



A Review Of Research Into The Impacts Of Alcohol Warning Labels On Attitudes And Behaviour

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Background

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Private member's Bill C-206 will shortly receive its second reading in the Canadian House of Commons. It has been brought forward by Paul Szabo (Liberal Member of Parliament for Mississauga South) and proposes that the *Food and Drugs Act* be amended by adding after Section 5:

“5.1 No person shall sell a beverage containing more than half of one per cent alcohol by volume unless it bears a clearly printed and legible label, in the form and print size prescribed by the Governor in Council, that warns the consumer that alcoholic beverages impair the ability to operate vehicles and machinery, may affect the health of the consumer and may cause birth defects if consumed during pregnancy.”

The proposed amendment closely follows current requirements in the United States of America for a series of such warning labels on all alcohol containers. Several other countries also have introduced different types of health-related messages on alcohol containers.

The present report summarises the published international research that bears on the question as to whether the proposed new legislation for Canadian alcohol warning labels is likely to have positive effects on alcohol consumption and/or alcohol-related harms for different population groups. A systematic search strategy, using scholarly databases, was implemented to identify relevant published research on the impacts of alcohol warning labels. A more limited search was conducted of recent published research regarding the impacts of tobacco warning labels, as there has been more international experience with these than with alcohol, and some lessons may be worth noting. Literature identified in these searches was supplemented by the author's own collection of research papers related to alcohol labelling experiences accessed from the Alcohol Research Group, Berkeley, USA, and the National Drug Research Institute, Perth, Australia.

This report will: (i) summarise current practice regarding alcohol and tobacco labelling internationally, (ii) outline the types of material identified by these various strategies, (iii) summarise the methods and main findings from the most significant empirical studies identified, and (iv) assess the overall significance and implications of the available evidence within a wider context of alcohol and public health policy.

1. International practice with alcohol and tobacco warning labels

In 1997, the International Center for Alcohol Policies identified nine countries that had some kind of mandated alcohol warning label (ICAP, 1997), and since then at least eight other countries, or jurisdictions within countries, have passed laws requiring some form of alcohol warning labels (ICAP, personal communication), while others such as South Africa, Spain, Ireland, Australia and France are at various stages in the process of considering their introduction. Some other countries also have voluntary labelling in place, such as Japan where local brewers have elected to include messages warning about drinking during pregnancy. In Canada, the Yukon and the Northwest Territories have required liquor stores to provide warning labels on all bottles of wine and spirits as well as on packaged beer since 1992. The wording of existing warnings in other countries is, where available, displayed in Table 1 below. The translations used were provided by the International Center for Alcohol Policies (1997, and personal communication). Countries where it is known that there is a warning label but for which the exact wording or an accurate translation could not be determined include Iceland and Armenia.

In several countries, the requirement for warning labels has provisions to ensure their clear visibility. For example:

- in Taiwan, the labels must be in a conspicuous place on the container's largest external surface;
- in Thailand, the label must be printed in bold characters at least 2 mm high;
- in Mexico, the labels must be in contrasting colours;
- in Guatemala, the label must be written in Arial Black size 12 in capital letters, be clearly legible, and occupy 25% of the front part of the label; and
- in Ecuador, the label must in an easily readable form, use colours that distinguish the text from the background, and occupy 10% of the total surface area of the label.

There are no such requirements for the better known (and researched) US warning label.

The Australia and New Zealand Food Authority rejected a petition presented by the Society Without Alcoholic Trauma in 1998 for labels on all alcohol containers to carry the message that "alcohol is a dangerous drug". However, since 1995, all alcoholic beverages sold in Australia have been required to have their alcohol content expressed in terms of numbers of "standard drinks", each equivalent to 10 grams of ethyl alcohol (Stockwell and Single, 1997). The purpose of this kind of labelling was to support public health campaigns designed to promote low-risk alcohol consumption as defined by national drinking guidelines (Stockwell, 2001).

