drug use in New Zealand: National Surveys comparison 1998 and 2001. Auckland: Alcohol and Public Health Research Unit; 2002.

[179] Plunk AD, Cavazos-Rehg P, Bierut LJ, Crucza RA. The persistent effects of minimum legal drinking age laws on drinking patterns later in life. Alcohol Clin Exp Res. 2013 Mar;37(3):463–469.

[180] Cook PJ, Moore MJ. Environment and persistence in youthful drinking patterns. In J Gruber (ed.). Risky behavior among youths: an economic analysis. Chicago: University of Chicago Press; 2001, pp. 375–437; Dee TS. State alcohol policies, teen drinking, and traffic fatalities. Journal of Political Economics 1999;72(2):289–315; O'Malley P, Wagenaar A. Effects of minimum drinking age laws on alcohol use, related behaviour and traffic crash involvement among American youth. J Stud Alcohol 1991;52:478–491.

[181] Norberg K, Bierut LJ, Crucza RA. Long term effects of minimum drinking age laws on past-year alcohol and drug use disorders. Alcohol Clin Exp Res. 2009 Dec;33(12):2180–2190.

[182] Birkmayer J, Hemenway D. Minimum-age drinking laws and youth suicide, 1970–1990. Am J Public Health 1999;89:1365–1368.

[183] Centre for Accident Research and Road Safety. State of the road: Drink driving fact sheet; 2012.

[184] Australian Transport Council, National Road Safety Strategy 2011–2020; p. 25, table 4.

[185] Australian Institute of Health and Welfare. National Drug Strategy Household Survey report 2013. Drug statistics series no. 28. Cat. no. PHE 183. Canberra: AIHW; 2014.

[186] Ministry of Health. Alcohol use in New Zealand: key results of the 2007/08 New Zealand Alcohol and Drug Use Survey. Wellington; 2009.

[187] Australian Institute of Health and Welfare. National Drug Strategy Household Survey report 2013. Drug statistics series no. 28. Cat. no. PHE 183. Canberra: AIHW; 2014.

[188] Based on 2006–07 ABS statistics. See Australian Social Trends. Cat. no. 4102.0; 2008.

[189] Furr-Holden D et al. Toward national estimates of alcohol use disorders among drivers: results from the National Roadside Survey Pilot Program. Traffic Injury Prevention 2009;10(5):403–409.

[190] Gao C, Ogeil RP, Lloyd B. Alcohol's burden of disease in Australia. Canberra: FARE and VicHealth in collaboration with Turning Point; 2014.

[191] In 2005 currency. See Collins D, Lapsley H. The avoidable costs of alcohol abuse in Australia and the potential benefits of effective policies to reduce the social costs of alcohol. DoHA Monograph. Series No. 70; 2008.

[192] BERL Economics. Costs of harmful alcohol and other drug use. Report to NZ Ministry of Health and Accident Compensation Commission; 2009.

[193] Albalate D. Lowering blood alcohol content levels to save lives: the European experience. Journal of Policy Analysis and Management 2008;27(1):39.

[194] Henstridge J, Homel R, MacKay P. The long-term effects of random breath testing in four Australian states: a time series analysis. Canberra: Federal Office of Road Safety; 1997.

[195] Brooks C, Zaal D. Effects of a reduced alcohol limit for driving. Canberra: Federal Office of Road Safety; 1993.

[196] Keall MD, Frith WJ, Patterson TL. The influence of alcohol, age and the number of passengers on the night-time risk of driver injury in New Zealand. Accident Analysis and Prevention 2004;36(1):49–61; Organisation for Economic Co-operation and Development (OECD)/European Conference of Ministers of Transport. Young drivers: the road to safety. Paris: OECD; 2006.

[197] Loxley W et al. The prevention of substance use, risk and harm in Australia: a review of the evidence. Canberra: Australian Government Department of Health and Ageing; 2004. http://espace.lis.curtin.edu.au/archive/00000284/.

[198] Australian Transport Council. National Road Safety Strategy 2011–2020.

