



SUBMISSION ON FOOD LABELLING LAW & POLICY REVIEW

Thank you for the opportunity to make a submission on the review of Food Labelling Law and Policy.

The Alcohol Advisory Council of New Zealand, *Kaunihera Whakatupato Waipiro o Aotearoa* (ALAC) was established by the Alcohol Advisory Council Act in 1976. We are an autonomous Crown entity under the Crown Entities Act 2004 with a specific focus on alcohol. Our prime objectives, as outlined in our governing legislation, are to:

- encourage and promote moderate consumption of alcohol
- reduce and discourage the misuse of alcohol
- minimise the personal, social, and economic harm resulting from alcohol misuse.

Our submission addresses the alcohol-related component of the *Issues Consultation Paper: Food Labelling Law and Policy Review, 5 March 2010*.

RECOMMENDATIONS

In response to the alcohol-related questions in the issues paper, ALAC recommends that:

- a. alcohol products should no longer be regulated as a 'food' under the Australian New Zealand Food Standards Code as it is more appropriate to regulate alcohol as a 'drug' than an ordinary commodity such as a food
- b. the regulation of alcohol labelling best fits within legislation governing the sale and supply of liquor
- c. producers should not be able to use ingredients or nutritional information in a way that implies that an alcoholic beverage is "healthy" without also providing information on health risks
- d. as a priority, there should be a mandatory requirement that all alcohol products include a health advisory label, warning of the potential dangers of consuming alcohol when planning to become pregnant, during pregnancy and while breastfeeding.

ALCOHOL USE AND RELATED HARMS IN NEW ZEALAND

Alcohol is the most commonly used recreational drug in New Zealand. Approximately 80 percent of New Zealanders describe themselves as drinkers.¹ Despite the evidence that links alcohol consumption to a wide range of adverse health and social consequences, alcohol is generally viewed as an "ordinary commodity", like any other tradable product, rather than a harmful drug if misused. This perception we believe contributes to a New Zealand drinking norm that generally accepts, tolerates, and to some extent celebrates, excessive drinking and drunkenness.

¹ Alcohol Advisory Council of New Zealand & Ministry of Health. (2001). *National alcohol strategy 2000-2003*. Wellington: ALAC; Ministry of Health.

By world standards, New Zealand's level of alcohol-related harm is high. Worldwide, alcohol causes 3.2 percent of all deaths and 4 percent of all Disability-Adjusted Life Years (DALYs).^{2,3} In New Zealand, alcohol causes 3.9 percent of all deaths and 7.4 percent of all DALYs lost in the population.⁴ In financial terms problem drinking costs New Zealand billions of dollars in wasted police and health resources, lost productivity and expense in the criminal justice system.

New Zealand has a very high level of acute harm relative to chronic harm and compared to other countries. Acute harms are harms that occur in a single event, such as injuries, deaths, road trauma, crime and disorder, drownings, fires, alcohol poisoning and unwanted pregnancies. Injury is responsible for half of all alcohol-attributable deaths.⁵

Despite huge improvements in the 1990's and early 2000's, New Zealand's level of road trauma is high by OECD measures and progress has stalled on reducing road trauma. The Ministry of Transport has identified drink-driving as a priority issue.⁶ In an international comparative study of alcohol and injury in hospital emergency departments, New Zealand was found to have the second-highest proportion of alcohol-related injury at 36 percent (the average was 20.4 percent).⁷ Another international study in 2006 compared the costs of harmful alcohol use between countries and estimated that alcohol accounts for between 25 to 51 percent of New Zealand's total spend on public order and safety. This was by far the highest figure amongst the countries studied.⁸ Another study found that alcohol-related offending consumed 18 percent of the Police's 2005/06 budget.⁹

In terms of total per capita consumption of pure alcohol, the top five countries in the world consume between about 13 to 19 litres per person (15 years plus).¹⁰ New Zealand is about 27th in the world, at 9.3 litres in 2009.¹¹ So New Zealand's relatively high level of acute harm does not correspond to a particularly high level of per capita consumption. Rather, it is due to heavy episodic drinking interacting with situations, lifestyle and cultural factors (for instance, vehicle use, social norms and behavioural expectations around drinking).

Excessive or hazardous drinking is the most significant and common aspect of overall alcohol misuse.

² World Health Organization. (2010). Alcohol. Retrieved 9/3/2010, from http://www.who.int/substance_abuse/facts/alcohol/en/index.html

³ One DALY can be thought of as one year of healthy life. DALYs are lost through premature death or living with less than perfect health.

⁴ Connor, J., Broad, J., Jackson, R., Hoorn, S. V., & Rehm, J. (2004). *The burden of death, disease and disability due to alcohol in New Zealand: research summary*. Retrieved 9/3/2010, from <http://www.alac.org.nz/DBTextworks/PDF/BurdenExec.pdf>.

⁵ Connor J., Broad, J., Jackson, R., Hoorn, S. V. & Rehm, J. (2004), page 6.

⁶ Ministry of Transport. (2010). *Safer journeys: New Zealand's road safety strategy 2010-2020*. Wellington: Ministry of Transport.

⁷ WHO Collaborative Study Group on Alcohol and Injuries. (2007). *Alcohol and injury in emergency departments: summary of the report from the WHO collaborative study on alcohol and injuries*. Geneva: World Health Organization.

⁸ Baumberg, B. (2006). The global economic burden of alcohol: a review and some suggestions *Drug & Alcohol Review*, 25(6), 537 - 551.

⁹ Slack, A., Nana, G., Webster, M., Stokes, F., & Wu, J. (2009). *Costs of harmful alcohol and other drug use: final report*. Wellington: Ministry of Health; ACC.

¹⁰ World Health Organization. (2004). *Global status report on alcohol 2004*. Geneva: WHO.

¹¹ Statistics New Zealand. (2009). Alcohol and tobacco available for consumption: year ended December 2009. Retrieved 9/3/2010, from http://www.stats.govt.nz/browse_for_stats/alcohol_and_tobacco/alcohol_and_tobacco_availability/Alcohol-and-Tobacco_HOTPYearEndedDec09/Commentary.aspx.

'Hazardous drinking' is defined internationally as representing an established pattern of drinking that carries a high risk of future damage to physical or mental health but that may not yet have resulted in significant adverse effects.¹² In 2006/07, one in five (20.1 percent) adults (aged 16–64 years) in the total population had a potentially hazardous drinking pattern. This was similar to the proportions recorded in the 1996/97 and 2002/03 surveys. Amongst young people aged 16-17 years, one in four had a potentially hazardous drinking pattern. The highest prevalence of potentially hazardous drinking is amongst males aged 18-24 years (one in two).¹³

With regard to chronic harm, there is a large burden of disability due to alcohol use disorders (diagnosable alcohol dependency) that is not reflected in mortality figures. The single largest cause of alcohol-related DALYs is alcohol use disorders, responsible for 49 percent (and this is an under-estimation because it does not include social consequences). The twelve-month prevalence of any substance use disorder is 3.5 percent of the total population, and (after adjusting for age), 6 percent of Māori, and 3.2 percent of Pacific peoples.¹⁴ Alcohol use disorders contribute to many social consequences such as relationship breakdowns, child neglect, loss of productivity and unemployment. Other chronic harms include liver cirrhosis, fetal alcohol spectrum disorders and cancer. Twenty-four percent of alcohol-related deaths result from cancers.¹⁵

The health burden of alcohol falls inequitably on young people, Māori and Pacific peoples. Eight percent of all Māori deaths are attributable to alcohol (compared with 3.9 percent for the total population). With regard to Pacific peoples, while there are proportionately more Pacific non-drinkers than non-drinkers in the general population, research shows that those Pacific people who do drink are relatively heavy drinkers.^{16 17}

OUR SUBMISSION

The size and nature of alcohol use and alcohol-related harm in New Zealand highlights the extent of the challenge that we face in combating harmful drinking. ALAC's submission has been informed with this context in mind, builds on our previous advice on labelling of alcoholic beverages, and responds to the questions and issues posed in the alcohol section of the *Issues Consultation paper*, namely:

- whether alcohol products should be regulated as a food
- how alcohol beverages could be regulated if these products are not regulated as a food
- whether alcohol products should be subject to the same labelling requirements as other foods (i.e. nutrition panels and a list of ingredients)

¹² Babor, T. F., Higgins-Biddle, J. C., Saunders, J. B., & Monteiro, M. G. (2001). *AUDIT: the alcohol use disorders identification test: guidelines for use in primary care* (2nd ed.). Geneva: World Health Organization.

¹³ Ministry of Health. (2008). *A Portrait of health: key results of the 2006/07 New Zealand Health Survey*. Wellington: Ministry of Health.

¹⁴ Wells, J. E. (2006). Prevalence and severity across aggregated disorders. In M. A. Oakley, J. E. Wells & K. M. Scott (Eds.), *Te Rau Hinengaro: The New Zealand Mental Health Survey* (pp. 22-36). Wellington: Ministry of Health.

¹⁵ Connor J., Broad, J., Jackson, R., Hoorn, S. V. & Rehm, J. (2004), page 4.

¹⁶ De Bonnaire, C., McMillen, P., & Kalafatellis, E. (2004). *The way we drink: the current attitudes and behaviours of New Zealanders (aged 12 plus) towards drinking alcohol*. Wellington: Alcohol Advisory Council of New Zealand.

¹⁷ Huakau, J., Asiasiga, L., Ford, M., Pledger, M., Casswell, S., Suaakii-Sauni, T., et al. (2005). New Zealand Pacific peoples' drinking style: too much or nothing at all? *New Zealand Medical Journal*, 118 (1216).

- whether there should be a requirement that all alcohol products have health advisory information labelling promoting safer drinking.

The three main conclusions of our submission are that:

1. *Alcohol should no longer be regulated as a food.* It is a potentially harmful drug, not an ordinary commodity, and should therefore be treated as such. The regulation of alcohol labelling best fits within legislation governing the sale and supply of liquor.
2. *Labelling should not imply that alcohol is healthy.* Producers of alcohol beverages should be prevented from including ingredients and nutritional information in a way that implies that the alcohol is healthy without also providing information on the health risks of excessive consumption.
3. *Targeted health advisory labels on alcohol should be required.* As a priority there should be a mandatory requirement that all alcohol products include a health advisory label, warning of the potential dangers of consuming alcohol when planning to become pregnant, during pregnancy and while breastfeeding.

The underlying rationale for reaching these conclusions is outlined below.

Alcohol should no longer be regulated as a food

There are four main reasons why ALAC believes that alcohol products should be regulated separately from food and an alternative regulatory regime explored:

- Alcohol is more a ‘drug’ than a ‘food’ and should be regulated accordingly.
- As part of a longer term strategy for transforming the drinking norm there is a need for consistent messaging about alcohol being “no ordinary commodity”. Including alcohol products in the same regulations as food reinforces the perception that alcohol is just an ordinary commodity.
- It is timely to consider an alternative regime in New Zealand. Alcohol is high on both the political and public agendas at this time and our Government is currently considering changes to our liquor legislation. We believe that this provides an excellent opportunity to explore the potential for including the regulation of alcohol labelling within the mix of proposed changes.
- Tobacco labelling provides a good example of how alcohol labelling could work under a different regime in this country (i.e. within legislation that regulates the sale and supply of alcohol). In New Zealand tobacco labelling is regulated under the *Smoke-free Environments Act 1990*.

Alcohol is more a ‘drug’ than a ‘food’

We consider that a key factor in determining whether alcohol should continue to be regulated as a food is whether this is appropriate given that alcohol is arguably more a psychoactive potentially dangerous drug than a food due to its caloric loading. The evidence that alcohol is more a drug than a food appears to be clear in light of literature on the toxic effects of alcohol on the body, harm caused by excessive consumption, and the exemptions from requirements such as listing ingredients and nutritional information that are mandatory for most other food.

Alcohol is a ubiquitous toxin that can harm almost any system or organ of the body. It also has a very high acute toxicity level relative to other psychoactive substances (e.g. 1:10 for ethyl alcohol compared to 1:1000 for LSD or cannabis).¹⁸

Alcohol consumption is associated with many neuropsychiatric disorders and may cause or exacerbate disorders such as depression, anxiety disorders, or other substance use disorders.¹⁹ It has both immediate and long-term effects on the brain and neuropsychological functioning. Young people are particularly vulnerable to the adverse effects of alcohol. During adolescence, alcohol can lead to structural changes in the hippocampus (a part of the brain involved in the learning process) and at high levels can permanently impair brain development.²⁰ There is also a relationship between lifetime alcohol use and the volume of brain grey matter (regions of the brain involved in muscle control, sensory perceptions, such as seeing and hearing, memory, emotions and speech), with increasing alcohol consumption related to decreasing volume of grey matter in a dose dependent manner.²¹

Alcohol is a carcinogenic. It is linked to cancer of the breast, liver, pancreas, mouth, oesophagus, bowel and prostate cancer.²² Several mechanisms have been identified for alcohol-associated carcinogenesis, including acetaldehyde formation, induction of CYP2E1 leading to formation of reactive oxygen species and enhanced pro-carcinogen activation, and modulation of cellular regeneration.²³

Alcohol is the most prominent behavioural teratogen in the world because of its common availability and usage.²⁴ It has a direct toxic effect on fetal development, altering the course of normal cell growth and migration.²⁵

Further, most alcohol products are exempt from some of the mandatory labelling requirements of other food such as nutritional panels and listing ingredients. This is not surprising given that alcohol is more a drug than a food and is therefore the antithesis of nutrition. Alcohol inhibits the breakdown of nutrients, impairs nutrient absorption and leads to nutrient deficiencies such as folate. It also causes the brain and other body tissue to be deprived of glucose needed for energy, even when food intake is adequate.²⁶

¹⁸ Gable, R.S. (2004). Comparison of acute lethal toxicity of commonly abused psychoactive substances. *Addiction*, 99, 686-696.

¹⁹ Rehm, J., Room, R., Monteiro, M., Gmel, G., Graham, K., Nina Rehn, et al. (2004). Alcohol use. In M. Ezzati, A.D. Lopez, A. Rodgers & C. J. L. Murray (Eds), *Comparative Quantification of Health Risks: Global and Regional Burden of Disease Attributable to Selected Major Risk Factors* (Vol. 1, pp. 959-1108). Geneva: World Health Organization.

²⁰ Faden, V.B., & Goldman, M. (2005). The effects of alcohol on physiological processes and biological development. *Alcohol Research and Health*, 28(3), 125-132.

²¹ Taki, Y., Kinomura, S., Sato, K., Goto, R., Inoue, K., Okada, K., et al. (2006). Both global gray matter volume and regional gray matter volume negatively correlate with lifetime alcohol intake in non-alcohol-dependent Japanese men: a volumetric analysis and a voxel-based morphometry. *Alcoholism, Clinical and Experimental Research*, 30(6), 1045-1050.

²² Middleton, F. K., Chikritzhs, T., Stockwell, T., Bostrom, A., & Pascal, R. (2009) Alcohol use and prostate cancer: a meta-analysis. *Molecular Nutrition & Food Research*. 53(2), 240-255.

²³ Anderson, P. (2008). *Consumer labelling and alcoholic drinks*. Hamm, Germany: German Centre for Addiction Issues.

²⁴ Warren, K.R., & Hewitt, B.G. (2009). Fetal alcohol spectrum disorders: when science, medicine, public policy and laws collide. *Developmental Disabilities Research Reviews*, 15(3), 170-175.

²⁵ British Medical Association Board of Science. (2007). *Fetal alcohol spectrum disorder: a guide for healthcare professionals*. London: BMA.

²⁶ National Institute on Alcohol Abuse and Alcoholism. (1993). Alcohol & nutrition. *Alcohol Alert* (22), [1-4]

Clearly, the evidence (outlined above) points to the fact that alcohol is more of a potentially harmful drug than an ordinary commodity like food. On the strength of this alone it would seem more appropriate that alcohol be regulated as a drug rather than a food.