Tobacco warning labels are far more widespread. By 1991, it was estimated that as many as 77 countries had mandated health warning labels on cigarette packets (Strahon et al, 1991). In Australia, substantial amounts of information about the health risks associated with smoking are provided on packets, along with simple messages such as "smoking kills", "smoking causes lung cancer", and "smoking harms unborn infants". In Canada, graphic warning labels illustrating adverse health effects have been mandated which cover over 50% of tobacco packs (Hammond et al, 2003). These are supplemented with more detailed information on the inside of the pack providing health risk information, encouragement to quit smoking, and tips on how to achieve this.

A survey of 45 countries regarding tobacco warning label practices found that 40 had mandated labelling requirements, three had only voluntary labelling agreements with the local tobacco industry, and two had no agreements at all. Tobacco warning labels in developed countries tended to be larger and more specific than in developing countries.

Table 1: Text of alcohol warning labels from 16 countries

Country	Text of labels
Argentina	“Drink with Moderation” and “Prohibited for people under 18 years old”
Brazil	“Avoid the risks of excessive alcohol consumption”
Colombia	“This product is harmful to the health of children and pregnant women” “The excessive use of alcohol is harmful to your health” “Prohibited for sale to minors”
Costa Rica	One of the two following messages must be placed on bottles: “Drinking liquor is harmful to health” “The abuse of liquor is harmful to health”
Ecuador	“Warning. The excessive consumption of alcohol restricts your capacity to drive and operate machinery, may cause damage to your health, and adversely affects your family. Ministry of Public Health of Ecuador. Sale prohibited to minors under 18 years of age”
Guatemala	“The excessive consumption of this product is harmful to the health of the consumer”, or “The consumption of this product causes serious harm to your health”
Honduras	The law states that: “Preventative legends must be displayed on all alcoholic beverage packaging”.
India (State of Assam)	“Consumption of liquor is injurious to health”
Mexico	“Excessive consumption of this product is hazardous to health”
Portugal	“Drink alcohol in moderation”
South Korea	One of the three following messages: (a) “Warning: Excessive consumption of alcohol may cause liver cirrhosis or liver cancer and is especially detrimental to the mental and physical health of minors” (b) “Warning: Excessive consumption of alcohol may cause liver cirrhosis or liver cancer and, especially, women who drink while they are pregnant increase the risk of congenital anomalies” (c) “Excessive consumption of alcohol may cause liver cirrhosis or liver cancer, and consumption of alcoholic beverages impairs your ability to drive a car or operate machinery, and may increase the likelihood of car accidents or accidents during work” <i>On spirits:</i> “Excessive drinking may cause cirrhosis of the liver or liver cancer and increase the probability of accidents while driving or working”
Taiwan	“Excessive consumption of alcohol is harmful to health” or one of the following: “To be safe, don’t drink and drive” “Excessive drinking is harmful to you and others” “Please do not drink if you are a minor”
Thailand	“Warning: Drinking Liquor Reduces Driving Ability” and “Forbidden to be sold to children under 18 years old”
United States	“GOVERNMENT WARNING: (1) According to the Surgeon General, women should not drink alcoholic beverages during pregnancy because of the risk of birth defects. (2) Consumption of alcohol impairs your ability to drive a car or operate machinery, and may cause health problems.”
Venezuela	One of the following warning statements or something similar is required: “The abuse of alcohol beverages can damage the health” “Excessive consumption can be harmful to health”
Zimbabwe	“(1) Alcohol may be hazardous to health if consumed to excess. (2) Operation of machinery or driving after the consumption of alcohol is not advisable”

2. Material identified from scholarly databases

The scholarly databases PsychInfo, Medline, and the Social Science Citation Index were searched using variations of the terms “warning label/alcohol warning label/alcohol warning/beverage warning” for the years 1995 to 2004. In addition, variations of the terms “health warning/ health warning labels/tobacco warning labels/tobacco warning” were used to search these databases for the years 2000 to 2004. These databases enable the titles and abstracts of papers published in peer-reviewed medical, psychosocial and scientific journals to be searched using particular search terms. These searches yielded three review papers that specifically focused on the effectiveness of alcohol warning labels. In addition, three other recent, more general reviews of the impacts of different alcohol policies and strategies were identified by the author from recent authoritative and comprehensive studies. Ten reports focusing on the impacts of alcohol warning labels in different populations were identified, several of which were different analyses of the same study, and nearly all concerned the impacts of US warning labels. A further 18 reports were available for analysis from the author’s own collection regarding the US experience with alcohol warning labels. The majority of these papers were from the Alcohol Research Group based in Berkeley, California, which was commissioned by the National Institute on Alcohol Abuse and Alcoholism to analyse the impacts of the US warning labels introduced in 1989. Not all these papers are discussed here, only those that report the latest or last outputs from a series of studies and those that contribute something unique regarding impacts of labels that have actually been used.