[199] Australian Transport Council. National Road Safety Strategy 2011–2020.

[200] Killoran A, Canning U, Doyle N, Sheppard L. Review of effectiveness of laws limiting blood alcohol concentration levels to reduce alcohol-related road injuries and deaths. Centre for Public Health Excellence. National Institute for Health and Care Excellence; 2010.

[201] Borschos B. An evaluation of the Swedish Drunken Driving Legislation implemented on 1 February 1994. In H Laurell, F Schlyter (eds). CD-ROM: Proceedings of the 15th International Conference on Alcohol, Drugs and Traffic Safety, Stockholm; 2000.

[202] Nagata T, Setoguchi S, Hemenway D, Perry MJ, Effectiveness of a law to reduce alcohol-impaired driving in Japan. Injury Prevention 2008;14(1):19–23.

[203] Desapriya E et al. Impact of lowering the legal blood alcohol concentration limit to 0.03 on male, female and teenage drivers involved in alcohol-related crashes in Japan. International Journal of Injury Control & Safety Promotion 2007;14(3):181–187.

[204] Hall WD et al. How can we reduce alcohol-related road crash deaths among young Australians? Med J Aust 2010;192(8):464–466.

[205] Babor T et al. Alcohol: no ordinary commodity. New York: World Health Organization and Oxford: Oxford University Press; 2003.

[206] Loxley W, Gray D, Wilkinson C, Chikritzhs T, Midford R, Moore D. Alcohol policy and harm reduction in Australia. Drug Alcohol Rev. 2005;24:559–568. www.informaworld.com/smpp/content~db=all?content=10.1080/09595230500404137.

[207] Loxley W et al. The prevention of substance use, risk and harm in Australia: a review of the evidence. Canberra: Australian Government Department of Health and Ageing; 2004. http://espace.lis.curtin.edu.au/archive/00000284; Babor T et al. Alcohol: no ordinary commodity. New York: World Health Organization and Oxford: Oxford University Press; 2003; Marques P, Tippetts A, Voas R. The alcohol interlock: an underutilized resource for predicting and controlling drunk drivers. Traffic Injury Prevention 2003;4(3):188–194; Marques P et al. Estimating driver risk using alcohol biomarkers, interlock blood alcohol concentration tests and psychometric assessments: initial descriptives. Addiction 2010;105(2):226–239.

[208] Terer K, Brown R. Effective drink driving prevention and enforcement strategies: approaches to improving practice. Trends and issues in crime and criminal justice No. 472; February 2014. Canberra: Australian Institute of Criminology.

[209] Elliott EJ. Fetal Alcohol Spectrum Disorders. BMJ Best Practice; 2014. http://bestpractice.bmj.com/best-practice/monograph/1141.html.

[210] Elliott EJ. Fetal Alcohol Spectrum Disorders. BMJ Best Practice; 2014. http://bestpractice.bmj.com/best-practice/monograph/1141.html.

[211] Elliott EJ. Fetal Alcohol Spectrum Disorders. BMJ Best Practice; 2014. http://bestpractice.bmj.com/best-practice/monograph/1141.html.

[212] Streissguth AP et al. Risk factors for adverse life outcomes in fetal alcohol syndrome and fetal alcohol effects. J Dev Behav Pediatr. 2004;25(4):228–238.

[213] Streissguth AP et al. Risk factors for adverse life outcomes in fetal alcohol syndrome and fetal alcohol effects. J Dev Behav Pediatr. 2004;25(4):228–238.

[214] Elliott EJ. Fetal Alcohol Spectrum Disorders: Australian perspectives. In B Carpenter, C Blackburn, J Egerton (eds). Fetal Alcohol Spectrum Disorders: interdisciplinary perspectives. Chapter 23. London and New York: Routledge, Taylor and Francis Group; 2013.

[215] Burns L, Elliott EJ, Black E, Breen C (eds). Fetal Alcohol Disorders in Australia: an update. Monograph of the Intergovernmental Committee of Drugs Working Party on Fetal Alcohol Spectrum Disorders; June 2012. www.nationaldrugstrategy.gov.au/internet/drugstrategy/publishing.nsf/Content/55FEF3DF7E89405FCA257BB0007DF141/$File/FASD-2012-Monograph.pdf.