The need for consistent messages to transform the drinking norm over time

ALAC is of the view that there is a need for consistent messaging about alcohol being “no ordinary commodity”, as part of a longer term strategy for transforming the drinking norm. We believe that including alcohol products in the same regulations as food reinforces the perception that alcohol is just an ordinary commodity. This is aptly summarised by the following comment which was recently made by the Law Commission in their report on the review of the regulatory framework for the sale and supply of liquor in New Zealand:

“The trend towards regarding alcohol as a normal food or beverage product needs to be reversed. In truth, alcohol is no ordinary commodity. Alcohol is a psychoactive drug that easily becomes addictive and that can produce dangerous behaviours in those who drink too much.”²⁷

This trend of regarding alcohol as a normal food has also found its way into some specific cultural contexts. For example, generosity and reciprocity is commonly practiced across Pacific communities. The ability to give generously of food (including alcohol) and money is typically viewed as a way of proving one’s status and being a good host.²⁸ In this context, supplying an over-generous amount of alcohol and encouraging guests to consume it may be seen as being a good host, while promoting drinking in moderation may be seen as being a stingy host.²⁹ These types of practices are also evident within Maori communities, as illustrated by the following statement:

“Alcohol serves as an integral and inseparable part of hospitality where providing the best is the essence of warmth and sharing on the marae.”³⁰

It is concerning that, within this cultural context, alcohol is treated in the same way as ordinary food, particularly given that Māori and Pacific people experience proportionately more alcohol harm than other New Zealanders. Regulating alcohol as a drug rather than a food would help to more strongly differentiate it from being seen and used in the same way as kai (or food that you eat) and would also highlight that “as a drug” it would need to be treated with some caution.

The time is right to consider an alternative regime

The current regime for regulating alcohol labelling appears to be insufficient and inappropriate as

²⁷ Law Commission. (2010). *Alcohol in our lives: curbing the harm, a report on the review of the regulatory framework for the sale and supply of liquor*. Wellington: Law Commission.

²⁸ Ministry of Health. (1997). *The place of alcohol in the lives of people from Tokelau, Fiji, Niue, Tonga, Cook Islands and Samoa living in New Zealand: an overview*. Wellington: Alcohol Advisory Council of New Zealand.

²⁹ Cagney, P., & Alliston, L. (2008). *Pearls Unlimited: the ALAC Pacific peoples resource project (Confidential Draft)*. Alcohol Advisory Council of New Zealand.

³⁰ Mataira, P. J. (1989). *An ethnographic study of Māori drinking patterns and drinking practices on traditional maraes around Ruatoria: a presentation*. Paper presented at the 1989 World Congress for Mental Health.

evidenced by the:

- length of time it takes to process and progress applications to make the provisions of the Code more appropriate for alcohol (e.g. ALAC is still waiting for a decision to be made on an application that was submitted to Food Standards Australia New Zealand (FSANZ) in February 2006)
- exemptions to mandatory requirements typically applied to other food (such as nutritional panels and a list of ingredients).

We have a rare opportunity at this time to explore the potential of including alcohol labelling within the liquor law reform proposals currently before the New Zealand Government.

In August 2008 our Government approved the terms of reference for a comprehensive review of the manner in which the sale and supply of liquor is regulated in New Zealand and tasked the Law Commission to conduct this review. The Law Commission has recently released their report recommending an integrated package of policies aimed at reducing alcohol harm. In essence the report is highlighting the need for a substantial rewrite of New Zealand's liquor laws to ensure its focus is firmly on reducing alcohol-related harm.

We believe it makes sense therefore to explore the potential for including the regulation of alcohol labelling within the mix of proposed changes. Alcohol labelling is more likely to be effective as part of a more comprehensive and effective package of legislative reforms aimed at reducing alcohol harm as opposed to an isolated product that appears to fit uncomfortably within a framework that regulates food.

Tobacco labelling provides a good example for change

Tobacco labelling in New Zealand is regulated under the *Smoke-free Environments Act 1990*. The Act regulates the size, placement and wording of labels and health warning messages on tobacco products. We believe that it provides a useful framework for considering how alcohol labelling could work under liquor regulations.

Part 2 of the Smoke-free Act provides for the regulation of smoking products. The purpose of Part 2 is outlined in section 21 of the Act which is:

- (a) to reduce the social approval of tobacco use, particularly among young people, by—
 - (i) imposing controls on the marketing, advertising, or promotion of tobacco products and their association through sponsorship with other products and events; and
 - (ii) requiring health messages and other information to be displayed on, or included with, packages containing tobacco products, and on automatic vending machines; and
 - (iii) prohibiting the sale of toy tobacco products to people younger than 18 years; and
- (b) to reduce some of the harmful effects of tobacco products on the health of users by monitoring and regulating the presence of harmful substances in the products and in tobacco smoke; and
- (c) to facilitate the harmonisation of the laws of New Zealand and Australia relating to the

labelling of tobacco products (including, without limitation, requirements relating to the display of health messages).

Similar objectives could also be included in liquor regulations, particularly given that some of the matters being addressed by Part 2 of the Smoke-free Act are akin to issues associated with alcohol advertising, promotion and product labelling. We appreciate that a lot more work will need to be done on the mechanics of any change of regulatory regime for alcohol labelling but what we are signalling is that there is a good framework and starting point for understanding how it 'could' work in New Zealand. We also note that the Law Commission's recommendations on advertising, sponsorship and promotion of alcohol³¹ (which are aimed, to some extent, at young people, similar to Part 2 of the Smoke-free Act) provides a possible avenue for exploring this further and strongly recommend that this occurs.

Labelling should not imply that alcohol is healthy

While most alcohol products are exempt, under the Food Standards Code, from including nutritional panels and ingredients, some producers are using nutritional information and ingredients in a way that implies that alcohol is healthy. Four Steinlager products provide a good example of how the selective use of ingredients and nutritional information on labels can imply that alcohol is possibly "good for you":

- *Steinlager Pure*: highlights that there are no additives or preservatives, and lists the following ingredients: NZ water, malted barley, hops and yeast.
- *Steinlager Classic*: highlights that there are no additives or preservatives but, unlike Steinlager Pure, lists no ingredients.
- *Steinlager Edge*: highlights that there are no additives or preservatives and provides a nutritional panel emphasising that the beverage has half the carbohydrates of other beer.
- *Steinlager Premium Light*: makes no mention of additives or preservatives, neither does it list any ingredients. What is mentioned however is that the "finest natural ingredients" are used in this product.

The Steinlager example highlights an inconsistency in the way in which ingredient and nutrient information is used. It also demonstrates how the selective use of such information can be potentially misleading to consumers.

In light of this, and consistent with previous advice to FSANZ on this subject, ALAC remains strongly of the view that producers of alcohol products of 1.15% or more should not be able to make nutrient content claims related to energy, alcohol and carbohydrate or claims to natural ingredients without also providing information on the health risks of immoderate consumption.

Our view is that if industry chooses to highlight these nutrient or natural ingredient content claims alongside their general position that alcohol products are good for health (and we believe the likelihood of this occurring is high) then this could lead the public to believe that alcohol consumption per se is healthy and this is not the case. Any nutrient or other health benefit is lost as soon as the consumer

³¹ The relevant recommendations are listed on page 362 of the Law Commission's report – Law Commission. (2010). *Alcohol in our lives: curbing the harm, a report on the review of the regulatory framework for the sale and supply of liquor*. Wellington: Law Commission.

becomes intoxicated. Further, there are some population groups for whom any alcohol consumption is unhealthy (e.g. pregnant women and minors in terms of physiological and brain development).

Consequently we are of the firm view that producers of alcoholic beverages should be prevented from including ingredients and nutritional information in a way that implies that the alcohol is healthy without also providing information on the health risks of excessive consumption.

Targeted health advisory labels on alcohol should be required

On 17 February 2006 ALAC lodged an application with FSANZ to vary existing standard 2.7.1 – labelling of alcoholic beverages and food containing alcohol, of the Australia New Zealand Food Standards Code. The purpose of the application was to require a health advisory label on alcoholic beverage containers advising of the risk of consuming alcohol when planning to become pregnant and during pregnancy. We are still waiting for a decision to be made on this application and have attached it for your information (see Appendix 1) as it provides all the evidence to support our continued position on this.

Since we lodged the application in 2006 we have become aware of some of the more recent research that suggests that breastfeeding mothers are generally unaware of the effects of alcohol on breastfeeding performance and development of the child.³² We are also aware that there is still no robust research that identifies a minimum safe level of drinking for women who are pregnant, planning a pregnancy or breastfeeding. Consistent with advice provided in the 2009 Australian Guidelines to reduce health risks from drinking alcohol³³ we are also of the view that we should be advising women, wherever possible, that the safest option is ‘not to drink’ at all when pregnant, planning a pregnancy or breastfeeding.

While we acknowledge the lack of evidence on the efficacy of alcohol advisory labels for changing behavior when used in isolation, there is some evidence that they can lead to an increase in awareness of the message contained.³⁴ Further, targeted warning labels are likely to be more effective as part of a comprehensive approach to reducing alcohol harm.

Finally, we are also mindful that in order to gain access to the United States export market, New Zealand alcohol producers are already placing health warning labels on their products and have been doing so to inform American consumers about the risks of drinking since 1989. We do not understand why this same standard should not also apply to our own consumers to enable them to make informed and responsible choices as to whether they risk drinking or not. The latest New Zealand alcohol use survey found that over a quarter (28.7 percent) of women who had been pregnant in the past three

³² Giglia RC & Binn (2007); cited in National Health and Medical Research Council. (2009). *Australian guidelines to reduce health risks from drinking alcohol*. Canberra: NHMRC.

³³ National Health and Medical Research Council. (2009). *Australian Guidelines to reduce health risks from drinking alcohol*. Canberra: NHMRC.

³⁴ Wilkinson, C., & Room, R. (2009). Warnings on alcohol containers and advertisements: international experience and evidence on effects. *Drug and Alcohol Review*, 28: 426-435.

years reported that they had consumed alcohol while pregnant.³⁵ This signals that there is still an issue of women continuing to drink during pregnancy and that some of this may be due to a low awareness of the potential dangers of drinking during pregnancy.

Given this, we are still firmly of the view that, as a priority, all alcohol products should be required to include a health advisory label warning of the potential dangers of consuming alcohol when planning to become pregnant, during pregnancy and while breastfeeding.

³⁵ Ministry of Health. (2009). Alcohol use in New Zealand: key results of the 2007/08 New Zealand alcohol and drug use survey. Wellington: Ministry of Health.

BIBLIOGRAPHY

Alcohol Advisory Council of New Zealand, & Ministry of Health. (2001). *National alcohol strategy 2000-2003*. Wellington: ALAC; Ministry of Health.

Anderson, P. (2008). *Consumer labelling and alcoholic drinks: report*. Hamm, Germany: German Centre for Addiction Issues

Babor, T. F., Higgins-Biddle, J. C., Saunders, J. B., & Monteiro, M. G. (2001). *AUDIT: the alcohol use disorders identification test: guidelines for use in primary care* (2nd ed.). Geneva: World Health Organization.

Baumberg, B. (2006). The global economic burden of alcohol: a review and some suggestions. *Drug & Alcohol Review*, 25(6), 537 - 551.

British Medical Association Board of Science. (2007). *Fetal alcohol spectrum disorders: a guide for healthcare professionals*. London: BMA.

Cagney, P., & Alliston, L. (2008). *Pearls Unlimited: the ALAC Pacific peoples resource project (Confidential Draft)*. Alcohol Advisory Council of New Zealand.

Connor, J., Broad, J., Jackson, R., Hoorn, S. V., & Rehm, J. (2004). *The burden of death, disease and disability due to alcohol in New Zealand: research summary*. Retrieved 9/3/2010, from <http://www.alac.org.nz/DBTextworks/PDF/BurdenExec.pdf>.

De Bonnaire, C., McMillen, P., & Kalafatelis, E. (2004). *The way we drink: the current attitudes and behaviours of New Zealanders (aged 12 plus) towards drinking alcohol*. Wellington, NZ: Alcohol Advisory Council of New Zealand.

Faden, V. B., & Goldman, M. (2004/05). The effects of alcohol on physiological processes and biological development. *Alcohol Research & Health*, 28(3), 125-131.

Gable, R. S. (2004). Comparison of acute lethal toxicity of commonly abused psychoactive substances. *Addiction*, 99, 686-696.

Huakau, J., Asiasiga, L., Ford, M., Pledger, M., Casswell, S., Suaakii-Sauni, T., et al. (2005). New Zealand Pacific peoples' drinking style: too much or nothing at all? *New Zealand Medical Journal*, 118 (1216).

Law Commission. (2010). *Alcohol in our lives: curbing the harm, a report on the review of the regulatory framework for the sale and supply of liquor*. Wellington: Law Commission.

Mataira, P. J. (1989). *An ethnographic study of Māori drinking patterns and drinking practices on traditional maraes around Ruatoria: a presentation*. Paper presented at the 1989 World Congress for Mental Health.

Middleton, F. K., Chikritzhs, T., Stockwell, T., Bostrom, A., & Pascal, R. (2009). Alcohol use and prostate cancer: a meta-analysis. *Molecular Nutrition & Food Research*, 53(2), 240-255.

Ministry of Health. (1997). *The place of alcohol in the lives of people from Tokelau, Fiji, Niue, Tonga, Cook Islands and Samoa living in New Zealand: an overview*. Wellington: Alcohol Advisory Council of New Zealand.

Ministry of Health. (2008). *A Portrait of health: key results of the 2006/07 New Zealand Health Survey*. Wellington: Ministry of Health.

Ministry of Health. (2009). Alcohol use in New Zealand: Key results of the 2007/08 New Zealand alcohol and drug use survey. Wellington: Ministry of Health.

Ministry of Transport. (2010). *Safer journeys: New Zealand's road safety strategy 2010-2020*. Wellington: Ministry of Transport.

National Health and Medical Research Council. (2009). *Australian guidelines to reduce health risks from drinking alcohol*. Canberra: NHMRC.

National Institute on Alcohol Abuse and Alcoholism. (1993). Alcohol and nutrition. *Alcohol Alert* (22), [1-4].

Rehm, J., Room, R., Monteiro, M., Gmel, G., Graham, K., Nina Rehn, et al. (2004). Alcohol use. In M. Ezzati, A. D. Lopez, A. Rodgers & C. J. L. Murray (Eds.), *Comparative Quantification of Health Risks: Global and Regional Burden of Disease Attributable to Selected Major Risk Factors* (Vol. 1, pp. 959-1108). Geneva: World Health Organization.

Slack, A., Nana, G., Webster, M., Stokes, F., & Wu, J. (2009). *Costs of harmful alcohol and other drug use: final report*. Wellington: Ministry of Health; ACC.

Statistics New Zealand. (2009). Alcohol and tobacco available for consumption: year ended December 2009. Retrieved 9/3/2010, from http://www.stats.govt.nz/browse_for_stats/alcohol_and_tobacco/alcohol_and_tobacco_availability/Alcohol-and-Tobacco_HOTPYearEndedDec09/Commentary.aspx

Taki, Y., Kinomura, S., Sato, K., Goto, R., Inoue, K., Okada, K., et al. (2006). Both global gray matter volume and regional gray matter volume negatively correlate with lifetime alcohol intake in non-alcohol-dependent Japanese men: a volumetric analysis and a voxel-based morphometry. *Alcoholism, Clinical and Experimental Research*, 30(6), 1045-1050.

Warren, K. R., & Hewitt, B. G. (2009). Fetal alcohol spectrum disorders: when science, medicine, public policy, and laws collide. *Developmental Disabilities Research Reviews*, 15(3), 170-175.

Wells, J. E. (2006). Prevalence and severity across aggregated disorders. In M. A. Oakley, J. E. Wells & K. M. Scott (Eds.), *Te Rau Hinengaro: The New Zealand Mental Health Survey* (pp. 22-36). Wellington: Ministry of Health.

Wilkinson, C., & Room, R. (2009). Warnings on alcohol containers and advertisements: international experience and evidence on effects. *Drug and Alcohol Review*, 28(4), 426-435.

WHO Collaborative Study Group on Alcohol and Injuries. (2007). *Alcohol and injury in emergency departments: summary of the report from the WHO collaborative study on alcohol and injuries*. Geneva: World Health Organization.