In relation to tobacco warning labels, three general reviews of the effectiveness of alternative tobacco control strategies and nine individual studies of the impact of tobacco warning labels on smokers’ knowledge, beliefs, intentions and smoking behaviour were identified.

3. Conclusions from alcohol policy reviews

Reviews of the evidence supporting the full range of available alcohol policy strategies spanning legislative, regulatory and educational have mostly concluded that there is little or no measurable change in drinking behaviour and related harms as a result of the introduction of alcohol warning labels. Two reviews prepared by alcohol-industry-funded bodies (one peer-reviewed) have concluded both that the evidence is negative and that labels should not be used. Among four other reviews from groups of independent academics, impacts on intervening variables such as awareness of the labels and discussion of their messages were identified, but most considered there was no evidence of change in risk behaviours. One of these reviews (Greenfield, 1997) highlighted evidence suggesting that people who saw the labels were less likely to say they had driven “when they probably should not have”. All of these last four reviews ended by recommending some enhancement of the labels to make them more effective. A review of the evidence for standard drink labelling in Australia concluded this was “promising” but by no means conclusive.

Considering these reviews in turn, Agostinelli and Grube (2002) reviewed evidence to support a variety of “counter alcohol advertising strategies”, including public education campaigns and warning labels. They conclude that warning labels have the potential to influence behaviour but this depends on their design, the content of the messages, and how well they are targeted at their intended audience.

Babor et al (2003) conducted a systematic review of the evidence for a variety of alcohol control and educational policies from peer-reviewed research published up to the year 2000. This group comprised 15 experienced alcohol researchers from nine countries, and the project was sponsored by the World Health Organization. The group considered that only one well-designed study had been conducted (the US surveys led by Greenfield and colleagues), and that this study found some evidence of change in some intervening variables such as prompting target groups to discuss the health effects of drinking, but could not demonstrate change in drinking behaviour. The group commented that, given the relatively small size, the obscurity and lack of variation in the labels, it is remarkable that any effects at all were demonstrated. They also noted that the cost to implement this strategy was low.

Loxley et al (2003) report a substantial review of the evidence base for prevention of risky substance use and harmful outcomes commissioned by the Australian Government. The concept of standard drink labelling on alcohol containers, in place there for the last ten years, was rated as “promising”, especially in combination with and in support of other evidence-based strategies such as brief interventions by general practitioners, drink driving campaigns, and the promotion of national drinking guidelines. Alcohol warning labels were not specifically evaluated.

Greenfield (1997), who led the major study of evaluating the US warning labels through a series of large national surveys, provided a more positive assessment, citing evidence of small but significant changes in terms of reductions in drink driving behaviour associated with recall of the anti-drink-driving message from this research program. He also noted evidence of warning labels prompting discussions about the dangers of drinking, steadily increased awareness of the labels, and evidence of increased public support for alcohol labelling by the US public following its introduction. He also emphasised the ability of warning labels to target high-risk drinkers who had significantly higher recall of label messages.

Andrews (1995) reviewed the early evidence on the US warning label experience and highlighted the fact that, despite evidence of increased awareness of risks among heavy drinkers, they still appeared resistant to changing their behaviour. Based on the experience with the tobacco warning labels, he recommended a broader range of educational measures, including enhanced warning messages.

Stockley (2001), a researcher employed at the Australian Wine Research Institute, reviewed the evidence for alcohol warning labels and concluded that there was no evidence that they

prompted reductions in high-risk consumption or related harms, and were “not appropriate” strategies. This review was published in the peer-reviewed *International Journal of Drug Policy*.