[216] Parliament of Australia. House of Representatives Standing Committee on Social Policy and Legal Affairs. FASD: The hidden harm. Inquiry into the prevention, diagnosis and management of Fetal Alcohol Spectrum Disorders. Canberra: Commonwealth of Australia; 2012.

[217] National Health and Medical Research Council. Australian guidelines to reduce health risks from drinking alcohol. Canberra: Commonwealth of Australia; February 2009.

[218] Australian Institute of Health and Welfare. National Drug Strategy Household Survey report 2013. Drug statistics series no. 28. Cat. no. PHE 183. Canberra: AIHW; 2014.

[219] Australian Institute of Health and Welfare. National Drug Strategy Household Survey report 2013. Drug statistics series no. 28. Cat. no. PHE 183. Canberra: AIHW; 2014.

[220] Colvin L et al. Alcohol consumption during pregnancy in non-Indigenous West Australian women. Alcoholism: Clinical and Experimental Research 2007;31(2):276–284.

[221] Cameron CM et al. Changes in alcohol consumption in pregnant Australian women between 2007 and 2011. Med J Aust 2013;199(5):355–357.

[222] Parackal S, Parackal MK, Harraway JA, Ferguson GL. Opinions of non-pregnant New Zealand women aged 16–40 years about the safety of alcohol consumption during pregnancy. Drug and Alcohol Review 2009; 28(2):135–141.

[223] Mathew S, Kitson K, Watson P. Assessment of risk of Foetal Alcohol Syndrome and other alcohol related effects in New Zealand: a survey of midwives in New Zealand. Report to the Alcohol Advisory Council of New Zealand; 2001.

[224] O'Leary CM et al. Evidence of a complex association between dose, pattern and timing of prenatal alcohol exposure and child behaviour problems. Addiction 2009;105(1):74–86.

[225] Burns L, Elliott EJ, Black E, Breen C (eds). Fetal Alcohol Disorders in Australia: an update. Monograph of the Intergovernmental Committee on Drugs Working Party of Fetal Alcohol Spectrum Disorders, June 2012; Burns L, Breen C, Bower C, O'Leary C, Elliott EJ. Counting Fetal Alcohol Spectrum Disorder in Australia: the evidence and the challenges. Drug and Alcohol Review 2013;32:461–467.

[226] Allen K et al. Estimating the prevalence of Fetal Alcohol Syndrome in Victoria using routinely collected administrative data. Australian and New Zealand Journal of Public Health 2007;31(1):62–66. http://dx.doi.org/10.1111/j.1753-6405.2007.00012.x.

[227] Harris K, Bucens I. Prevalence of Fetal Alcohol Syndrome in the Top End of the Northern Territory. Journal of Paediatrics and Child Health 2003;39(7):528–533.

[228] Bower C, Silva D, Henderson TR, Ryan A, Rudy E. Ascertainment of birth defects: the effect on completeness of adding a new source of data. J Paediatr Child Health 2000;36(6):574–576.

[229] Allen K et al. Estimating the prevalence of Fetal Alcohol Syndrome in Victoria using routinely collected administrative data. Australian and New Zealand Journal of Public Health 2007;31(1):62–66. http://dx.doi.org/10.1111/j.1753-6405.2007.00012.x.

[230] Rothstein J, Heazlewood R, Fraser M. Health of Aboriginal and Torres Strait Islander children in remote Far North Queensland: findings of the Paediatric Outreach Service. Med J Aust 2007;186(10): 519–521.

[231] Fitzpatrick J et al. FAS prevalence and patterns of alcohol use in pregnancy in remote Western Australian communities: The Lililwan Project. Alcohol and Drug Review 2015;34(3):329–339.

[232] Fitzpatrick J et al. Prevalence and patterns of alcohol use in a population-based sample of children living in remote Australia: The Lililwan Project. J Paeds Child Health 2015;51(4):450–457.