World Health Organization. (2004). *Global status report on alcohol 2004*. Geneva: WHO.

World Health Organization. (2010). Alcohol. Retrieved 9/3/2010, from http://www.who.int/substance_abuse/facts/alcohol/en/index.html

APPENDIX 1: APPLICATION TO AMEND THE CODE

Application to amend the *Australia New Zealand Food Standards Code – General*

PART 1 GENERAL INFORMATION

1.1 Applicant

The applicant is:

- (a) The Alcohol Advisory Council of New Zealand (ALAC);
- (b) 36 Customhouse Quay, Wellington or P O Box 5023;
- (c) Dr Michael MacAvoy, Chief Executive Officer telephone (04) 917-0707, fax (04) 473-0890 and Wendy Moore, Policy Manager, telephone (04) 917-0747, fax (04) 473-0890; and
- (d) The Alcohol Advisory Council of New Zealand was established in 1976, following a recommendation by the Royal Commission of Inquiry into the Sale of Liquor that a permanent council be established to encourage responsible alcohol use and minimise misuse.

1.2 Nature of application

This application is to vary existing Standard 2.7.1.

PART 2 SPECIFIC INFORMATION

2.1 Details of the application

- (a) ALAC proposes a variation to existing Standard 2.7.1, Labelling of Alcoholic Beverages and Food Containing Alcohol with a two-year transition period to enable industry compliance.
- (b) The application relates to the labelling of alcoholic beverages.

2.2 Purpose and efficacy of the proposed variation/Standard

The purpose of the application to vary Standard 2.7.1 is to require a health advisory label on alcoholic beverage containers advising of the risks of consuming alcohol when planning to become pregnant and during pregnancy.

2.3 Justification for the application

Alcohol consumption in pregnancy has the potential to harm the fetus at all stages of pregnancy, and particularly in the early stages of pregnancy when the fetus is forming. These harms are known as Fetal Alcohol Spectrum Disorder (FASD) and Fetal Alcohol Effects (FAE). Many women do not know of this risk, or, if they do, could benefit from a reminder of the risk at the time of planning to drink alcohol. Labelling also raises general community awareness and could create a supportive environment for pregnant women to avoid alcohol in pregnancy. Delivering the message repeatedly and in a number of ways, of which labelling is one, has the potential to produce societal behaviour change, in this case in regard to women drinking alcohol while pregnant.

FASD is widely recognised as a set of birth defects caused by maternal consumption of alcohol during pregnancy. The true extent in New Zealand (and Australia) is unknown but the Ministry of Health estimates two to three per 1000 live births for FASD and four-five per 1000 live births for partial FAS. This can be compared to cystic fibrosis at one per 3000 live births, Down's syndrome at one per 1000 and cerebral palsy at 1-2.6 per 1000. These estimates are conservative but, in the absence of New Zealand data, it is difficult to be more specific. The potential impact of FASD on New Zealand's population and its services is great. ALAC's view is that the potential impact on the community of drinking during pregnancy is at the upper end of the scale.

A recent West Australian study,³⁶ which surveyed health professionals' knowledge and attitudes about FAS and alcohol in pregnancy, found that FAS is likely to be under-ascertained in Australia due to a lack of knowledge of FAS by health professionals. Of the 659 health professionals caring for pregnant women, only 45 percent routinely ask about alcohol use in pregnancy, only 25 percent routinely provide information on the consequences of alcohol use in pregnancy and only 13 percent provide advice consistent with the NHMRC guidelines on alcohol consumption in pregnancy.

In ALAC's view is that health advisory labels on alcohol beverage containers warning of the potential dangers of consuming alcohol when planning to become pregnant or during pregnancy are essential because:

- it is still a commonly held belief in both New Zealand and Australia that it is acceptable to have 'a couple of drinks', 'a couple of times a week'
- there is good evidence to show that health advisory labels will complement and enhance national strategies to raise awareness of the potential dangers of consuming alcohol when planning to become pregnant or during pregnancy
- FASD/FAE is not a problem only for 'at risk' groups - there is strong evidence that FASD/FAE is fast becoming an issue for European, middle class women in full employment
- health advisory labels can provide the platform for the development of public health strategies aimed at educating the community as a whole regarding the consumption of alcohol during pregnancy
- no health benefits from the consumption of alcohol accrue to women of child-bearing age – benefits for women do not occur until after menopause
- no level of alcohol consumption has been determined as completely low risk for the fetus and
- consumers have a right to know the risks attached to consuming products.

Further evidence supporting the application is attached as Appendix I.

2.4 Establish need for the application

Virtually all foods manufactured or packaged after December 2002 must have information panels listing their nutritional values, the percentage of their main ingredients and lists of major allergens. It seems unreasonable to ensure consumers are informed in such great detail about what is contained in food products while efforts to advise people that alcohol can cause significant, lifelong harm to the wellbeing and potential of children exposed to it in the womb are rejected.

³⁶ Payne, J., Elliot, E. et al (2005) Health professionals' knowledge, practice and opinions about fetal alcohol syndrome and alcohol consumption in pregnancy, Australian and New Zealand Journal of Public Health Vol. 29 No. 6

Again, further information regarding consumer needs, indicating the purpose to be served by this application and establishing a need for a Standard or a variation to a Standard is attached as Appendix I.

2.5 Nutritional implications

Not applicable.

2.6 Dietary implications

Not applicable.

2.7 Advantage to the consumer

Consumers around the world, particularly those in the United States, the United Kingdom and the European Union, are increasingly demanding honesty about the content of products for consumption. Consequently there is greater demand for clarity in the labelling of products. In this context the term ‘label’ refers to all material printed on packages/containers of food and beverage, including nutritional information, lists of ingredients and flashes of banners describing contents and their alleged benefits³⁷ and/or drawbacks for consumers with particular risk factors associated with consuming that product. Reading labels can help the purchaser to accurately assess whether or not that product is safe for them to consume. As far back as 2002, a report by Datamonitor pointed out that “despite manufacturers’ protests over the expense of more detailed labelling, consumers do appear to want more information about their food’.³⁸ The ultimate aim of labelling is to ensure that the consumer’s best interests are served.

In ALAC’s view women have a ‘right to know’ about the risks of consuming alcohol in pregnancy so that they can make an informed choice. This ‘right to know’ is particularly salient given current research that shows women generally have a low level of awareness concerning the risks of consuming alcohol during pregnancy. There are well meaning but contradictory messages given to women about those risks from a variety of sources.

Improving broad public awareness of the risks of drinking when planning to become pregnant or when pregnant will enhance New Zealand’s overall strategic approach to preventing FASD and FAE. The broader strategy focuses on behaviour change complemented by accurate information on the health risks to the unborn child of alcohol consumption during pregnancy. The benefit of any reduction in the number of children exposed to alcohol during pregnancy will accrue to society as a whole in that the number of unborn children exposed to alcohol during pregnancy will decrease. This will result in a decrease in the number of children affected by FASD and FAE, as well as a decrease in the associated costs to the health, education and justice systems of both New Zealand and Australia.

Other benefits include:

- health and safety benefit
- improved consumer trust in the alcohol beverage industry and
- consumers right to know met.

³⁷ Hurst, B (July, 2005) Food packaging labels – time to show and tell, www.Just-food.com.

³⁸ n. 2 above

PART 3 REGULATORY/LEGISLATIVE IMPLICATIONS

3.1 International standards

Not applicable.

3.2 International legislation

The United States, France and Japan require labels on alcohol beverage containers advising of the risks of drinking either when planning to become pregnant or while pregnant. The United States has had health advisory labels on alcohol containers since 1989 and has not been subject to a challenge through the World Trade Organisation (WTO). Both Canada and the UK are currently considering the issue of health advisory labels advising on the risks of drinking either when planning to become pregnant or while pregnant. The French Minister of Health has recently announced that advisory labels concerning consuming alcohol during pregnancy will be compulsory from early 2006.

3.3 Regulatory impact statement

Cost implications

The main cost implication is the cost of labelling, both replacement labelling for existing products and new labels for ongoing product labelling. In considering the impact of these costs, the shelf life of the products must be considered. Also, consider the implications for locally produced beverages and imported beverages. Beers tend to have a short shelf life and rapid turnover. Wines may be consumed several years after bottling. Spirits have a very long shelf life but a rapid turnover. If the labelling requirements were introduced over a two-year time period, most of the costs of relabelling would be mitigated. These points are detailed below.

Cost to industry

There are cost implications for the alcohol beverage industry in terms of replacement labelling. These will no doubt include:

- additional costs of changing label design to comply; a once only issue
- enhanced quality assurance on labelling systems to avoid inadvertent non-compliance (a low additional cost) and
- relabelling to comply.

Cost to consumer

Suppliers are likely to pass additional costs on to consumers in higher prices.

Estimates of cost of labelling beer

The Beer, Wine and Spirits Council of New Zealand (BWS) has advised that the cost for changing labels to include an advisory statement regarding the consumption of alcohol during pregnancy is estimated at \$2.6 million for the first year and \$1 million per year for each year ongoing. The ongoing cost of \$1 million annually is related to the brands that do not have back labels and have to have them created, if this is the chosen method for labelling. It would be possible to modify a single (front) label to meet labelling requirements.

Costs of labelling wines and spirits and other alcoholic products

While these costs relate to the main breweries in New Zealand only and do not include wine and spirits, ALAC's view is that these figures can be reasonably extrapolated to provide an indication of the likely costs to major liquor producers. Small boutique wine producers will not incur the same costs simply because of volume, and a transition period would delay relabelling to coincide with normal expenditure on these types of cost.

Mitigation of costs

These costs could be mitigated through two strategies. First, a transition period could be allowed. This period would serve to reduce compliance costs for the industry. Second, most alcohol beverage companies relabel on a two-year cycle and the change to Standard 2.7.1 could be timed to coincide with this 'natural' change. ALAC's view is that allowing a transition period combined with the 'natural' relabelling cycle will ensure that any costs are kept to a minimum.

Comparison with costs for Country of Origin Labelling (CoOL)

A useful comparison of cost estimates is with the predicted cost for Country of Origin Labelling (CoOL)³⁹. As with CoOL, based on the assumption that the advisory label does not require the introduction of new recording systems for the supply channel, the principal cost of compliance is likely to lie in changes to labelling. The best solution is to include any additional words on the labels or other packaging.⁴⁰ The additional cost incurred depends on a number of factors and the stage at which changes are made:

- At the time of design of new labels/packaging or those that are being updated anyway – no significant additional cost
- If the change occurs where there is no need for re-design, all costs of updating artwork, plates and so on could add significant additional cost as outlined by BWS above
- Addition of wording by means of interim overprinting at the time of batch/use by labelling – effective only where the batch/use printing method allows other printing to occur at the same time and
- Addition of wording by means of overstickers – significant additional cost.

Industry sources suggested an indicative figure for the straightforward type of change proposed would be NZ\$5000 per product in total (design, marketing and technical inputs, new plates for printing, etc.). This is the cost that would apply to an individual product variant (or stock keeping unit). The cost for a firm with 10 different product labels to update would be NZ\$50,000, possibly with a small reduction for tasks shared between products (design, marketing etc). The labels in the alcohol beverage industry are not as full as labels in the food industry, so including advice regarding drinking alcohol during pregnancy is unlikely to necessitate as major a change as that for CoOL.

In a KPMG study of costs of nutrient labelling and percentage labelling in 2000, cost estimates between A\$500 and A\$2000 were used (NZ\$660-NZ\$2650 respectively), depending on whether relabelling was minor or major, and were up to A\$20,000 (NZ\$26,500) for some cases of complete package redesign.⁴¹ Clearly there are differences in the precise relabelling requirements of

³⁹ NZ Institute of Economic Research, CoOL Revisited, Benefit cost analysis of Country of Origin Labelling, Discussion draft for Food Standards Australia New Zealand, 30 August 2005

⁴⁰ n. 3 above p 3

⁴¹ KPMG Consulting "Report on the costs of labelling to meet the requirements of The Australia New Zealand Food Authority's proposed standards 1.2.8 1.2.10"; Report to the Australian Food and Grocery Council, 2000

different alcoholic beverage products, but the KPMG study⁴² suggested NZ\$5000 may be towards the high side of a cost representative of most relabelling. However, another cost that industry could experience is the redundancy of existing label stocks. This cost could be overcome by allowing a transition period. The CoOL proposal provides for a two-year transition period plus a further year to clear stock in trade and it is unlikely that products holding label stocks could not be cleared within that period. The KPMG report in 2000 indicated that up to six months of stock could be tied up in the manufacturing process, but thereafter stocks are typically cleared within a year or so.

Social responsibility

ALAC's view is that the labelling of alcohol beverage containers with a health advisory message advising of the risks of drinking while pregnant is an ideal way for the alcohol beverage industries in Australia and New Zealand to demonstrate their commitment to the health and welfare of our future population through socially responsible action. For corporate behaviour to be classified as truly 'socially responsible'⁴³ it must ideally:

- be voluntary
- “denote obligations and inclinations, if any, of corporations organised for profit, voluntarily to pursue social goals that conflict with their presumptive shareholder desire to maximise profits” and
- be based on the “reasonable expectations of society”.⁴⁴

The last point is particularly salient in the case of health advisory labels – it is the reasonable expectation of society that it understands the benefits and risks of consuming a product.

Socially responsible behaviour might be described as action that goes beyond the legal or regulatory minimum standard with the end of some perceived social good, rather than the maximisation of profits. Actions generally lumped together under the heading 'socially responsible behaviour' might be divided into four general categories:

- Contributions or conduct towards the community, society generally and the environment
- Behaviour towards consumers of the company's goods or services
- Behaviour towards employees and suppliers and
- General charitable giving.

An important concept is that of doing more than merely complying with minimum standards of conduct e.g. mere compliance with the law does not necessarily make a good citizen or a good company.

The alcohol beverage industry is in an ideal position to consider the needs of future generations through acting in the interests of consumers and placing health advisory labels on their containers advising of the risk of drinking alcohol during pregnancy or when planning to become pregnant.

⁴² n.5 above

⁴³ Regrettably, the alcohol beverage industry in New Zealand declined to place health advisory labels on alcohol beverage containers voluntarily.

⁴⁴ Bond L R and McCabe B (1992) Are Corporations Socially Responsible? Is Corporate Social Responsibility Really Desirable? J 4.

Profit implications

There may be profit implications if relabelling were required immediately following the Standard variation. Compliance costs are likely to be felt, particularly by smaller businesses and producers of specialist products such as boutique wines and liqueurs. This is because they have a lower turnover and greater likelihood of not being able to clear non-compliant labelling stock within the three years allowed for the introduction and stock-in-trade provisions of the new Standard. They are less likely to achieve economies of scale in label redesign work.

Market share implications

In ALAC's view there will be no negative market share implications. Those alcohol producers that comply with the varied Standard sooner rather than later may achieve improved market share through showing a responsible approach to selling their products i.e. advising of the risks of drinking during pregnancy may be viewed positively by the public and may incline them towards those products as opposed to a less 'responsible' producer.

Industry members are generally reluctant to include anything on the label of their products that may detract from the brand values of those products. However, ALAC notes that industry members in New Zealand support government's programme for culture change and the need for New Zealanders to drink responsibly. BWS, on behalf of industry members, has begun developing a website dedicated to encouraging responsible drinking. Industry advice on that website to those wanting to become pregnant or who are already pregnant is that they should not drink at all. Added to this website is additional publicity material that the industry have advised they will be producing. This material will take the form of coasters and posters for licensed premises, t-shirts and similar promotional material.

Price implications

There would be price implications if relabelling were required immediately following the Standard variation. However, most alcohol beverage companies relabel on a two-year cycle therefore the change to Standard 2.7.1 could be timed to coincide with this labelling cycle, thereby avoiding unnecessary price increases.