An information bulletin prepared by the International Center for Alcohol Policies (1997), an organisation funded by several major alcohol manufacturers, provided a useful review of international practice on alcohol labelling and also concluded that, while there was some evidence of changes in awareness and knowledge of alcohol risks, there was none indicating positive behaviour change. This review, published in-house, also questioned the accuracy and appropriateness of the particular messages used in the US, and concluded alcohol education was too complicated to be reduced to simple messages on alcohol containers.

4. Primary studies evaluating the impact of alcohol warning labels

With the exception of a handful of reports dealing with the evaluation of hypothetical warning labels by different groups of subjects, one baseline study prior to the introduction of warning labels in Israel, and a couple of papers dealing with levels of public support for alcohol warning labels in Canada, all of this category of studies concerned evaluations of the impact of the US alcohol warning labels mandated by Congress in 1989. Several studies regarding US warning labels were concerned with testing the effectiveness of alternative labels, and identified problems with the visibility and impact of the unvarying message used (e.g. Crey et al, 2002). The great majority of studies of the US warning labels, however, were analyses of different aspects of the Alcohol Research Group (ARG) series of national surveys concerning the US warning labels reported at different stages between 1991 and 1995. Another major study employed annual surveys of Grade 10 and 12 students from just before to five years after the introduction of US warning labels (McKinnon et al, 2000). Another study assessed the impacts of the warnings about birth defects on pregnant mothers attending an antenatal clinic (Hankin et al, 1993). The main features of each of these three sets of studies will now be described in turn.

(i) The ARG and ARF surveys of the general populations of US and Ontario, 1989 to 1994

The US warning label legislation required a series of before and after surveys to be conducted to evaluate whether the legislation was achieving its stated objectives. These were commissioned by the US National Institute of Alcohol Abuse and Alcoholism (NIAAA). The ARG won the tender to conduct this work, and excellent overviews of these studies have been provided by Greenfield (1997) and Greenfield et al (1999). Anticipating the introduction of the US labelling in 1989, a baseline survey of the drinking behaviour, beliefs about alcohol, and awareness of warning labels among the adult US population was commissioned, in addition to four further surveys in 1990, 1991, 1993 and 1994. The sample sizes were approximately 2,000 individuals for the years 1989 to 1991 and 1,000 for 1993 and 1994. Interviews were conducted by telephone with

respondents contacted by random digit dialling. In 1990, 1991, 1993 and 1994, comparison surveys were conducted in the control site of Ontario, Canada, but with smaller sample sizes of roughly 1,000 per survey, as part of a collaboration with the Addiction Research Foundation (ARF) of Ontario. In both sites, lifetime abstainers from alcohol were excluded from analyses, resulting in a loss of approximately 25% of respondents overall. In addition, a larger Ontario survey was available for 1989, with comparable data on public opinion regarding alcohol warning labels, though not on awareness of labels or their content.

This particular evaluation was the only one identified with any kind of control series. One weakness of the “quasi-experimental design” used was that, for most measures of interest, there were no baseline data for the control site. The first Ontario survey occurred in 1990, i.e. after the introduction of warning labels in the US. Nonetheless, any continuing trends in the five years after implementation could be contrasted with those in the US. Needless to say, however, there are many factors that can affect levels of alcohol consumption in both the whole of the USA and in Ontario that were not controlled for, such as the price of alcoholic drinks, the extent of alcohol advertising, and changes in the physical availability of alcohol. There was also some “leakage” of the warning labels into Ontario via cross-border purchases and exposure to the US warning labels during visits to the USA by Ontario residents. The amount of actual exposure to the labels was still substantially higher in the US than the Canadian samples. The surveys were conducted in each jurisdiction by the same organisations, and used standard sampling designs. However, a further problem was with response rates that dropped from 64% in 1990 to 53% in 1994 in the US samples, and from 64% to 56% in Ontario over the same period. At least these response rates were similar, and dropping by a similar degree in the two data collection sites. They compare favourably with the response rates to many other North American surveys. The data were “weighted” by the number of people in each household contacted and by age and sex, a statistical procedure designed to increase the extent to which the results were representative of the US and Ontario populations.