[233] Elliott EJ et al. Fetal Alcohol Syndrome: a prospective national surveillance study. Archives of Disease in Childhood 2008;93(9):732–737.

[234] Elliott L, Coleman K, Suebwongpat A, Norris S. Fetal Alcohol Spectrum Disorders (FASD): systematic reviews of prevention, diagnosis and management. HSAC Report 2008;1(9). Christchurch, New Zealand: University of Canterbury, Health Services Assessment Collaboration (HSAC).

[235] Alcohol Healthwatch. Fetal Alcohol Spectrum Disorder in New Zealand: activating the awareness and intervention continuum. Auckland: Alcohol Healthwatch; 2007.

[236] New Zealand Paediatric Surveillance Unit. Annual Report of the New Zealand Paediatric Surveillance Unit; 2007.

[237] Elliott L, Coleman K, Suebwongpat A, Norris S. Fetal Alcohol Spectrum Disorders (FASD): systematic reviews of prevention, diagnosis and management. HSAC Report 2008;1(9). Christchurch, New Zealand: University of Canterbury, Health Services Assessment Collaboration (HSAC).

[238] Burns L, Breen C, Bower C, O'Leary C, Elliott EJ. Counting Fetal Alcohol Spectrum Disorder in Australia: the evidence and the challenges. Drug and Alcohol Review 2013;32:461–467; Allen K et al. Estimating the prevalence of fetal alcohol syndrome in Victoria using routinely collected administrative data. Australian and New Zealand Journal of Public Health 2007;31(1):62–66. http://dx.doi.org/10.1111/j.1753-6405.2007.00012.x; Harris K, Bucens I. Prevalence of Fetal Alcohol Syndrome in the Top End of the Northern Territory. J Paediatr Child Health 2003; 39(7):528–533; Bower C, Silva D, Henderson TR, Ryan A, Rudy E. Ascertainment of birth defects: the effect on completeness of adding a new source of data. J Paediatr Child Health 2000;36(6):574–576; Rothstein J, Heazlewood R, Fraser M. Health of Aboriginal and Torres Strait Islander children in remote Far North Queensland: findings of the Paediatric Outreach Service 2007;Med J Aust;186(10):519–521; Fitzpatrick J. Prevalence and patterns of alcohol use in pregnancy in remote Western Australian communities: The Lililwan Project. Alcohol and Drug Review 2015;34(3):329–339; Fitzpatrick J et al. FAS prevalence and patterns of alcohol use in a population-based sample of children living in remote Australia: The Lililwan Project. J Paeds Child Health 2015;51(4):450–457; Elliott EJ et al. Fetal alcohol syndrome: a prospective national surveillance study. Archives of Disease in Childhood 2008;93(9):732–737.

[239] Elliott EJ et al. Fetal alcohol syndrome: a prospective national surveillance study. Archives of Disease in Childhood 2008;93(9):732–737; Pyett P. Fetal Alcohol Syndrome: a literature review for the 'Healthy pregnancies, healthy babies for Koori communities' report. Melbourne: Victoria Department of Human Services, Premier's Drug Prevention Council, 2007; Elliott EJ, Coleman K, Suebwongpat A, Norris S. Fetal Alcohol Spectrum Disorders (FASD): systematic reviews of prevention, diagnosis and management. HSAC Report 2008;1(9). Christchurch, New Zealand: University of Canterbury, Health Services Assessment Collaboration (HSAC).

[240] Payne J et al. Health professionals' knowledge, practice and opinions about Fetal Alcohol Syndrome and alcohol consumption in pregnancy. Australian and New Zealand Journal of Public Health 2005;29(6):558–564.

[241] Elliott EJ. Fetal Alcohol Spectrum Disorders: Australian perspectives. In B Carpenter, C Blackburn, J Egerton (eds). Fetal Alcohol Spectrum Disorders: interdisciplinary perspectives. London and New York: Routledge, Taylor and Francis Group; 2013.