Trade implications

There may be some concerns about the impact of the application to Food Standards Australia New Zealand (FSANZ) for mandatory health advisory labels on alcohol containers on New Zealand's international trade obligations. In particular there may be a potential inconsistency between the proposed mandatory health advisory labels and New Zealand's obligations under World Trade Organisation (WTO) agreements. There are two agreements that are potentially relevant to mandatory health advisory labels on alcohol containers; the Agreement on Technical Barriers to Trade (TBT) and the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS).

The WTO permits measures that are necessary to achieve certain public policy objectives, such as the protection of human health. However, it requires that where those measures may restrict trade, the country in question must select the least restrictive measure reasonably available. In terms of the TBT, the proposed mandatory labelling may not be the least trade restrictive measure necessary to achieve the objective of preventing FASD/FAE. Taking this position, however, assumes that mandatory labelling is being used in isolation to achieve the prevention of FASD/FAE and this is

not the case. As noted earlier, in New Zealand health advisory labels are considered to be an important component of a larger overall strategy to prevent FASD/FAE.

Alternative measures, such as education to increase awareness of the danger of drinking while planning to become or being pregnant, would be less trade restrictive. However, ALAC submits that labels and education are ‘two sides of the coin’ in the strategy to prevent FASD. Labels both raise awareness and provide a focus for the development and implementation of an educational strategy.

The SPS applies if a measure is intended to “protect human or animal life or health within the territory of the Member from risks arising from additives, contaminants, toxins or disease-causing organisms in foods, beverages or feedstuffs”. Whether or not the SPS would apply to mandatory health advisory labels on alcohol containers would depend on whether or not alcohol can be adequately defined as an “additive, contaminant or toxin”.

If the SPS does apply, the mandatory labelling would need to meet an explicit test that it is based on “scientific principles and not maintained without sufficient scientific evidence”. The measure would also need to be proportionate to the level of risk identified. It is unlikely that a reasonably worded alcohol labelling measure that was strictly confined to the proposed objective and was plainly not discriminatory or a disguised restriction on trade would, in practical terms, be subject to a challenge in the WTO.

Employment implications

None.

PART 4 ANALYTICAL PROCEDURES

Not applicable.

PART 5 DETAILS OF REASONING

Not applicable.

PART 6 MANUFACTURING AND PUBLIC HEALTH

6.1 Manufacturing process

Not applicable.

6.2 Public health and safety

The introduction of health advisory labels is an essential part of a much wider public health strategy to increase awareness and minimise the risk of the potential dangers of consuming alcohol during pregnancy. Health advisory labels are reasonably simple to implement and, because they raise awareness of the potential dangers of drinking alcohol during pregnancy, can be an efficient and effective tool when complemented by a number of initiatives aimed at encouraging and enabling abstinence during pregnancy. Other initiatives include:

- an overarching strategy document focused on developing intersectoral responses for the prevention of FASD, and, where that fails, the diagnosis and treatment of those with FASD
- research to increase knowledge of the prevalence of alcohol consumption in pregnancy in the past five years, the level of awareness among women of child-bearing age on the effects of alcohol in pregnancy, and the most effective source of providing information on the impact of alcohol in pregnancy⁴⁵
- education initiatives and the development and dissemination of resources to complement the labelling and build on the message to the community of abstinence during pregnancy. Some of these will be developed and delivered with alcohol industry partners such as the Beer, Wine and Spirits Council of New Zealand (BWS) and
- further study of the international and national evidence on what constitutes harmful consumption (although it is useful to note here that BWS recommends abstinence during pregnancy).⁴⁶

The full public health implications of the application are attached as Appendix I.

⁴⁵ALAC has formed a policy partnership with the Alcohol and other Drugs Council of Australia and other Australian organisations including the National Drug Research Institute, the Centre for Behavioural Research and Cancer Control, the Alcohol Advisory Council of WA, and the Australian Consumers Association to provide an evidence base to support policy development in respect of alcohol beverage labelling in Australia and New Zealand. The proposed project will support evidence based policy development by:

- identifying the current state of community knowledge about alcohol-related harm
- identifying particular knowledge gaps that might be effectively targeted with health messages
- measuring the ease with which people can access standard drink information from alcohol beverage labels
- assessing whether changes to standard drink labels would make them more accessible to people
- identifying and testing possible health messages that might be conveyed on alcohol beverage containers and
- identifying the level of community support for the inclusion of health messages on alcohol containers and improvements to standard drink labelling.

This information will be utilised to develop and promote an agreed position on alcohol beverage labelling within the public health and related sectors that can, if appropriate, be used to support two applications to FSANZ for changes to the current requirements in respect to the labelling of alcoholic beverages. It is anticipated that such changes would comprise:

- increasing the size, and standardising the orientation, of standard drink information on alcoholic beverage labels and
- incorporating health messages on beverage containers.

⁴⁶ New Zealand Beer, Wine and Spirits Council (2004) 'Drinking to Your Health'

ALCOHOL ADVISORY COUNCIL OF NEW ZEALAND
Application to Food Standards Australia New Zealand (FSANZ):
Amendment of the Australia New Zealand Food Standards Code

ISSUES PAPER

**Mandatory Labelling of Alcohol Beverage Containers Advising of the Danger of
Drinking During Pregnancy**

February 2006

‘Drinking Alcohol During Pregnancy Can Harm Your Baby’

Introduction

This application from the Alcohol Advisory Council of New Zealand (ALAC) asks that Food Standards Australia New Zealand (FSANZ) amend the Food Standards Code ('the Code') to require all alcohol containers to carry a health and safety message advising of the dangers of drinking alcohol during pregnancy.

In 2000, the New Zealand House of Representatives received a petition from 7280 people⁴⁷, requesting that the House legislate that all alcoholic beverages in New Zealand carry health and safety messages including the advice that drinking alcohol during pregnancy can cause birth defects. The petition was referred to the Health Select Committee ('the Committee').

After considering the petition, the Committee recommended that health advisory labels be placed on alcohol beverage containers reminding of the potential dangers of drinking alcohol while pregnant and that the labels be supported by a range of health promotion and education initiatives and research.

The Committee's recommendation was informed by the results of longitudinal studies and other research suggesting that even small amounts of alcohol have the potential to damage an unborn child in the form of Fetal Alcohol Spectrum Disorder (FASD).⁴⁸ The children affected by FASD often exhibit significant developmental problems and suffer lifelong deficits in terms of their intellectual ability and mental capacity. FASD is considered to be the leading cause of mental retardation in the Western world and is entirely preventable. The estimated FASD incidence in the developed world is .05 to 3 per 100 live births.

In February 2003 the New Zealand government executive (Cabinet) agreed in principle to health advisory labels advising of the potential dangers of drinking alcohol when planning to become pregnant and while pregnant on alcohol containers, subject to the process by which amendments are made to the Code.

Background

This application is made in the context of:

- the New Zealand government's programme to change New Zealand's drinking culture from one that accepts high per occasion consumption and intoxication as social norms to one where moderate alcohol use is seen as both desirable and 'normal' and
- the New Zealand National Drug Policy. Priority Three of this policy is to reduce the hazardous and excessive consumption of alcohol and the associated injury, violence and other harm, particularly on the roads, in the workplace, in and around drinking environments and at home.

⁴⁷ NZ Parliamentary petition 1999/36

⁴⁸ Fetal Alcohol Spectrum Disorder (FASD) is an umbrella term describing the range of effects that can occur in an individual whose mother drank alcohol during pregnancy. These effects may include physical, mental, behavioural, and/or learning disabilities with possible lifelong implications. The term FASD is not intended for use as a clinical diagnosis. This terminology was agreed to in April 2004 by the following USA and Canadian organisations: National Organization on Fetal Alcohol Syndrome, Centers for Disease Control, National Institutes of Health, Substance Abuse and Mental Health Services Administration, Health Canada.

Outcome 2 relates to alcohol and pregnancy and is focused on achieving a reduction in the prevalence of drinking amongst pregnant women and women planning pregnancy.

New Zealand's drinking culture has a direct impact on achieving a reduction in the prevalence of drinking amongst pregnant women and women planning pregnancy. Part of this culture is the general acceptance that drinking during pregnancy is normal and that there is no harm associated with doing so. Further, for many years FASD has been viewed as an issue relevant only to women in low socio-economic groups with backgrounds of high unemployment, transience and alcohol misuse and living in communities where there is a relatively high tolerance of heavy drinking.

These views are no longer viable against a background of increasing numbers of women of all ages and from many varied backgrounds who binge drink in similar amounts and numbers to their male counterparts. Research carried out over the past five years shows that generally:

- there is a low awareness among women of all backgrounds of the potential dangers of drinking during pregnancy
- large numbers of women continue to drink during pregnancy and
- increasing numbers of young women of child-bearing age are binge drinking⁴⁹.

In New Zealand adult women who binge drink tend to be Pākehā (European), in full time employment and have a personal or household income between \$30,000 and \$70,000. They are usually 25 years of age and over, have children between the ages of 5 and 15 years and live in a large town or city. They usually drink at home between one and three times a week, and over a third have more than five drinks at any one time. While women from lower socio-economic groups still do appear in statistics, FASD is now becoming more widespread in mainstream society. This means that, because of the current low levels of awareness, FASD has the potential to become an issue of epidemic proportions if women continue to binge drink in increasing numbers, as statistics suggest they will do.

Not only are more women binge drinking; a 2004 survey by Alcoholics Anonymous showed that 40 percent of AA members were female compared with less than a quarter or 22 percent in 1979.⁵⁰

There is a significant body of evidence suggesting that Australian alcohol consumers strongly support the introduction of compulsory health messages on alcohol containers.^{51 52 53} For example, the 2001 National Drug Strategy Household Survey found over two-thirds of a large national sample supported larger standard drink labels (67 percent) and the introduction of health messages on alcohol containers (71 percent Australian Institute of Health and Welfare 2002). It is therefore highly likely that the

⁴⁹ BRC Marketing and Social Research, 'The Way We Drink: A profile of Drinking Culture in New Zealand. Binge drinking (defined as 5+ drinks per session) by New Zealand women aged 18 to 44 has increased dramatically in the last ten years with a fifth of women over the age of 18 regularly binge drinking, 650,000 women accepting drunkenness as socially acceptable and 13 percent of adult women saying they drank more than seven average drinks 'on their last drinking occasion'.

⁵⁰ www.alcoholics-anonymous.org.nz/resources/whoweare.pdf

⁵¹ Haines, B., & Stockwell, T., (2003). Alcohol labelling and public health: A pilot study (Perth, National Drug Research Institute).

⁵² Australian Institute of Health and Welfare (2002). 2001 National Drug Strategy Household Survey: First Results. AIHW cat. no. PHE 35. (Canberra: AIHW (Drug Statistics Series No 9).

⁵³ Stockwell, T., Beel, A., (1994) Public support for the introduction of standard drink labels on alcohol containers. (Perth, National Centre for Research into the Prevention of Drug Abuse).

introduction of evidence-based health messages regarding safe and unsafe alcohol consumption on alcohol beverage labels would make a significant contribution to educating the population regarding the dangers of some patterns of alcohol consumption and be well received by the community.

Recent research in Australia reveals that 1.2 million women aged 25 to 49 drink or have drunk during pregnancy (23 percent of 25-49 year olds continued to drink whilst pregnant) and 33 percent of mothers to be aged 25-34 drink in pregnancy. As part of the survey people were asked on a scale of 1 to 10 what they thought of drinking in pregnancy. More than three million women – according to the survey – said they were not convinced it was necessary to abstain from drinking while pregnant.⁵⁴

ALAC considers the introduction of health advisory labels to be an essential part of a nationwide strategy to increase awareness of the potential danger of drinking during pregnancy. Health advisory labels are reasonably simple to implement and, because they raise awareness of the potential danger of drinking during pregnancy, can be an efficient and effective tool when complemented by a number of initiatives aimed at encouraging and enabling abstinence during pregnancy.

These initiatives include:

- an overarching strategy document focused on developing intersectoral responses for the prevention of FASD, and, where that fails, the diagnosis and treatment of those with FASD
- research to increase knowledge of the prevalence of alcohol consumption in pregnancy in the last five years, the level of awareness among women of child-bearing age on the effects of alcohol in pregnancy, and the most effective source of providing information on the impact of alcohol in pregnancy⁵⁵
- education initiatives and the development and dissemination of resources to complement the labelling and build on the message to the community of abstinence during pregnancy. Some of these will be developed and delivered with alcohol industry partners such as the Beer, Wine and Spirits Council of New Zealand (BWS) and
- further study of the international and national evidence on what constitutes harmful consumption (although it is useful to note here that BWS recommends abstinence during pregnancy).⁵⁶

⁵⁴ Alcohol Awareness Survey 2005, Conducted for the Salvation Army, prepared by Roy Morgan Research www.salvationarmy.org.au/home.asp

⁵⁵ ALAC has formed a policy partnership with the Alcohol and other Drugs Council of Australia (ADCA) and other Australian organisations including the National Drug Research Institute (NDRI), the Centre for Behavioural Research and Cancer Control (CBRCC), the Alcohol Advisory Council of WA (AAC), and the Australian Consumer's Association (ACA) to provide an evidence-base to support policy development in respect of alcohol beverage labelling in Australia and New Zealand. The proposed project will support evidence-based policy development by:

- identifying the current state of community knowledge about alcohol related harm
- identifying particular knowledge gaps that might be effectively targeted with health messages
- measuring the ease with which people can access standard drink information from alcohol beverage labels
- assessing whether changes to standard drink labels would make them more accessible to people
- identifying and testing possible health messages that might be conveyed on alcohol beverage containers and
- identifying the level of community support for the inclusion of health messages on alcohol containers and improvements to standard drink labelling.

This information will be utilised to develop and promote an agreed position on alcohol beverage labelling within the public health and related sectors that can, if appropriate, be used to support two applications to FSANZ for changes to the current requirements in respect to the labelling of alcoholic beverages. It is anticipated that such changes would comprise:

- increasing the size, and standardising the orientation, of standard drink information on alcoholic beverage labels and
- incorporating health messages on beverage containers.

⁵⁶ NZ Beer, Wine & Spirits Council (2004) 'Drinking to Your Health'

Lack of knowledge of the risks of drinking alcohol during pregnancy

Until quite recently it was thought that pregnant women should limit consumption of alcohol to 'moderate' levels for example, 'a couple of drinks', 'a couple of times a week'. It was also thought that maternal drinking only caused fetal damage in the most extreme cases of alcoholism and high levels of consumption.

Unfortunately, while this is still a common belief, experts have concluded that there is no safe level of alcohol consumption during pregnancy, nor is there any 'safe' time throughout a pregnancy during which it is 'better' to drink. Fetal brain development has been shown to be a continuous process, occurring into and beyond the third trimester. This means that alcohol consumption can impair development at any stage of a pregnancy. This indicates that there is a need to update general awareness and understanding of the risks associated with consuming alcohol during pregnancy.

A summary of recent research on prenatal exposure to alcohol is provided in Appendix I 'Review of Relevant Literature'.

Comparison with the previous application concerning health advisory labels on alcohol beverage containers (A359)

A 1999 application to require mandatory health advisory labels on alcohol containers was declined by FSANZ (then known as Australia New Zealand Food Authority [ANZFA]). Any new application for alcohol labelling will need to present new evidence and/or arguments in order to justify intervention by FSANZ in the shape of an amendment to Standard 2.7.1. Drawing on new research and a better general understanding of the key issues relevant to alcohol labelling, ALAC has prepared both new evidence and new arguments in support of its application.

Since 1999, the level of research and awareness about fetal alcohol exposure has increased to the extent that an assessment based on the same issues identified by FSANZ as central to its rejection in 1999 would almost certainly lead to acceptance of an application in 2005. In order to justify this assertion, the specific points identified as central to the 1999 FSANZ ruling are outlined below, along with the situation as it stands in 2005.

Scientific evidence indicates that health advisory labels are not effective in changing behaviour of 'at-risk' groups.

New Zealand has developed an overarching strategy to address FASD. Labelling of alcohol beverage containers is an integral part of that strategy. There is no suggestion or expectation that labels alone will prevent alcohol consumption during pregnancy. Rather labels will contribute to an overarching strategy that will focus both on increasing public awareness of the potential for harm associated with drinking alcohol during pregnancy and on addressing the needs of those children born FASD affected.