Overall, despite the above shortcomings, this research program has the strongest design of all the others that were conducted to evaluate the impact of any alcohol warning labels, and most weight should be placed on its findings. Accordingly, the findings from this large study will be described below in some detail, with a main focus on the final analyses presented in 1999 when all data were to hand.

Awareness of the warning labels

By 1994, 43% of US respondents reported having seen the warning label, an increase from 30% in 1990. Much lower percentages of Canadians reported having seen the labels throughout the study period. Awareness of the labels was significantly higher by 1994 among young people (61% of 18 to 29 year olds) and among heavy drinkers (74%). Among those claiming to have seen the labels, recall of the specific messages actually on the labels increased over the study period and, by

1994, was highest for “birth defects” (81%). Recall of the drink driving message was somewhat lower (46%), and recall of the message guarding operating machinery was the lowest (39%). Recall of “dummy” messages that were not used concerning cancer and arthritis was substantially lower, indicating genuine increases in recall. An earlier analysis of the first two years of the study (Kaskutas and Graves, 1994) reported that women of childbearing age were also especially likely to recall seeing the message about birth defects.

Public support for warning labels

Room et al (1995) reported on a standard quasi-experimental analysis of the impact of US warning labels on public support for this measure, using the US and Ontario surveys for the years 1989, 1990 and 1991. By 1991, public support for alcohol warning labels was higher than for any of ten other strategies, including treatment, and regulation of price, availability, advertising, and service of alcohol to intoxicated customers. In answer to the question “Do you think alcoholic beverages should have warning labels about possible health hazards?”, 91% of US respondents and 86% of Ontario residents indicated support. The level of public support increased significantly over time in both countries but, curiously, the most dramatic change was between 1989 and 1990 in Ontario, from 75% to 86%. This can be interpreted as reflecting awareness of the new labels in the US and a belief that they should also have been introduced in Canada. During the study period, support for several other alcohol policies declined, and alcohol warning labels in the US was the only strategy for which support significantly increased. These results suggest that it is highly probable that introducing the labels strengthened public support for this policy in the US, and also increased demand for the introduction of this policy in Canada shortly after their introduction in the US.

Changes in behaviour

Analyses of the early years of this study found significant increases in the likelihood of respondents reporting having taken part in conversations about risks of alcohol consumption from before the introduction of the labels to the year afterwards (Kaskutas and Greenfield, 1992). Reporting having discussed the risks of alcohol consumption was especially marked among respondents who recalled seeing the label, suggesting a direct link. In later years, this finding was still apparent in relation to discussing the dangers of drinking during pregnancy though not for risks relevant to the other health messages. Furthermore, this difference between those who did and did not see the labels increased over time. In general, there was a significant reduction across the sample in the likelihood of discussing the content of any of the messages, an effect that was more pronounced in the US than in Canada. Across both sites, there was a decrease over time of respondents reporting that they drove after drinking when they “probably should not have”. This tendency was significantly greater among the persons who had seen the warning labels (but equally so across the two sites).

A later analysis reported that pregnant women who saw the labels were more likely to discuss the issue (Kaskutas et al, 1998). In addition, a “dose-response” effect was found such that the more types of warnings the respondents had seen (on adverts, at point-of-sale, in magazines and on containers), the more likely they were to have discussed the issue.

(ii) The MacKinnon et al study of US adolescents, 1989 to 1994

Another substantial investigation of the impact of US alcohol warning labels focused exclusively on their impact on adolescents (MacKinnon et al, 2000). The study involved surveys of large numbers of 10th and 12th Grade students annually, from the 1989/1990 to the 1994/1995 school years. A total of 16,661 10th Grade and 15,856 12th Grade students were surveyed in total across all six years of the study. Unlike the Greenfield studies, there was no control site, so analysis of any changes in alcohol risk behaviour could have been influenced by any number of other uncontrolled variables. As expected, there were clear and significant increases in the children’s awareness of the labels and recall of their messages. There were no beneficial changes that could be attributed to the warning labels concerning the level of belief in the messages (which was very high to begin with) in drinking behaviour or in relation to drinking and driving.