[242] Yazdani P, Motz M, Koren G. Estimating the neurocognitive effects of an early intervention program for children with prenatal alcohol exposure. Canadian Journal of Clinical Pharmacology 2009;16(3):e453–e459.

[243] Elliott EJ. Fetal Alcohol Spectrum Disorders: Australian perspectives. In B Carpenter, C Blackburn, J Egerton (eds). Fetal Alcohol Spectrum Disorders: interdisciplinary perspectives. London and New York: Routledge, Taylor and Francis Group, 2013; Floyd R et al. Preventing alcohol-exposed

pregnancies: a randomized controlled trial. American Journal of Preventive Medicine 2007;32(1):1–10.

[244] Floyd R et al. Preventing alcohol-exposed pregnancies: a randomized controlled trial. American Journal of Preventive Medicine 2007;32(1):1–10.

[245] National Health and Medical Research Council. Australian guidelines to reduce health risks from drinking alcohol. Canberra: Commonwealth of Australia; February 2009.

[246] Elliott EJ. Fetal Alcohol Spectrum Disorders: Australian perspectives. In B Carpenter, C Blackburn, J Egerton (eds). Fetal Alcohol Spectrum Disorders: interdisciplinary perspectives. London and New York: Routledge, Taylor and Francis Group, 2013.

[247] Fitzpatrick J. Prevalence and patterns of alcohol use in pregnancy in remote Western Australian communities: The Lililwan Project. Alcohol and Drug Review 2015;34(3):329–339.

[248] Payne J et al. Health professionals' knowledge, practice and opinions about Fetal Alcohol Syndrome and alcohol consumption in pregnancy. Australian and New Zealand Journal of Public Health 2005;29(6):558–564; Payne J et al. RE-AIM evaluation of the alcohol and pregnancy project: educational resources to inform health professionals about prenatal alcohol exposure and Fetal Alcohol Spectrum Disorder. Eval Health Prof. 2011;34(1):57–80.

[249] Payne J. et al. RE-AIM evaluation of the alcohol and pregnancy project: educational resources to inform health professionals about prenatal alcohol exposure and Fetal Alcohol Spectrum Disorder. Eval Health Prof. 2011;34(1):57–80.

[250] Peadon E, Fremantle E, Bower C, Elliott EJ. International survey of diagnostic services for children with Fetal Alcohol Spectrum Disorders. BMC Pediatr. 2008 April;8(12):1–8. doi: 10.1186/1471-2431-8-12.

[251] Watkins RE et al. Recommendations from a consensus development workshop on the diagnosis of Fetal Alcohol Spectrum Disorders in Australia. BMC Pediatr. 2013 Oct 2;13:156. doi: 10.1186/1471-2431-13-156.

[252] Chalmers J, Ritter A. Alcohol and other drug treatment utilisation in Australia. Drug Policy Modelling Program, UNSW; 2014.

[253] Chalmers J, Ritter A. Alcohol and other drug treatment utilisation in Australia. Drug Policy Modelling Program, UNSW; 2014.

[254] New Zealand Law Committee. Alcohol in our lives: curbing the harm; 2010, para. 24.2.

[255] Degenheart L, Hall W, Teesson M, Lynskey M. Alcohol use disorders in Australia: findings from the National Survey of Mental Health and Well-Being. NDARC Technical Report No. 97; 2000.

[256] Chapman C, Slade T, Hunt C, Teesson M. Delay to first treatment contact for alcohol use disorder. Drug Alcohol Depend. 2015 Feb 1;147:116–121. doi: 10.1016/j.drugalcdep.2014.11.029. Epub 2014 Dec 10.

[257] Demirkol A, Haber P, Conigrave K. Problem drinking: detection and assessment in general practice. Australian Family Physician 2011:40(8):570–574.

[258] Proude EM, Conigrave KM, Britton A, Haber PS. Improving alcohol and tobacco history taking by Junior Medical Officers. Alcohol and Alcoholism 2008: 43(3):320–325.

[259] Wutzke SE, Shiell A, Gomel MK, Conigrave KM. Brief interventions for alcohol: low outlays, high exposure and demonstrable effects. But are they cost-effective? Social Science and Medicine 2001;52:863–870.