Research clearly shows that, together with other interventions, labels are a useful tool in the complex task of changing people's behaviour. Behavioural modification is a process. It is best achieved through a series of stages, with each building on the previous to gradually reset the social and cultural environments that establish patterns of behaviour and ingrain them as habitual. Increasing awareness

of the need for change and understanding of the issues associated with behaviour such as drinking during pregnancy is a basic prerequisite of change. In the absence of increased awareness, change is unlikely to occur.

The perception that FASD is a problem only for 'at-risk' groups that will not respond to warning labels is not only erroneous but fails to take into consideration the mounting evidence that FASD is rapidly becoming an issue for European, middle class women in full employment and with an income between \$30,000 and \$70,000. There now seems to be two distinct profiles of 'at-risk' women. Waterson and Murray-Lyon⁵⁷ found most at-risk mothers for pre-natal alcohol consumption to be older, multiparous, poorly educated, African American and smokers with a high incidence of divorce and separation. Another study by Mills and Graubard⁵⁸ found that similar behaviour was displayed by a very different groups of women – European, young and highly educated. This two-cluster profile of at risk women is also revealed by a 2004 Canadian report where women with higher incomes (\$60,000 or more) were much more likely to report drinking during their last pregnancy than women in lower income brackets.⁵⁹

The latest Australian study shows that those women on a lower income were less likely to drink during pregnancy. For those where the income of the main earner in the household was less than \$50,000 21 percent drank during pregnancy whereas those in the over \$70,000 bracket 41 percent drank.⁶⁰

Many women report that they continue to drink because of misperceptions about how much alcohol intake during pregnancy is acceptable and how much harm alcohol can cause. In a Danish study (Kesmodel & Kesmodel, 2002)⁶¹ 76 percent of the women considered some alcohol intake during pregnancy to be acceptable, mostly on a weekly basis. These misperceptions may have been fuelled by the conflicting messages women have received about drinking during pregnancy. Further, many women believed that drinking during pregnancy was widespread and that it was all right to drink during pregnancy.⁶²

Simple, accurate health advisory statements about alcohol-related harm would be difficult to devise given the complexity of the issues around alcohol-related harm and the benefits of moderate consumption

The current application addresses the single issue of the placement of health advisory labels on alcohol containers reminding of the potential danger of drinking alcohol during pregnancy. In ALAC's view this is not a complex message.

⁵⁷ Waterson, E.J., & Murray-Lyon, I.M. (1990) Preventing alcohol related birth damage: A Review *Social Science and Medicine*, 30, 349-364

⁵⁸ Mills, J.L., & Graubard, B.I (1987) Is moderate drinking during pregnancy associated with an increased risk for malformations? *Pediatrics*, 80, 309-314.

⁵⁹ Basford, D.L., and Thorpe, K Eds. (2005) *State of Evidence: Fetal Alcohol Spectrum Disorder (FASD) Prevention*, Alberta Centre for Child, Family and Community Research, Final Report, *ibid*

⁶⁰ n. 8 above p 6

⁶¹ Kesmodel, U., & Kesmodel, P.S. (2002) Drinking during pregnancy: Attitudes and knowledge among pregnant Danish women, 1998 *Alcoholism: Clinical and Experimental Research*, 26(10), 1553-1560.

⁶² *ibid* p 82

The 1999 application proposed a much broader target for labels, including not only drinking during pregnancy, but drink-driving and the operation of machinery while intoxicated. There was also a general health component to the message to the extent that the statement that 'alcohol is a dangerous drug' was proposed for inclusion. This broad approach contrasts with the tight targeting suggested in the current application.

By restricting the message proposed to a single issue, for which there is clear evidence of potential harm and a related need for updating general awareness of the relevant information, the suggestion made in 1999 of the need for a balancing message about possible health benefits for some people no longer applies. The latest evidence shows that there are no health benefits in drinking alcohol before middle age.⁶³

Alcohol consumption and alcohol-related harm are trending down in both Australia and New Zealand

The downward trend in alcohol consumption identified by FSANZ in 1999 has not been realised. Over the past five years a 10.7 percent increase in consumption per capita has been recorded⁶⁴ in New Zealand. In 2004 Australian research reported more than half of males (56 percent) and two thirds of females (68 percent) drink at levels likely to affect their health and have low awareness of the potential dangers.

With respect to the primary target group for alcohol and pregnancy labels (women of children-bearing age), the most current and credible research available shows that their alcohol consumption has increased. Six hundred and fifty thousand New Zealand women thought drunkenness to be socially acceptable, with 17 percent saying they drank more than seven average drinks 'on their last drinking occasion'.⁶⁵ In Australia, dangerously high levels of alcohol consumption are considered normal with 24 percent of young women in the 14-24 age group drinking up to 30 drinks in one sitting.⁶⁶

Comparative analysis also shows women are beginning to match the pattern of binge drinking traditionally more common among men. A profile of female binge drinkers suggests, among other things, that they usually drink between one and three times a week, and over a third have more than five drinks at any one time. Younger women drinkers in particular are showing signs of increased bingeing, with regular drinking sessions where large amounts of alcohol are consumed at one time.

It is estimated that 80 percent of teenage pregnancies are alcohol exposed⁶⁷, while among women of all child-bearing ages, approximately 30 percent continue to drink after pregnancy recognition, with 11

⁶³ ALAC Occasional Publication No. 23, (February 2005) 'The burden of death, disease and disability due to alcohol in New Zealand',

⁶⁴ Statistics NZ 2004. It is important however to factor in growth in population. New Zealand's population has increased from approximately 3.6 million at the beginning of 1997 to 4.1 million at the end of 2004. Another reason why the amount of alcohol available for consumption has risen may be the lowering of the legal minimum purchase age in 1999 from 20 years to 18 meaning that there are more purchasers in the market.

⁶⁵ BRC Marketing and Social Research The Way We Drink: A Profile Of Drinking Culture In New Zealand

⁶⁶ Democrats Media Release 22 June 2005; www.salvationarmy.org.au/home.asp

⁶⁷ ALAC Report, (2001) - Survey of Midwives.

percent drinking to intoxication levels.⁶⁸ Although correspondingly accurate data on rates of FASD is not available, it is clear that women are drinking more and that, if available research is accepted, between one-quarter and one-third of pregnancies could be classified as being at risk of FASD. Binging is said to put women at increased risk for unintended pregnancies and means they are more likely to drink while pregnant.

The Director of College Alcohol Studies at the Harvard School of Public Health in Boston, called binge drinking 'a national problem' and made specific reference to FAS as a one of many direct negative effects. The American National Organization on Fetal Alcohol Syndrome (NOFAS) has also identified binge drinking and heavy drinking patterns as having the most and greatest risk for FASD and reports being "alarmed" at the increase in binge drinking nationally. New Zealand and Australia could easily have been included as targets for these comments, with a similar trend apparent.

These findings show that the trends identified and relied upon by FSANZ in declining the 1999 application have not proved reliable.

Public health strategies aimed at reducing alcohol-related harm are already implemented in Australia and New Zealand

FSANZ is correct that there are public health strategies in place aimed at reducing alcohol-related harm. Both New Zealand and Australia have also implemented drug strategies that are based on a harm minimisation approach. Insofar as these strategies address issues related to the use or abuse of alcohol, they tend to focus on reducing drink-driving or underage drinking through health promotion initiatives, community action programmes and social marketing campaigns.

ALAC, in consultation with the Aotearoa New Zealand National Advisory Group⁶⁹ on FASD has developed a national strategic plan to address FASD in New Zealand. The goal of the strategy is 'Abstinence from alcohol during pregnancy by 2020'. The four major goals of the strategy are:

- preventing the incidence of FASD
- identifying those affected by FASD
- treating those affected by FASD in appropriate settings with appropriate interventions and
- promoting multisectoral/multidisciplinary cooperation and information sharing.

The introduction of health advisory labels advising of the dangers of drinking alcohol during pregnancy will contribute directly to two of these goals – prevention and information sharing.

Health advisory labels will form an important strand of this coordinated national strategy involving education of the community as a whole and women of child-bearing age as well as their health professionals, partners, families and/or friends. However, in contrast to these other initiatives, which

⁶⁸ Watson & McDonald, (1999) 'Nutrition in Pregnancy'; A Wellington School of Medicine study in 2003, found 25% of women 26 weeks pregnant had consumed alcohol in the previous 7 days.

⁶⁹ The Aotearoa National Advisory Group is a group of people with a wide range of relevant expertise in FASD that has been brought together by ALAC to provide advice as required to government on the development of policies and interventions that address FASD in New Zealand. Where appropriate, the Advisory Group will also play a role in supporting and promoting relevant research.

will take some time and significant resources to develop and implement, labels can be put in place quite quickly and cost effectively.

ALAC acknowledges that not all alcohol will be served in the actual container in which it comes. However, we reiterate that health advisory labels are not seen as a single strategy to change behaviour of the target group. Health advisory labels will provide a visible and tangible basis point for an overall strategy aimed at increasing women's awareness of the dangers of drinking while planning to become pregnant or during pregnancy.

Alcohol has significant health benefits when consumed at low to moderate levels

This issue is not directly relevant to the current application. In ALAC's view, a message advising people of the potential dangers of drinking alcohol during pregnancy does not bring with it any particular responsibility to also provide information about the potential for some people to gain health benefits from moderate levels of consumption. In fact, such an approach could undermine the goals of the proposal, by confusing the primary issue being targeted through the inclusion of contradictory information. Also, as discussed earlier, these benefits do not accrue to women of child-bearing age.⁷⁰

There is no evidence that light drinking by pregnant women harms the unborn child

The scientific basis of this statement has been undermined in the past five years by the results of clinical studies and longitudinal research initiatives. A review of evidence available in 2004 supported the conclusion that alcohol consumption during pregnancy can have a direct harmful effect on a fetus, although it is not possible to specify exactly how much alcohol is required for this harm to occur. Some studies suggest that even very light drinking can have an effect on fetal development. In this type of knowledge environment, the only safe level of alcohol to consume during pregnancy that can be confidently recommended, is none. As noted earlier, the health benefits of alcohol do not accrue to women of child-bearing age.

It is perhaps worth noting here that representatives of the alcohol industry have taken a conservative stance on this issue, with a BWS publication from 2004 advising: "There are some circumstances where it is never safe to drink alcohol, for example, if you are pregnant..."⁷¹

Further detail about the impact of alcohol on fetal children is available in Appendix I.

Other approved labels

Virtually all foods manufactured or packaged after December 2002 must have information panels listing their nutritional values, the percentage of their main ingredients and lists of major allergens. Shoppers apparently consistently ask for more information about exactly what food labels mean and an easy-to-

⁷⁰ See page 15, item '2' for further discussion.

⁷¹ NZ Beer, Wine and Spirits Council (2004) 'Drinking to Your Health'.

use shopper's guide has been designed to answer those questions, which includes the official list of food additives by number, name and use.⁷²

It seems unreasonable to ensure that consumers are informed in such great detail about what is contained in their food products (which do not cause brain damage or physical deformity), while efforts to advise people of the fact that alcohol can cause significant, lifelong harm to the wellbeing and potential of children exposed to it in the womb, are rejected.

There is also a requirement under the Joint Food Code around the labelling of some caffeine products, with the advice that caffeine is not recommended for pregnant or lactating women. The level of harm and weight of evidence supporting the approval of labelling to protect people against the dangers of caffeine appear insignificant in comparison to those dangers associated with drinking alcohol during pregnancy, yet we do not have health advisory labels on alcohol.

ALAC notes that industry members in New Zealand support government's programme for culture change and the need for New Zealanders to drink responsibly. BWS, on behalf of industry members, are voluntarily developing and implementing a website, www.drinkresponsibly.co.nz, dedicated to encouraging responsible, moderate drinking. Industry advice on that website to those wanting to become pregnant or already pregnant is that they should not drink at all. Added to this website will be additional publicity material that the industry has advised it will be producing. This material will take the form of t-shirts and similar promotional material and importantly drinks coasters and signage for licensed premises to ensure that, where an alcoholic drink is not served in a container such as a can or bottle, the consumer will still receive the important messages regarding drinking and pregnancy.

ALAC reiterates the importance of health advisory labels as part of an overall campaign rather than a single solution. Other educational approaches will be used to raise awareness and encourage the choice of abstinence during pregnancy.

Regulatory impact statement

ALAC acknowledges that requiring health advisory labels on all alcohol containers will result in a cost to the industry related to relabelling products. However, ALAC's recent experience with the industry in respect to the design and implementation of a 'new' standard drinks logo has revealed that relabelling occurs approximately every two years and therefore is part of the normal business cycle.

Further, ALAC submits that requiring health advisory labels is no different from the decision regarding standard drinks labelling. The same principles used when looking at standard drinks labelling could be applied to health advisory labels, including the granting of a transition period before all alcohol containers are required to have such labels. ALAC submits that any costs to the industry could be kept to a minimum by the use of a transition period to full compliance.

⁷² The Official Shopper's Guide to Food Additives and Labels.

Concluding comments

In ALAC's view, the longer people are unaware that there is no guaranteed safe amount to drink while pregnant, the more they will be exposed to the potential harm associated with 'low' or 'moderate' consumption. This is particularly so given the rising incidence of binge and heavy drinking among women between the ages of 18 and 44 – the child-bearing years.

The personal problems and social costs that result from FASD can be reduced through a number of interventions. New Zealand and Australia are well behind some other countries routinely used to benchmark aspects of our own performance and standards. By arguing, in 1999, that labels were not needed because "there is no evidence that light drinking by pregnant women harms the fetus", FSANZ has demonstrated the gap between the general view in 1999 (i.e. a drink or two now and then is fine), and the actual state of knowledge in 2005, which indicates that there is no proven level of safe alcohol consumption during pregnancy.

There is an urgent need to communicate the fact that for alcohol during pregnancy none is better than some. Making health advisory labels on alcohol mandatory is an efficient and effective way of achieving this and helping to raise awareness of the issue generally. Health advisory labels will complement other strategies being developed and implemented to prevent an increase in the number of children suffering FASD. New Zealand has established a strategy for preventing FASD and mandatory health advisory labels is an integral part of this strategy.

APPENDIX I:

DRINKING, PREGNANCY AND LABELS: REVIEW OF RECENT RESEARCH: SUMMARY OF FINDINGS

Fetal Alcohol Syndrome Disorder

Fetal Alcohol Syndrome Disorder (FASD) is widely recognised as a set of birth defects caused by maternal consumption of alcohol during pregnancy. FASD is recognised by and commonly characterised as growth deficiency and a specific set of minor facial traits, which generally become less apparent as children mature. These recognisable physical manifestations of FASD tend to occur at the higher end of what is, in effect, a continuum of damage. FASD is also associated with a wide range of less visible symptoms, such as impaired general intellectual function and difficulties with learning, memory, attention and problem solving. Many individuals with FASD also have problems with mental health and social interactions.

FASD is the most common cause of non-hereditary mental retardation, with conservative estimates of occurrence ranging from 0.5 to 3 per 1000 live births in most populations.

Other alcohol related impairment

FASD is a serious problem, the magnitude of which is likely to be significantly underestimated owing to the difficulties associated with diagnosing all but the most extreme cases, which can be recognised by the characteristic physical traits. However, without dismissing the importance of FASD, of perhaps greater relevance and concern to most people/populations are alcohol-induced impairments that come with more moderate levels of consumption, at the middle and lower ends of the continuum of which FASD represents the higher end.

Physical deficits associated with maternal drinking, while readily apparent and therefore more likely to be diagnosed, have proved to be less useful as an indicator of the enduring effects of prenatal alcohol exposure than specific neurodevelopmental outcomes. People who are prenatally exposed to alcohol tend towards functional deficiencies in both cognitive-based and emotion-related skills. These deficiencies may develop in children of mothers who drank only moderately, i.e. 7-14 standard drinks per week, during pregnancy.