(iii) The Hankin et al (1993) study of pregnant women

Another study evaluating the US warning labels examined impacts on perceived risks and drinking behaviour of the messages on 4,397 black, pregnant, consecutive attenders at an antenatal clinic in Detroit (Hankin et al, 1993), sampled from May 1989 (before the introduction of the labels) and up to September 1991. Again, evidence of awareness and recall of the messages was found. No evidence was found of a change in drinking behaviour among the more at-risk heavy consumers of alcohol attending a clinic – defined as those drinking more than one “drink” or .5 ounces of alcohol per day. In these analyses, other variables were controlled, such as mother’s age, age of foetus, and number of previous deliveries. There was a small but significant effect on reducing the alcohol consumption of mothers who were light drinkers. While not a controlled study, the study population was particularly pertinent to the content of the warning messages. Unfortunately, only the low-risk group of light drinkers appeared to respond to the message by changing their behaviour.

4. The Australian experience with standard drinking labelling

The concept of the “standard drink” is integral to several alcohol education and prevention strategies in Australia. For example, advice on low-risk drinking has been provided through multiple media on the number of drinks in any day or over a whole week that are low risk for males and females and for different age groups (National Health and Medical Research Council, 2001). In December 1995, the Commonwealth, State and Territory health ministers agreed with a proposal put to the National Food Authority that labels be required on all alcohol

containers, expressing their alcohol content in terms of 10-gram units, commonly known as “standard drinks”. Not surprisingly, tracking research conducted by the federal health department has found evidence of increasing awareness of the concept of a “standard drink” since the label’s introduction. The decision to introduce the labelling was publicly justified on the basis of research indicating that most drinkers could not state the number of standard drinks in their usual alcoholic beverage containers, and supported the consumer’s “right to know” (Stockwell and Single, 1997). Previous research had used an experimental design to test drinkers’ knowledge of how much alcohol was in an array of examples of their favourite beverages, using either standard drink labels or the usual labels stating only the percentage alcohol content by volume. Without standard drink labels, drinkers often underestimated alcohol content and were usually inaccurate in their estimates. With standard drink labels, not surprisingly, very few errors were made (Stockwell et al, 1991). While there is evidence of gradually declining consumption and alcohol-related deaths in Australia since the mid-1990s, there has been no controlled study to examine whether standard drink labelling in combination with national drinking guidelines has contributed to this reduction.

5. Studies of the effectiveness of tobacco warning labels

In general, the issue of tobacco warning labels is far less controversial. One review of the topic identified (Strahan et al, 2002) was concerned only with summarising social-psychological principles and theories that might lead to the development of more effective warning labels. Another recent review of the evidence for tobacco control policies (Younie et al, 2005) simply recommended the continuation of informative warning labels on tobacco products as a small part of an overall strategy of regulation and education.

Almost all of the primary studies were concerned with the creation of more effective tobacco warning labels. For example, one study found that using cartoon characters deliberately designed to appear like Joe Camel on the warning labels increased their impact on children (Duffy and Burton, 2000). Of interest in the Canadian context are studies evaluating the impact of the recent introduction of graphic images depicting the adverse health effects of smoking on tobacco packets. These large images cover a substantial portion of the package and, in addition, include quite lengthy and detailed messages outlining the ingredients of the cigarettes and possible health consequences of smoking. One such study (Hammond et al, 2003) reported on a random digit dialling telephone survey of 616 adult smokers from southwestern Ontario. They were first interviewed in November 2001, nine months after the introduction of the labels, and then again three months later. A high proportion of the smokers (91%) recalled having read the warning labels and demonstrated a good knowledge of their content. It was found that the smokers reported intention to quit was stronger if they had especially good recall of the label’s contents. Smokers who had read, reflected on, and conversed about

the new labels were significantly more likely to have stopped smoking, attempted to stop smoking, or reduced their smoking at the three-month follow-up point, even after adjusting for baseline differences on intention to quit and level of smoking. The authors conclude that their findings “add to the growing literature on health warnings and provide strong support for the effectiveness of Canada’s tobacco labelling policy”.