[260] Kaner E et al. Effectiveness of screening and brief alcohol intervention in primary care (SIPS trial): pragmatic cluster randomised controlled trial. BMJ 2013;346:e8501.

[261] Moyer A, Finney JW, Swearingen CE, Vergun P. Brief interventions for alcohol problems: a meta-analytic review of controlled investigations in treatment-seeking and non-treatment-seeking populations. Addiction 2002;97(3):279–292.

[262] Bertholet N et al. Reduction of alcohol consumption by brief alcohol intervention in primary care: systematic review and meta-analysis. Arch Int Med 2005;165(9):986–995; Kaner E et al. Effectiveness of brief alcohol interventions in primary care populations. Cochrane Database of Syst Rev. 2007 Apr;18(2).

[263] Australasian College of Emergency Medicine. Submission to the NSW Legislative Assembly Inquiry into Measures to Reduce Alcohol and Drug Related Violence; 2014.

[264] New Zealand Law Committee. Alcohol in our lives: curbing the harm; 2010, para. 24.28.

[265] Shourie S, Conigrave KM, Proude EM, Haber PS. Detection of and intervention for excessive alcohol and tobacco use among adult hospital in-patients. Drug and Alcohol Review 2007;26(2):127–133.

[266] Evans I et al. Brief intervention: increasing access to the full range of treatment services for alcohol problems for Aboriginal and Torres Strait Australians; 2008.

[267] Proude E, Lopatko O, Lintzeris N, Haber P. The treatment of alcohol problems: a review of the evidence; 2009.

[268] Drug Policy Modelling Program submission to NSW Legislative Council Inquiry into Drug and Alcohol Treatment; 2013.

[269] Australian Bureau of Statistics. National Survey of Mental Health and Wellbeing. Cat. 4326.0; 2007.

[270] Begg S et al. 2007. The burden of disease and injury in Australia 2003. Cat. no. PHE 82. Canberra: AIHW. http://www.aihw.gov.au/publication-detail/?id=6442467990.

[271] Evidence given by Dr Alex Wodak to NSW Government Inquiry into Drug and Alcohol Treatment; 2013.

[272] NSW Government Inquiry into Drug and Alcohol Treatment; 2013, p. 77.

[273] Evidence given by Dr Alison Ritter to NSW Government Inquiry into Drug and Alcohol Treatment; 2013.

[274] Evidence given by Dr Alison Ritter to NSW Government Inquiry into Drug and Alcohol Treatment; 2013.

[275] New Zealand Law Committee. Alcohol in our lives: curbing the harm; 2010, para. 24.2.

[276] National Committee for Addiction Treatment. Investing in addiction treatment: a resource for funders, planners, purchasers and policy makers. Christchurch: National Committee for Addiction Treatment; 2008.

[277] Léonard C, Stordeur S, Roberfroid D. Association between physician density and health care consumption: a systematic review of the evidence. Health Policy 2009;91(2):121–134.

[278] Kohn R, Saxena S, Levav I, Sacareno B. The treatment gap in mental health care. Bulletin of the World Health Organization 2004;82:858–866.

[279] Jackson H et al. Mental health problems in rural contexts: What are the barriers to seeking help from professional providers? Australian Psychologist 2007;42(2):147–160.

[280] NSW Government Inquiry into Drug and Alcohol Treatment. Recommendation 6; 2013.

[281] Tran D et al. Does implementation of clinical practice guidelines change nurses' screening for alcohol and other substance use? Contemp Nurse 2009 Aug;33(1):13–19.

[282] Oliva E, Maisel N, Gordon A, Harris A. Barriers to use of pharmacotherapy for addiction disorders and how to overcome them. Curr Psychiatry Rep. 2011;13:374–381; Harris A, Kivlahan D, Bowe T, Humphreys K. Pharmacotherapy of alcohol use disorders in the Veterans Health Administration. Psychiatric Services 2010;61(4):392–398.