Research into growth deficits associated with prenatal alcohol exposure has shown that significant effects can occur at levels of less than one drink per day. In addition to the potential for maternal alcohol consumption to produce smaller, lighter babies, longitudinal studies have also found a wide range of neurocognitive deficits in children exposed to alcohol in the womb. These effects are shown to occur at levels of consumption not usually associated with maternal alcohol problems, and include deficits in attention, memory and information processing from the time of birth to 14 years of age (the end of the research period).

While physical symptoms can reportedly manifest at levels of consumption of less than one drink per day, adverse effects on child behaviour (e.g. aggression, withdrawal, anxiety, depression, delinquency) have been observed at levels of maternal alcohol intake of as low as one drink per week.

This type of research has led experts in the field to warn of the danger to public health of focusing attention in the area of maternal alcohol intake on the higher end of the consumption scale and the resultant manifestation as FASD, rather than on the more general issue of women drinking while pregnant, at even moderate or low levels.

The estimated FASD birth rate of 0.5-3 per 1000 increases dramatically with the addition of children affected by the types of problem discussed above⁷³, to a conservative estimate of nearly one per 100.⁷⁴

A policy of abstinence

Research now demonstrates that the degree to which an unborn child is affected by maternal alcohol consumption is dependent on the amount, timing and duration of this intake. This situation can be generalised for some exposure-related effects, as 'the more a woman drinks during pregnancy, the greater the potential for damage to the unborn child and the higher the degree of impairment that is likely to occur'. Because even a small amount of alcohol may affect a child's development, this has led to the conclusion by many experts that the best policy towards alcohol during pregnancy is abstinence.

Prevention strategies

Research into the effectiveness of prevention and intervention strategies aimed at reducing alcohol consumption by pregnant women shows varying results. As with other public health issues where behavioural changes are sought, additional research is required to identify the most effective ways of educating the public.

ALAC's view is that the best way to limit problems associated with maternal alcohol consumption is the introduction of a wide-ranging strategy, utilising a diverse set of initiatives and media, including health advisory labels on alcohol containers. Research findings support a public health approach of implementing multi faceted strategies to maximise risk reduction interventions.

Primary prevention strategies could include mass media promotion of alcohol-free pregnancy, delivering initiatives through intermediate and high schools, working with lead maternity carers (either GPs or midwives) to encourage them to discuss alcohol use with their patients, making health advisory labels mandatory on alcohol beverage containers.

Health advisory labels

Studies have shown that labels can produce an increase in awareness over time, with a larger proportion of the public knowing about the relationship between drinking during pregnancy and birth defects. Labelling has also shown positive short-term results in some studies, with reduced levels of consumption reported among pregnant women. However, it appears there may be a 'familiarity' effect

⁷³ Termed alcohol-related neurodevelopmental disorders by some specialists.

⁷⁴ 9.1 per 1000 live births.

associated with labels, whereby less attention is paid to label messages over time, as people become used to their presence.

Technical factors such as the length, size, orientation, visibility and positioning of an information label can all impact on effectiveness. In addition there are social, cultural and demographic variables that need to be understood. These may influence and can be influenced by the intended audience, message source, style, tone and degree of content targeting. The effectiveness of health advisory labels is enhanced by well targeted education campaigns.

Behavioural change

Labelling may increase awareness or understanding of an issue, however, this in itself does not appear to be enough to change people's actual behaviours. Studies in general have failed to produce significant evidence of behavioural changes resulting from exposure to labels alone.

However, labelling has proven to increase awareness of specific issues among target populations (particularly when enhanced by well targeted education campaigns) and this is a significant, positive finding in terms of public health goals. The first stage in the process of behavioural change is establishing an awareness and understanding of the need for changes to be made. The actual adoption of new, desirable behaviours is seen as the final stage of a complex intervention.

Changing people's behaviour can be a long, slow process. It is not realistic to expect a single, simple initiative, such as the introduction of information or health advisory labels on alcohol, to have an immediate, significant impact on entrenched patterns of behaviour without the accompanying education of target audiences. ALAC cannot emphasise enough the fact that health advisory labels make up part of the overall strategy to reduce the incidence of FASD in New Zealand.

A good place to start

The introduction of health advisory labels on alcohol containers is an achievable, relatively easy and cost-effective preliminary initiative that can reach a large numbers of people. Studies have shown high and sustained public acceptance of labels and belief in their effectiveness as an intervention. Given these factors, the limitations of and objections to health advisory labels are easily outweighed by the positive contribution they can make as a useful preliminary intervention towards reducing the significant and serious problem of alcohol consumption during pregnancy.

The number of people who have been, are currently being and will in future be damaged by alcohol while in the womb cannot be accurately determined. What is clear is that the direct harm and reduced potential associated with this problem are significant and still not fully understood. The generally accepted public view on drinking during pregnancy appears to be that moderate consumption, e.g. a glass or two of wine a few times a week, is harmless and probably even beneficial to the health of both mother and child. Unfortunately, research over the past five years has clearly established the inaccuracy of this view, having demonstrated that as little as one glass of wine per week during pregnancy has the potential to cause offspring lifelong damage and deficit.

The most effective public health approach is one of implementing multi faceted strategies to maximise risk reduction interventions. In general, the more sources of health messages about drinking during pregnancy to which people are exposed, the higher their awareness is likely to be of the issue. A comprehensive, multi-faceted strategy implemented nationally in a coordinated manner and sustained over a number of years is the best approach to take in order to reduce fetal alcohol damage. New Zealand now has such a strategy and the introduction of mandatory information-based labels on alcohol containers will serve as an excellent starting point to be built on over time as interest, awareness and resourcing of preventative action increases.

The research

Impact on children of maternal alcohol consumption during pregnancy

Studies over the past 31 years have identified health detriments to children of maternal consumption of alcohol during pregnancy. Fetal Alcohol Syndrome, a developmental disorder resulting from heavy maternal alcohol consumption during pregnancy, was first identified in France in 1968 and in the United States in 1973. Other fetal health detriments resulting from maternal alcohol consumption have been categorised as alcohol-related neurodevelopment disorder (ARND) and alcohol-related birth defects (ARBD).

Most of the research carried out into the effects of prenatal alcohol exposure has taken place in the United States. The literature is reviewed below, categorised as North America, other countries and New Zealand and Australian research.

North America

The United States Department of Health and Human Services prepared a June 2000 10th *Special Report to the US Congress on Alcohol and Health – Highlights from Current Research*. The paper discussed the effects of prenatal alcohol exposure on brain structure and function, underlying mechanisms of alcohol-induced damage to the fetus, and issues in FAS prevention. It described FAS as a set of birth defects caused by maternal consumption of alcohol during pregnancy. It noted that, at birth, children with FAS could be recognised by growth deficiency and a characteristic set of minor facial traits that tended to become more normal as the children matured.

Less evident at birth, but far more devastating to FAS children and their families, were the lifelong effects of alcohol-induced damage to the developing brain. The paper said that FAS was considered the most common non-hereditary cause of mental retardation. In addition to deficits in general intellectual functioning, individuals with FAS often demonstrated difficulties with learning, memory, attention and problem solving as well as problems with mental health and social interactions.

Estimates of FAS varied from 0.5 to 3 per 1000 live births in most populations, with much higher rates in some communities. However, the diagnosis of FAS identified only a relatively small proportion of children affected by alcohol exposure at birth. Children with significant prenatal alcohol exposure could lack the characteristic facial defects and growth deficiency of FAS but still have alcohol-induced impairments that were just as serious, if not more so, than those children with FAS.

The term ARND had been developed to describe those conditions. In addition, prenatally exposed children without FAS facial features could have other alcohol-related physical abnormalities of the skeleton and certain organ systems. Those conditions were known as ARBD.

Jacobson and Sokol in *Effects of Fetal Alcohol Exposure on Infant Reaction Time* examined the effect of prenatal alcohol exposure on reaction times in infancy. Maternal drinking was found to be related to longer reaction times and to fewer fast responses, after controlling for potential confounders. The incidence of fast performance was reduced in infants whose mothers averaged at least 0.5 ounces of absolute alcohol per day, indicating an impact at lower levels than those associated with FAS.

Jacobson in a later paper, *Assessing the Impact of Maternal Drinking During and After Pregnancy*, reviewed findings from longitudinal follow-up studies of adolescents and adults with FAS. She found that the deficits associated with the syndrome were long lasting and pervasive. In addition, follow-up data from several large, prospective studies of cohorts representing a broad range of alcohol exposure levels confirmed that, although FAS represented the severe end of a continuum of birth defects, moderate levels of alcohol intake produced physical and neurobehavioural deficits similar to, but less severe than, FAS.

Larkby and Day in *The Effects of Prenatal Alcohol Exposure* stated that exposure to alcohol during gestation could cause persistent abnormalities in physical and cognitive development. Children meeting the clinical definition of FAS were small for their age, exhibited characteristic facial anomalies, and demonstrated deficits in central nervous system development. The degree to which a person was affected by prenatal alcohol exposure depended on the amount, timing and duration of the mother's alcohol consumption during pregnancy, as well as maternal and environmental factors.

The authors said that some exposure-related effects, such as growth deficits, were directly related to the amount of alcohol consumed, so that even a small amount of alcohol might affect child development. The best policy continued to be abstinence during pregnancy.

In a further paper, Day, Leech et al examined growth deficits in offspring exposed to prenatal alcohol. They interviewed women in the fourth and seventh months of pregnancy and at delivery. The women and children were then seen when the offspring were aged 14. Growth deficits associated with prenatal alcohol exposure were identified among offspring at 14 years. Weight, height, head circumference and skinfold thickness continued to be significantly affected by prenatal alcohol exposure after controlling for other significant size predictors.

The researchers stated that the effects exhibited a dose-response pattern, and significant effects were found at levels below one drink per day. For example, first trimester alcohol exposure predicted weights of 152 lbs for the offspring of abstainers, 149 lbs for the offspring of light drinkers, 143 lbs for the offspring of moderate drinkers and 136 lbs for the offspring of heavy drinkers.

Sampson et al in *Prenatal Alcohol Exposure, Birthweight, and Measures of Child Size from Birth to Age 14 Years*, analysed data from a longitudinal prospective study examining a cohort of approximately 500

offspring at birth, eight and eighteen months and at four, seven and fourteen years of age. Effects of alcohol were observed on weight, length and head circumference at birth. However, the birthweight effect was found to be transient. Although alcohol effects remained observable at eight months, they were not measurable thereafter up to the age of 14. The authors concluded that neither birthweight nor any later size measure was as useful an indicator the enduring effects of prenatal alcohol exposure as were certain neurodevelopmental outcomes.

Sampson, Barr et al in *The Long-Term Neurocognitive Consequences of Prenatal Alcohol Exposure: A 14-Year Study* reported further on the findings. They stated that prenatal alcohol exposure, at doses not generally associated with maternal alcohol problems, produced a broad array of neurocognitive deficits in offspring even in the absence of effects on growth and morphology.

Attention, memory and information-processing deficits from birth to age 14 were revealed. From school age until 14, problems with antisocial and delinquent behaviour and classroom learning and behaviour were also observed.

In a June 2000 article, *On Categorizations in Analyses of Alcohol Teratogenesis*, Sampson, Streissguth et al considered the public health consequences of a misplaced emphasis on the categorisation or diagnosis of FAS vis-à-vis other characterisations of fetal alcohol-affected individuals. The paper then discussed the issues of categorisation of exposure and the reporting of threshold effects in dose-response relationships.

Sood, Delaney-Black et al in *Prenatal Alcohol Exposure and Childhood Behaviour at Age 6 to 7 Years: 1. Dose-Response Effect* conducted a survey beginning in 1986 of alcohol use by pregnant women and six years later contacted 665 families, 94 percent of which agreed to testing of the children. Testing was available for 501 parent-child dyads.

Children with any prenatal alcohol exposure were more likely to have higher Achenbach Child Behaviour Checklist scores on externalising (aggressive and delinquent) and internalising (anxious/ depressed and withdrawn) syndrome scales and the Total Problem Score. The odds ratio of scoring in the clinical range for delinquent behaviour was 3.2 in children with any prenatal exposure to alcohol compared with non-exposed controls.

The researchers concluded that maternal alcohol consumption even at low levels was adversely related to child behaviour. A dose-response relationship was also identified. The effect was observed at average levels of exposure of as low as one drink per week.

Kodituwakku, Kalberg and May in *The Effects of Prenatal Alcohol Exposure on Executive Functioning* stated that evidence from studies using a variety of tests suggested that people prenatally exposed to alcohol had deficient skills in both cognition-based and emotion-related executive functioning. Such executive functioning deficits might develop even in children of mothers who drank moderately, consuming between 7 and 13.9 standard drinks a week during pregnancy.

Noland et al in *Executive Functioning in Pre-school Age Children Prenatally Exposed to Alcohol, Cocaine and Marijuana* investigated executive functioning in 316 four-year-old children, the majority of whose mothers had used varying combinations of cocaine, alcohol and marijuana during pregnancy.

The study found that the children in the alcohol-exposed group had worse tapping-inhibition performance than the children in the non-alcohol-exposed group. The researchers concluded that prenatal alcohol was predictive of decreased executive functioning in early childhood.

Stratton et al in *Fetal Alcohol Syndrome – Diagnosis, Epidemiology, Prevention and Treatment* stated that alcohol produced fetal alcohol syndrome and a variety of other alcohol-related effects in children exposed during prenatal life. Of all the substances of abuse, including heroin, cocaine and marijuana, alcohol produced by far the most serious neurobehavioral effects on the fetus.

Warren and Foudin in *Alcohol-Related Birth Defects – The Past, Present and Future* examined advances in the field of FAS and other alcohol-related birth defects since 1994. The paper described the difficulties in determining the true prevalence of FAS and approaches to preventing drinking during pregnancy.

Gardner in a 1997 article *Fetal Alcohol Syndrome – Recognition and Intervention* stated that approximately one-third of the infants born to alcoholic women would develop FAS. The remaining two-thirds might develop ARBD.

In a 1997 article, *Incidence of Fetal Alcohol Syndrome and Prevalence of Alcohol-Related Neurodevelopmental Disorder*, Sampson et al presented new estimates of the prevalence of FAS and ARND in the United States and certain other Western nations. They calculated that the combined rate of FAS and ARND in Seattle in the United States was at least 9.1 per 1000 live births, or a conservative rate of almost one in every 100 live births.

Sarkar in *What Do Obstetric Textbooks Teach About Alcohol In Pregnancy?* reviewed an article examining recommendations about drinking alcohol during pregnancy in 81 obstetrics textbooks in the United States. The study, published in 2002, found that many of the texts gave inconsistent recommendations and over 50 percent included at least one statement condoning drinking for the gravida.

A separate review limited to publications after 1991 suggested that less than 25 percent of 29 texts consistently recommended zero alcohol intake during pregnancy.

In an article examining the economic cost of FAS in the United States, Bloss discussed differences between cost estimates and concluded that estimates of the lifetime costs involved with a single FAS case might be more valuable. Estimates of total costs in the literature reviewed by Bloss ranged from \$321 million to \$9.687 billion. A 1985 lifetime cost estimate for an individual case was \$596,000.

Other countries

A Danish study released in 2002 and reported by Bouchez in *HealthScoutNews* involved almost 25,000 pregnancies between 1989 and 1996. The researchers concluded that five drinks a week was the point at which the risk of pregnancy loss rose significantly.

Hepper in an Irish study *Report on Prenatal Exposure to Alcohol* examined the effects of maternal alcohol consumption on the behaviour of the fetus over a grant period from February 1995 to February 1998. Key findings of the research were that alcohol consumption during pregnancy remained high at 60 to 70 percent and was relatively unchanged over four years. The behaviour of the fetus was influenced by maternal alcohol consumption reducing its movements and response to sound. Maternal alcohol consumption during pregnancy influenced infant habituation at five months of age.

Hepper reported that the behavioural effects observed indicated that maternal alcohol consumption had influenced, possibly permanently, the functioning of the brain and central nervous system of the fetus infant. Those effects were raised at low levels of maternal alcohol consumption of five to six units per week, raising questions regarding the 'safe' level of alcohol during pregnancy.