[283] Gamm LD. Mental health and substance abuse services among rural minorities. Journal of Rural Health 2004 Summer;20(3):206–209; Rosenblum A et al. Distance traveled and cross-state commuting to opioid treatment programs in the United States. Journal of Environmental and Public Health 2011:ID948789; Zulian G et al. How are caseload and service utilisation of psychiatric services

influenced by distance? A geographical approach to the study of community-based mental health services. Social Psychiatry and Psychiatric Epidemiology 2011;46(9):881–891.

[284] Boyd C et al. Australian rural adolescents' experiences of accessing psychological help for a mental health problem. Australian Journal of Rural Health 2007;15(3):196–200; Judd FK, Humphreys JS. Mental health issues for rural and remote Australia. Australian Journal of Rural Health. 2001;9(5):254–258; Morley B et al. Improving access to and outcomes from mental health care in rural Australia. Australian Journal of Rural Health 2007;15(5):304–312; Turpin M, Bartlett H, Kavanagh D, Gallois C. Mental health issues and resources in rural and regional communities: an exploration of perceptions of service providers. Australian Journal of Rural Health 2007;15(2):131–136; Wallace C, Galloway T, McKetin R, Kelly E, Leary J. Methamphetamine use, dependence and treatment access in rural and regional North Coast of New South Wales, Australia. Drug Alcohol Rev. 2009;28(6):592–599.

[285] Brady M, Nicholls R, Henderson G, Byrne J. The role of a rural sobering-up centre in managing alcohol-related harm to Aboriginal people in South Australia. Drug Alcohol Rev. 2006;25(3):201–206.

[286] Australian Government Department of Health and Ageing. A national profile of Australian Government funded Aboriginal and Torres Strait Islander substance use specific services. Canberra: Australian Government, Department of Health and Ageing; 2006.

[287] Roche A et al. The capacity of mainstream alcohol and drug treatment services to respond to the needs of Indigenous Australians. MJA 2009;190(10):582.

[288] Teasdale KE et al. Improving services for prevention and treatment of substance misuse for Aboriginal communities in a Sydney Area Health Service. Drug Alcohol Rev. 2008;27(2):152–159.

[289] Ministerial Council on Drugs Strategy. National Drug Strategy: Aboriginal and Torres Strait Islander Peoples Complementary Action Plan 2003–2006. Canberra: Commonwealth of Australia; 2003.

[290] Teasdale KE et al. Improving services for prevention and treatment of substance misuse for Aboriginal communities in a Sydney Area Health Service. Drug Alcohol Rev. 2008;27(2):152–159.

[291] Evans I et al. Brief intervention: increasing access to the full range of treatment services for alcohol problems for Aboriginal and Torres Strait Australians; 2008.

[292] Greenfield S, et al. Gender differences in alcohol treatment: an analysis of outcome from the COMBINE study. Alcohol Clin Exp Res. 2010;34(10):1803–1812.

[293] Hankin J, McCaul ME, Heussner J. Pregnant, alcohol-abusing women. Alcohol Clin Exp Res. 2000;24(8):1276–1286.

[294] Messer K, Clark K, Martin S. Characteristics associated with pregnant women's utilization of substance use treatment services. Am J Drug Alcohol Abuse 1996;22(403–421); Small J, Curran GM,

Booth B. Barriers and facilitators for alcohol treatment for women: Are there more or less for rural women? Journal of Substance Abuse Treatment 2010;39(1):1–13.

[295] Proudfoot H, Teesson M. Who gets treatment for alcohol use disorders in Australia? Findings from the Australian National Survey of Mental Health and Wellbeing. Social Psychiatry and Psychiatric Epidemiology 2002;37(10):451–456.

[296] Greenfield S, Pettinati H, O'Malley S, Randall P, Randall C. Gender differences in alcohol treatment: an analysis of outcome from the COMBINE study. Alcoholism: clinical and experimental research 2010;34(10):1803–1812; Weisner C, Schmidt L. Gender disparities in treatment for alcohol problems. JAMA: The Journal of the American Medical Association 1996;14:268.