Tuormaa, in *The Adverse Effects of Alcohol on Reproduction-* a review from the literature, prepared a paper for Foresight, the United Kingdom Association for the Promotion of Preconceptional Care. The paper outlined six common characteristics of children born with FAS, ranging from growth and craniofacial abnormalities to neurodevelopmental delay or mental deficiency.

Tuormaa stated that the impact of FAS had now been traced into adulthood. When children with FAS approached adolescence, the specific craniofacial features associated with the syndrome were not as noticeable as in infancy. However, the short stature and microcephaly appeared to be permanent. The average academic functioning of such adolescents and adults did not ever seem to develop beyond early grade school level. Particular deficits were found in arithmetic skills, together with extreme difficulties with abstractions like time and space, cause and effect, and generalising from one situation to another. The most noticeable behavioural problems were found to be with comprehension, judgement and attention skills, causing adults born with FAS to experience major psychosocial and adjustment problems for the rest of their lives.

In a series of more general articles, Spak et al discussed factors in childhood and youth predicting alcohol dependence in Swedish women, while Watten and Lie examined the effects of alcohol on eye movements during reading. Walton and Bowden discussed whether liver dysfunction explained neuropsychological status in recently detoxified alcohol-dependent clients.

New Zealand and Australia

Leversha and Marks in an article *The Prevalence of Fetal Alcohol Syndrome in New Zealand* sought to estimate the prevalence of the condition in this country and to obtain information on paediatric surveillance for alcohol-related birth defects. They conducted a postal survey of paediatricians and found there were 63 children under ten years of age with FAS under paediatric care in 1993.

The authors noted that this reported prevalence of FAS was at best 30 percent of the predicted rate using an overseas estimate. An additional 78 children with FAS had been assessed but were no longer

under paediatric care. Those children were not included in the prevalence data. Including the children with more subtle defects, there was total of 130 children with recognised ARBD under paediatric care in 1993.

The majority of paediatricians considered the diagnosis only when risk features were identified, the most common being children of high-risk mothers and children with dysmorphic features. The authors concluded that the prevalence of FAS as estimated in the study was lower than would be expected from international prevalence reports and was likely to be an underestimate. Current surveillance for ARBD depended on individual paediatricians considering the diagnosis only when faced with a perceived 'at risk' infant or child, and there was likely under-recognition. An increased awareness of the risks of alcohol consumption in pregnancy and the full spectrum of ARBD was required.

Lerversha, Rowley and Marks in a further article, *Fetal Alcohol Syndrome*, reported on later research into FAS prevalence in New Zealand. They noted that FAS and ARBD could potentially be the most common causes of disability in New Zealand. Accurate incidence and prevalence information was essential for resource allocation, policy development and the development of prevention strategies.

The New Zealand Paediatric Surveillance Unit was established in 1997 to facilitate national surveillance and improve the knowledge of uncommon childhood conditions in New Zealand. FAS was added to the survey in 1999, with the aim of providing a more reliable estimate of the frequency of the syndrome. The two and a half year study finished in December 2001. Over the 29-month period, there were 62 valid reports of new cases of definite or suspected FAS. That provided a rate of new cases per 1000 of population of 0.07, which the authors said was considerably lower than overseas estimates. They concluded it was likely that some paediatricians did not consider the diagnosis and thus did not make the diagnosis.

The study found that there was increased awareness of behavioural and learning difficulties as manifestations of FAS. The majority of affected children were in foster care or extended family care. FAS occurred in all ethnic groups, but Maori children had disproportionately higher rates. Many agencies were involved in the care of the children, with a notable proportion having involvement by Justice or Child, Youth and Family Services.

Single et al in *Evidence Regarding the Level of Alcohol Consumption Considered to be Low-Risk for Men and Women* discussed effects of prenatal alcohol exposure. They provided a general, summary of the causal link between prenatal alcohol exposure and identified effects in the fetus, particularly in relation to heavy drinking. The paper noted that alcohol use during pregnancy had been associated with varying degrees of toxic effects on the fetus, the most severe of which included gross congenital abnormalities and FAS, which included characteristic physical abnormalities, growth retardation and neurological dysfunction with developmental delay.

The authors said that there was considerable evidence to show that prenatal alcohol exposure could result in preventable neurological deficits in offspring, even at intake levels that would be considered moderate.

General Strategies For Prevention Of FAS And Other Prenatal Alcohol Consumption Effects

Measures taken in different countries to reduce or prevent FAS and other prenatal alcohol consumption effects include general advertising, targeting of messages at high-risk groups, community interventions, raising excise taxes and programmes for individuals. A number of studies have now considered the effectiveness of such measures.

North America

Hankin in *Fetal Alcohol Syndrome Prevention Research* concluded that both selective – targeting women of reproductive age who drink alcohol - and indicated prevention efforts - targeting high-risk women such as those who had previously abused alcohol or had a child with FAS – could reduce maternal alcohol consumption and improve the outcome for children.

Hankin noted that studies on awareness of alcohol health advisory labels had shown an increase in awareness over time. In addition, a larger proportion of the public knew about the relationship between drinking during pregnancy and birth defects. However, knowledge was not enough to change norms and actual behaviour, as indicated by recent data showing that almost 13 percent of women drank during pregnancy.

Although the alcohol health advisory label had a modest impact on drinking during pregnancy for a short time, the public had become used to the message. Additional research was required to identify the most effective ways to educate the public – for example, revised alcohol health advisory labels, health advisory posters, public service announcements or news reports.

Hankin said it appeared that brief interventions for pregnant women could successfully reduce alcohol intake during pregnancy. Additional research was required to determine whether the interventions needed to be tailored to pregnant women from different ethnic and socio-economic groups.

Allard-Hendren in an article *Alcohol Use and Adolescent Pregnancy* noted that 33.4 percent of American adolescents engaged in heavy episodic alcohol consumption and that 34.8 percent were sexually active by the age of 15 without using contraception. Almost 500,000 teenagers gave birth in the United States each year. They were at high risk for health problems, including FAS.

It was unknown how many children were born with FAS each year. A 1999 estimate ranged from five per 10,000 live births to one per 100 live births. The United States Public Health Service's Aberdeen Area Indian Health Services Epidemiology Program showed that FAS was 30 times more common among American Indians and Alaska Native populations than among white populations.

Allard-Hendern referred to LeMaster and Connell's 1994 work, which concluded that effective FAS prevention needed to be broad-based and sanctioned by local community gatekeepers to be effective with young people. Peer pressure was an extremely important factor affecting adolescent decision-making. A dual focus on motivating individuals and communities to change behaviour patterns, followed by protection of people through changes in alcohol and in the environment could be adopted.

Primary prevention strategies could include city ordinances requiring liquor outlets to post health advisory signs about drinking during pregnancy, health advisory labels on beverages, training beverage servers to refuse to serve alcohol to underage patrons and pregnant women, mass media promotion of

alcohol-free pregnancy, raising alcohol excise taxes and initiatives at middle and high schools and elsewhere in the community.

The government of British Columbia in 2002 published *Fetal Alcohol Spectrum Disorder: A Strategic Plan for British Columbia*. The document stated that thousands of children in British Columbia had been affected by prenatal alcohol exposure. It was estimated that three out of every 1000 infants would be affected by the disorder. Each child affected by FASD might require an estimated \$1 million to \$2 million over the course of his or her lifetime to provide for remedial, medical, educational and social costs. FASD was the most common form of preventable brain damage to infants in the Western world.

United States national data collected between 1995 and 1999 through the Behavioural Risk Factor Surveillance System showed that 12.8 percent of pregnant women had consumed at least one alcoholic drink in the past month, a decrease from the 16.3 percent reported in 1995.

A total of 3.3 percent of pregnant women reported frequent drinking, involving at least seven drinks a week, while 2.7 percent reported binge drinking, with five or more alcoholic drinks consumed on one occasion. The 2001 Canadian Community Health Survey found that less than two percent of pregnant women had drunk alcohol in the past week.

Other estimates of the prevalence of Canadian maternal drinking at some point during pregnancy ranged between 7 and 25 percent. The incidence of alcohol and drug use in pregnancy was higher in some high-risk areas, being found to be as high as 46 percent in Vancouver's Downtown Eastside.

The plan noted that the Canadian federal government had allocated funding for FASD initiatives of \$11 million over three years in the 1999 budget. These included public awareness and education, training and capacity development, early identification, diagnosis and assessment, coordination and sharing of information and best practices, surveillance and a strategic project fund.

An inter-departmental group had been set up by the Population and Public Health Branch and federal, provincial and territorial working groups, a National Advisory Committee and a National First Nations and Inuit Steering Committee had been created. Perea and Slater examined the responses of 73 Mexican American and Anglo young adults to four televised drinking and driving health advisories and reported responses in *Power Distance and Collectivist/ Individualist Strategies in Alcohol Health Advisory messages: Effects by Gender and Ethnicity*. Health advisory messages were manipulated into collectivist, emphasising risk to family and friends, and individualist, emphasising risk to self and into high and low power distance appeals by attributing or not attributing health advisory messages to the Surgeon General.

Females rated the collectivist health advisory messages, and males the individual health advisory messages, more believable. Respondents on average responded to the collectivist health advisory messages more positively, regardless of gender or ethnicity. Anglos rated health advisory messages without the Surgeon General as the source more believable than health advisory messages with the Surgeon General as the source.

Kaskutas and Graves studied the relationship between exposure to multiple sources of health messages about the risk of drinking during pregnancy and respondents' awareness and behaviour related to the risk, using telephone interview data. Exposure to the message occurred via the government health advisory on alcoholic beverage containers, health advisory posters in restaurants and bars, and media advertising. The study found that for the total sample, respondents exposed to one, two and three different message sources were more likely to converse about drinking during pregnancy than those exposed to no messages. Reduced alcohol consumption due to health concerns was associated with exposure to two and three different sources.

Among women aged 18 to 40, a similar relationship was found for conversations, but it was only among those seeing all three message types that a reduction in consumption was observed. The authors concluded that the findings supported the public health approach of implementing multi faceted strategies to maximise risk reduction interventions.

Kaskutas in *Interpretations of Risk: The Use of Scientific Information in the Development of the Alcohol Health Advisory Label Policy* examined the United States alcohol health advisory label, considering different wordings and concluding that health advisory labels were not enough. She said that the public health focus should not simply be on alarming light drinkers into abstaining from alcohol. Healthcare workers needed to screen pregnant heavy drinkers routinely.

In another article, *Understanding Drinking During Pregnancy Among Urban American Indians and African Americans: Health Messages, Risk Beliefs and How We Measure Consumption*, Kaskutas reported on a study of 321 pregnant American women which found high levels of exposure to health advisory labels among all ethnic groups. However, many women were unclear about the consequences of FAS, the risks of drinking alcohol, and the value of reducing intake at any time during pregnancy. The article concluded that, because some women would continue drinking despite exposure to abstention-oriented health messages, it might be prudent to develop campaigns and interventions that provided factual information to help at-risk women to reduce drinking during pregnancy. Women could be advised of beverage equivalency, standard drink sizes and how their own drinks compared with standard ones.

French et al examined print brochures, popular health guides, books and alcohol health advisory labels to discern what messages they conveyed to women to prevent alcohol consumption. They found that public messages had focused primarily on drinking practices of young women, ignoring middle-aged and elderly women. Messages focused on a narrow spectrum of reproductive issues and ignored health concerns relating to osteoporosis, AIDS, sexually transmitted diseases, increased cancer risk, heart disease, fibroid tumors and menopausal complications. The authors said that there was an under-emphasis on women's wellbeing, as women were seldom encouraged to look at long-term health issues relating to alcohol consumption.

Other countries

The International Center for Alcohol Policies' 1999 report *Government Policies on Alcohol and Pregnancy* compared government guidelines on the issue of alcohol and pregnancy in 16 countries. The survey found that, of those countries with a stated policy, the United Kingdom and New Zealand

were the only governments not to recommend abstinence during pregnancy. Seven countries had no official recommendations on the use of alcohol by pregnant women or women trying to get pregnant.

Most governments with policies on alcohol and pregnancy recommended that women did not consume alcohol during pregnancy, particularly during the first trimester.

New Zealand and Australia

Counsell, Smale and Geddes in a paper *Alcohol Consumption by New Zealand Women During Pregnancy* reported on the relationship between demographics and alcohol consumption during pregnancy using a representative sample of New Zealand women.

The Plunket National Child Health Study was a longitudinal study of 4286 New Zealand children, based on an ethnically stratified and geographically representative random sample of children born between 2 July 1990 and 30 June 1991. The study found that 41.6 percent of women consumed alcohol during pregnancy. Compared with the abstainers, they tended to be older, have higher educational qualifications, lower parity, higher socio-economic status and be European or Maori. Those who consumed frequently were more likely to be of higher socio-economic status.

The researchers concluded that programmes aimed at reducing alcohol consumption during pregnancy should take account of the at-risk groups of women identified. In particular, they should target women of higher socio-economic status.

Murphy-Brennan in an Australian article, *Is There Evidence To Show That Fetal Alcohol Syndrome Can Be Prevented?* reviewed the effectiveness of prevention programmes in reducing the incidence of FAS. She concluded that the programmes had been successful in raising awareness of FAS across the groups studied. However, that awareness had not translated into behavioural changes in high-risk drinkers. Consumption levels in that group had decreased only marginally, indicating that prevention programmes had had minimal or no impact in lowering the incidence of FAS.

EFFECTIVENESS OF ALCOHOL HEALTH ADVISORY LABELS

North America

Hankin in *FAS Prevention Strategies – Passive And Active Measures* concluded that alcohol health advisory labels reached a wide audience and had had some effect in drinking during pregnancy. However, community-based efforts reached specific populations of women and their health-care providers and had a more potent, local effect.

Greenfield, Graves and Kaskutas in a 1993 article, *Alcohol Health Advisory Labels for Prevention: National Survey Findings*, reported on initial survey findings relating to the American alcohol health advisory label. They described the research findings at the time as promising, saying they demonstrated that the health advisory label messages were reaching the target population of young and heavy drinkers. More research on ways to improve the label's message content and format was required.

The authors said that, given the low cost and very high and sustained public acceptance of health advisory labels, with a majority believing in their effectiveness, the intervention would need to demonstrate only moderate effectiveness for its benefits to outweigh its costs.

Greenfield and Kaskutas in *Early Impacts Of Alcoholic Beverage Health Advisory Labels: National Study Findings Relevant To Drinking And Driving Behaviour* reported results from a cross-sectional United States national household telephone interview survey of adults six months after implementation of alcohol health advisory labels.

Implications for health advisory labels with respect to information processing theory, the Health Belief Model and other theories relevant to precautionary adoption were briefly reviewed and two derivative hypotheses were tested using log-linear analysis. Approximately a quarter of the sample had noticed the label.

Sixteen percent had noticed the specific driving impairment message. Exposure to the health advisory label was predicted primarily by consumption pattern but was also associated with ever having drunk alcohol so as to be at risk when driving. Approximately a quarter of the heavy drinkers who ever drank and drove saw the specific health advisory label. Of two self-regulation strategies – limiting driving after drinking and limiting drinking when about to drive – the latter was more prevalent.

Greenfield, Graves and Kaskutas in an article *Long-Term Effects of Alcohol Health advisory Labels: Findings from a Comparison of the United States and Ontario, Canada* presented findings from telephone surveys conducted between 1990 and 1994 in the United States and Ontario, Canada, the no-treatment reference site. The United States federal government in 1989 made it mandatory for health advisory labels to be carried on alcohol containers.

The authors concluded that the mixed pattern of results produced by the survey suggested modest effects of labels on conversations about drinking, and several precautionary behaviours related to drinking risks. The label's effects might partially offset an overall trend towards lower public concern

about health risks of alcohol. The results were interpreted to be consistent with the intention of reminding people of the hazards of drinking, especially during pregnancy or before driving.

MacKinnon in *A Choice-Based Method to Compare Alternative Alcohol Health Advisory Labels* studied alternative alcohol health advisory labels, with subjects completing a questionnaire in two studies. A 'poison', 'toxic' or 'causes cancer' label on a beer can was shown to have substantial effects on self-reported choice behaviour.

In contrast, the alcohol health advisory label mandated in 1989 to appear on American alcohol containers did not have nearly as powerful an effect. MacKinnon postulated that the lack of impact could be explained by label length, type of health advisory label and salience of the health advisory label.

In a later article, MacKinnon, Nohre et al in *Longitudinal Relationship between the Alcohol Health advisory Label and Alcohol Consumption* surveyed 649 adolescents at three annual time points to ascertain the longitudinal relationship between alcohol health advisory label exposure and alcohol consumption. The results suggested that the alcohol health advisory label was having the effect intended by the law requiring the health advisory label. It was informing and reminding people of the risks associated with alcohol use. The health advisory label did not appear to significantly increase or decrease alcohol consumption.

Malouff et al conducted four studies of the federally mandated health advisory label on alcohol containers in *Important Characteristics of Health Advisory Displays on Alcohol Containers*. In all four studies, few of the drinkers could recall the main parts of the health advisory label, even though it had been in place for two years at the time.

In Study 1, 44 adults looked at the health advisory label on various beer containers. Seventy seven percent thought it was not conspicuous but could be made more conspicuous through changes such as printing it horizontally rather than vertically. In Study 2, 50 adults looked at the health advisory label placed horizontally on one beer can and vertically on a similar can, and rated the horizontal health advisory label as significantly more conspicuous.

In Study 3, 44 adults spent several minutes in a simulated drinking atmosphere. Half the subjects had beer cans with a horizontal health advisory and half had cans with a vertical health advisory. The subjects with the horizontal health advisory later showed significantly better awareness/recall of the health advisory. Study 4 involved 75 adult subjects in a bar. The half prompted to notice the alcohol health advisory drank less thereafter than the other subjects.

The authors concluded that the findings suggested the conspicuousness of health advisory labels on alcohol containers tended to influence their possible effectiveness.

The Canadian Medical Association in 1993 issued a policy summary, *Fetal Alcohol Syndrome*, stating that FAS was the leading cause of environment-related birth defects and a common cause of mental retardation in North America. It urged the Canadian government to enact legislation requiring alcohol

sold in Canada to be labelled with health advisory messages as to the hazards of consuming alcohol during pregnancy.

Hankin et al compared the impact of the federal alcohol health advisory label on women with at least one previous live birth and women with no previous live births, studying 17,456 inner city black gravida seen between September 1986 and September 1993. They found that women with no previous live births began to show a significant decline in reported drinking in June 1990, seven months after health advisory labels were adopted on 18 November 1989. By contrast, women with at least one previous live birth showed no change in reported drinking.

Andrews and Netemeyer examined the impact of alcohol health advisory labels and concluded that a broader perspective on the provision and internalisation of alcohol risk information beyond health advisory labels might be in order. The authors suggested that one of the more fruitful avenues to explore was the goal of increasing the number and effectiveness of alcohol counter advertising and public service messages. Efforts at health advisory label redesign and campaign activity would be most effective as part of a coordinated and targeted integrated marketing communication programme.

Other Countries

The International Center for Alcohol Policies in a September 1997 report, *Health Advisory Labels*, examined which countries used alcohol container health advisory labels, what the labels said, and the reasons behind their use. The report found that nine countries had national laws mandating health advisory labels on alcohol containers. The issue was also emerging at the national level in Australia, Canada, Japan, New Zealand, Taiwan, Thailand and South Africa. In India, most states had health advisory label policies but there was no comprehensive national law. A number of countries required health advisory messages on advertisements only, including Panama and Paraguay. France has recently introduced legislation requiring health advisory labels on alcohol containers.

New Zealand and Australia

Smedley in *Advances in the Development and Testing of Alcohol Health Advisory Labels* described research that is still in progress. They aim to provide a comprehensive review of existing research on the effectiveness of fear appeals and health advisory labels in general, and of alcohol health advisory labels in particular.

The second stage of their work involves using the literature and expert opinion to develop alcohol health advisory labels that are theoretically likely to be most effective and accurate in promoting safe and responsible alcohol consumption. Thirdly, they will test the likely extent of any beneficial impact that such theoretically 'strong' alcohol health advisory labels might have. A sample of approximately 300 undergraduate students is to be surveyed during in-class experiments.

The authors said the study should provide a stronger framework than in part research for identifying and confirming the possible beneficial impact that alcohol health advisory labels might be expected to have.

The high involvement nature of questioning would determine if the labels had any significant impact on subjects' behavioural intentions. Such demonstrated effects could isolate a particularly effective health advisory label, while null results could serve to tone down the expectations many people had for the possible introduction of alcohol health advisory labels in New Zealand.

Adams reviewed the effectiveness of consumer health advisory labels in *Health Advisory Labels And Instructions For Use: Do They Work?* She referred to a study which found that, while alcoholic beverage labels were noticed and could be recalled with reasonable accuracy, there was little evidence of changed behaviour. The first stage in the adoption process was awareness, with the final stage being adoption. Changing consumer behaviour could be a slow process.

Adams stated that providing too much information defeated the purpose. More was not necessarily better and manufacturers should ensure that health advisory messages and instructions were written in plain English and presented in a user-friendly format.

Stockley in *The Effectiveness Of Strategies Such As Health Advisory Labels To Reduce Alcohol-Related Harms – An Australian Perspective* considered evidence from the United States and Australia in relation to the effectiveness of alcohol and tobacco health advisory labels in changing consumer behaviour. The article concluded that such labelling was generally ineffective in changing consumer behaviour and hence such a strategy was inappropriate for reducing alcohol-related harms.

Stockwell in *Influencing The Labelling Of Alcoholic Beverage Containers: Informing The Public* reviewed the process whereby in 1990 a small research project costing A\$4500 conducted in a Perth shopping centre directly influenced the development of a national policy within four months of its completion. The policy in question was a recommendation by Australia's Ministerial Council on Drug Strategy that all alcoholic beverage containers carry labels indicating the number of "standard drinks" they contain.

Stockwell argued that crucial factors included there being a favourable policy climate created by the National Campaign Against Drug Abuse, the support of influential public servants and politicians, the consultative process that led to the study's design and the manner in which the findings were disseminated.

BIBLIOGRAPHY

Abel E. (1998) Prevention of alcohol abuse-related birth defects – I: Public education efforts. *Alcohol and Alcoholism* 33(4): 411-416.

Adams C. (1993) Warning labels and instructions for use: do they work? *Journal of the Home Economics Association of Australia* XXV(4): 116-120.

Allard-Hendren R. (2000) Alcohol use and adolescent pregnancy. *MCN: The American Journal of Maternal Child Nursing* 25(3): 159-162.

Andrews JC, Netemeyer RC. (1996) Alcohol warning label effects: socialization, addiction and public policy issues. In: R Hill (ed) *Marketing and consumer behaviour in the public interest*. Newbury Park, CA: Sage Publications.

Bloss G. (1994) The economic cost of FAS. *Alcohol Health & Research World* 18(1): 53-54.

Bouchez C. (2002 Feb 8) New link between alcohol and miscarriage found. *HealthScoutNews*. Retrieved 27 January 2006 from: <http://www.drkoop.com/newsdetail/93/505904.html>.

Canadian Medical Association. (1993) CMA policy summary: fetal alcohol syndrome. *Canadian Medical Association Journal* 148(4): 640a.

Counsell AM, Smale PN, Geddis DC. (1994) Alcohol consumption by New Zealand women during pregnancy. *New Zealand Medical Journal* 107(982): 278-281.

Day NL, Leech SL, Richardson GA, et al. (2002) Prenatal alcohol exposure predicts continued deficits in offspring size at 14 years of age. *Alcoholism: Clinical and Experimental Research* 26(10): 1584-1591.

French KJ, Frasier T, Frasier J. (1996) Knowing when to say when and why: media messages aimed at preventing women's alcohol consumption. In: R Parrott, C Condit (eds) *Evaluating women's health messages: a resource book*. Thousand Oaks, CA: Sage Publications.

Gardner J. (1997) Alcohol syndrome: recognition and intervention. *MCN: The American Journal of Maternal Child Nursing* 22(6): 318-322.

Government of British Columbia, Children's and Women's Health Centre of British Columbia. (2003) *Fetal alcohol spectrum disorder: a strategic plan for British Columbia*. Victoria, BC: Government of British Columbia, Ministry for Children and Family Development.

Greenfield TK, Graves KL, Kaskutas LA. Alcohol warning labels for prevention: national survey findings. *Alcohol Health & Research World* 17(1): 67-75.

- Greenfield TK, Graves KL, Kaskutas LA. (1999) Long-term effects of alcohol warning labels: findings from a comparison of the United States and Ontario, Canada. *Psychology & Marketing* 16(3): 261-282.
- Greenfield TK, Kaskutas LA. (1999) Early impacts of alcoholic beverage warning labels: national study findings relevant to drinking and driving behaviour. *Safety Science* 16: 689-707.
- Hankin JR. (1994) FAS prevention strategies: passive and active measures. *Alcohol Health & Research World* 18(1): 62-66.
- Hankin JR. (2002) Fetal alcohol syndrome prevention research. *Alcohol Research & Health* 26(1): 58-65.
- Hankin JR, Firestone IJ, Sloan JJ, et al. (1996) Heeding the alcoholic beverage warning label during pregnancy: multiparae versus nulliparae. *Journal of Studies on Alcohol* 57(2): 171-177.
- Hepper P. (1999) *Report on prenatal exposure of alcohol*. Retrieved 27 January 2006 from: <http://come-over.to/FAS/hepper.htm>.
- Jacobson SW. (1997) Assessing the impact of maternal drinking during and after pregnancy. *Alcohol Health & Research World* 21(3): 199-203.
- Jacobson SW, Jacobson JJ, Sokol RJ. (1994) Effects of fetal alcohol exposure on infant reaction time. *Alcoholism: Clinical and Experimental Research* 18(5): 1125-1132.
- International Center for Alcohol Policies. (1999) Government policies on alcohol and pregnancy. *ICAP Reports* 6: 1-7.
- International Center for Alcohol Policies. (1997) Health warning labels. *ICAP Reports* 3: 1-8
- Kaskutas LA. (1995) Interpretations of risk: the use of scientific information in the development of the alcohol warning label policy. *International Journal of the Addictions* 30(12): 1519-1548.
- Kaskutas LA. (2000) Understanding drinking during pregnancy among urban American Indians and African Americans: health messages, risk beliefs, and how we measure consumption. *Alcoholism: Clinical and Experimental Research* 24(8): 1241-1250.
- Kaskutas LA, Graves K. (1994) Relationship between cumulative exposure to health messages and awareness and behaviour-related drinking during pregnancy. *American Journal of Health Promotion* 9(2): 115-124.
- Koditwakku PW, Kalberg W, May PA. (2001) The effects of prenatal alcohol exposure on executive functioning. *Alcohol Health & Research* 25(3): 192-198.

KPMG Consulting. (2000) *Report on the costs of labelling to meet the requirements of the Australia New Zealand Food Authority's proposed standards 1.2.8 1.2.10*. Report to the Australian Food and Grocery Council.

Larkby C, Day N. (1997) The effects of prenatal alcohol exposure. *Alcohol, Health & Research World* 21(3): 192-198.

Leversha AM, Marks RE. (1995) The prevalence of fetal alcohol syndrome in New Zealand. *New Zealand Medical Journal* 108(1013): 502-504.

Leversha A, Rowley S, Marks R. (2001) Fetal Alcohol Syndrome. In: *4th Annual Report of the New Zealand Paediatric Surveillance Unit*. Dunedin, N.Z.: NZPSU.

MacKinnon, DP. (1993) A choice-based method to compare alternative alcohol warning labels. *Journal of Studies on Alcohol* 54(5): 614-617.

MacKinnon DP, Nohre L, Cheong J, et al. (2001) Longitudinal relationship between the alcohol warning label and alcohol consumption. *Journal of Studies on Alcohol* 62(2): 221-227.

Malouff J, Schutte N, Wiener K, et al. (1993) Important characteristics of health warning displays on alcohol containers. *Journal of Studies on Alcohol* 54(3): 457-461.

May PA, Gossage JP. (2001) Estimating the prevalence of fetal alcohol syndrome: a summary. *Alcohol Research & Health* 25(3): 159-167.

Murphy-Brennan MG, Oei TPS. (1999) Is there evidence to show that fetal alcohol syndrome can be prevented? *Journal of Drug Education* 29(1): 5-24.

Noland JS, Singer LT, Arendt RE, et al. (2003) Executive functioning in preschool-age children prenatally exposed to alcohol, cocaine and marijuana. *Alcoholism: Clinical and Experimental Research* 27(4): 647-656.

Payne, J, Elliott, E, D'Antoine, H, O'Leary, C, Mahony, A, Haan, E, Bower, C, (2005) Health professionals' knowledge, practice and opinions about fetal alcohol syndrome and alcohol consumption in pregnancy. *Australian and New Zealand Journal of Public Health* Vol. 29 No. 6 558-564

Perea A, Slater MD. (1999) Power distance and collectivist/individualist strategies in alcohol warnings: effects by gender and ethnicity. *Journal of Health Communication* 4(4): 295-310.

Sampson PD, Bookstein FL, Barr HM, et al. (1994) Prenatal alcohol exposure, birthweight, and measures of child size from birth to age 14 years. *American Journal of Public Health* 84(9): 1421-1428.

Sampson PD, Streissguth AP, Bookstein FL, et al. (2000) On categorizations in analyses of alcohol teratogenesis. *Environmental Health Perspectives* 108 (Supp. 3): 421-428.

Sarkar M. (2003) What do obstetric textbooks teach about alcohol in pregnancy? *Journal of FAS International* 1:e8.

Single E, Ashley MJ, Bondy S, et al. (1999) *Evidence regarding the level of alcohol consumption considered to be low-risk for men and women*. Canberra, ACT: National Health and Medical Research Council.

Smedley, L St John. (1998) *Advances in the development and testing of alcohol warning labels*. Thesis. University of Auckland.

Sood B, Delaney-Black V, Covington C, et al. (2001) Prenatal alcohol exposure and childhood behaviour at age 6 to 7 years: 1. dose-response effect. *Pediatrics* 108(2): e34.

Spak L, Spak F, Allebeck P. (1997) Factors in childhood and youth predicting alcohol dependence and abuse in Swedish women: findings from a general population survey. *Alcohol & Alcoholism* 32(3): 267-274.

Stockley CS. (2001) The effectiveness of strategies such as health warning labels to reduce alcohol-related harms: an Australian perspective. *International Journal of Drug Policy* 12(2): 153-166.

Stockwell T. (1993) Influencing the labelling of alcoholic beverage containers: informing the public. *Addiction* 88 (Supp): 53S-60S.

Stratton K, Howe C, Battaglia F. (eds) (1996) *Fetal alcohol syndrome: diagnosis, epidemiology, prevention and treatment*. Washington, D.C.: National Academy Press.

Streissguth AP, Barr HM, Bookstein, FL, et al. (1999) The long-term neurocognitive consequences of prenatal alcohol: a 14-year study. *Psychological Science* 10(3): 186-190.

Tuomaa T. (1994) *The adverse effects of alcohol on reproduction : a review from the literature*. Retrieved 27 January 2006 from: <http://www.foresight-preconception.org.uk/summaries/alcohol.html>

United States Department of Health and Human Services. (2000) *10th Special report to the US Congress on Alcohol and Health: highlights from current research*. Washington, D.C.: US Department of Health and Human Services.

Walton NH, Bowden SC. (1997) Does liver dysfunction explain neuropsychological status in recently detoxified alcohol-dependent clients? *Alcohol & Alcoholism* 32(3): 287-295.

Watten RG, Lie I. (1997) The effects of alcohol on eye movements during reading. *Alcohol & Alcoholism* 32(3): 275-280.

Warren KR, Foudin LL. (2001) Alcohol-related birth defects: the past, present and future. *Alcohol Research & Health* 25(3): 153-158.

Weiss S. (1997) Israeli Arab and Jewish youth knowledge and opinion about alcohol health advisory labels: pre-intervention data. *Alcohol & Alcoholism* 32(3): 251-257.