[297] Degenheart L, Hall W, Teesson M, Lynskey M. Alcohol use disorders in Australia: findings from the National Survey of Mental Health and Well-Being. NDARC Technical Report No. 97; 2000.

[298] Chapman C, Slade T, Hunt, C, Teesson M. Delay to first treatment contact for alcohol use disorder. Drug Alcohol Depend. 2015 Feb 1;147C:116–121. doi: 10.1016/j.drugalcdep.2014.11.029. Epub 2014 Dec 10.

[299] Kypri K et al. Randomized controlled trial of proactive web-based alcohol screening and brief intervention for university students. Archives of Internal Medicine 2009:169(16):1508–1514; Cunningham JA, Kypri K, McCambridge J. The use of emerging technologies in alcohol treatment. Alcohol Research & Health 2011;33(4):320.

[300] Deloitte Access Economics. An economic analysis for Aboriginal and Torres Strait Islander offenders: prison vs residential treatment; 2013.

[301] Shakeshaft A, Doran CM, Byrnes J. The role of research in the failure of the alcopops excise in Australia: What have we learned? Med J Aust 2009;191(4):223–225.

[302] D'Abbs P. Alignment of the policy planets: behind the implementation of the Northern Territory (Australia) Living With Alcohol program. Drug and Alcohol Review 2004;23:55–66; Gray D, Chikritzhs T, Stockwell T. The Northern Territory's cask wine levy: health and taxation policy implications. Aust NZ J Pub Health 1999:23(6):651–653.

[303] D'Abbs P. Alignment of the policy planets: behind the implementation of the Northern Territory (Australia) Living With Alcohol program. Drug and Alcohol Review 2004;23:55–66; Gray D, Chikritzhs T, Stockwell T. The Northern Territory's cask wine levy: health and taxation policy implications. Aust NZ J Pub Health 1999;23(6):651–653.

[304] Chikritzhs T et al. The public health, safety and economic benefits of the Northern Territory's Living With Alcohol program 1992/2 to 1995/6. NDRI Monograph No. 2. Perth: National Drug Research Institute, Curtin University of Technology; 1999.

[305] Chikritzhs T, Stockwell T, Pascal R, Catalano P. The Northern Territory's Living With Alcohol program, 1992–2002: revisiting the evaluation. Technical report. Perth: National Drug Research Institute; 2004.

[306] Smith K et al. Alcohol management plans and related alcohol reforms. Indigenous Justice Clearinghouse. Brief 16; October 2013.

[307] Spanagel R, Noori HR, Heilig M. Stress and alcohol interactions: animal studies and clinical significance. Trends Neurosc. 2014 Apr;37(4):219–27. http://dx.doi.org/10.1016/j.tins.2014.02.006; Marmot MG et al. Health inequalities among British civil servants: the Whitehall II study. The Lancet 1991;337(8754):1387–1393.

[308] Wilkinson RG, Marmot M 2003. In D Gray, E Wilkes. Reducing alcohol and other drug related harm. Resource Sheet no. 3 produced for the Closing the Gap Clearinghouse. Cat. no. IHW 35. Canberra: AIHW; 2010.

[309] Osborne K, Baum F, Brown L. What works? A review of actions addressing the social and economic determinants of Indigenous health. Issues Paper no . 7 produced for the Closing the Gap Clearinghouse. Cat. no. IHW 113. Canberra: AIHW; 2013; Wilson M, Stearne A, Gray D, Saggers S. The harmful use of alcohol amongst Indigenous Australians. Australian Indigenous HealthInfoNet; 2010; The National Drug Research Institute and the Centre for Adolescent Health. The prevention of substance use, risk and harm in Australia: a review of the evidence. Canberra: Australian Government Department of Health and Ageing; 2004; Gray D, Wilkes E. Reducing alcohol and other drug related harm. Resource Sheet no. 3 produced for the Closing the Gap Clearinghouse. Cat. no. IHW 35. Canberra: AIHW; 2010.

[310] Loxley W et al. The prevention of substance use, risk and harm in Australia: a review of the evidence. Canberra: Department of Health and Ageing; 2004.

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