6. Conclusions

Reviews and primary studies concerning the impacts of the US alcohol warning label experience, whether written by independent researchers or those employed by the alcohol industry, agree fairly closely that impacts on drinking behaviour are either nonexistent or minimal. All the reviews and most of the individual studies also indicate that the introduction of US warning labels in 1989 led to the unsurprising finding of greater awareness of the messages they contained. Health researchers commenting on the studies have almost universally suggested that warning labels have the potential to contribute to positive outcomes as part of a larger range of more proven strategies, and especially if they are enhanced so as to be more noticeable, impactful and varied. These researchers have also been more likely to highlight (i) the high and increasing levels of public support for alcohol warning labels in the US since their introduction; (ii) evidence that the highest risk groups of drinkers (including young people, pregnant women, and heavy drinkers) are particularly likely to recall the messages; (iii) evidence that, especially early after their introduction, the labels prompted drinkers and high-risk drinkers to engage in more discussion about the risks of drinking alcohol; and (iv) evidence that recall of warning labels was associated with being less likely to report having engaged in drunk driving. Health researchers reviewing the literature are also more likely to emphasise the very low costs of implementing warning labels and the fact that no negative consequences have been demonstrated.

Reflecting the much lower acceptability of nicotine as a recreational drug in comparison with alcohol, health warning labels on tobacco products have been introduced in many more countries and, where they are introduced, are likely to be larger, far more detailed and, now in Canada, even include graphic images depicting the effects of tobacco-related illnesses on smokers. It is quite hard to disentangle the separate impacts of warning labels as distinct from other educational and regulatory strategies that have been used in countries like Canada and Australia to successfully reduce the prevalence of tobacco smoking and related diseases. There is certainly recent evidence, however, that Canadian smokers consider themselves to be influenced towards giving up smoking by these new graphic labels.

Two main arguments that have been used to justify the use of tobacco warning labels but not alcohol warning labels have been (i) there is far greater harm associated with the use of tobacco than alcohol, and (ii) any level of tobacco consumption poses health risks, whereas for alcohol it is only excessive consumption

that poses health risks (e.g. ICAP, 1997). The recent major WHO Global Burden of Disease study developed a measure of the extent to which different health risk behaviours reduced both life expectancy and quality of life, known as Disability Adjusted Life Years or DALYs. Rehm and Room (2005) report that tobacco is estimated to contribute 4.1% of the total burden of premature death or disability in the year 2000, and alcohol 4% of the same total. While it may seem surprising that alcohol contributes almost exactly the same amount of death and disability as does tobacco, this is because, while tobacco tends to take a few years off the life of a large number of older people, alcohol impacts on mostly younger people who have many more years of life to lose. The second argument that it is only tobacco which can harm health in even small doses in fact also applies to alcohol since, in relation to cancer risk, there is no known safe level of alcohol consumption (Chikritzhs et al, 2002). The complication, of course, concerns the widely accepted health benefits of light to moderate alcohol consumption, which in most current estimates appear to somewhat outweigh the negative effects. For example, Chikritzhs et al (2003) estimated that for Australia in 2000, low-risk alcohol consumption was associated with 2,050 deaths but also prevented as many as 6,193, i.e. resulting in a net benefit of 4,143 deaths prevented. Most of the deaths from low-risk consumption were related to cancer. It could be argued that even the small but significant risk of cancer at even low levels of consumption is worth advising consumers about.

The submission by Spirits Canada on Bill C-206 also mentions a number of other arguments against the introduction of alcohol warning labels. The submission emphasises evidence of alcohol-related road crashes being on the decline, and also the small number of people who drink and drive, who drink at risky levels during pregnancy, or who drink in a way liable to put their health at risk. The recent report on the results of the Canadian

Addictions Survey (or CAS, Adlaf et al, 2005) nonetheless indicates that 30% of male and 15% of female drinkers have exceeded low-risk drinking guidelines for long-term harm, while higher proportions put themselves at risk of acute harm by heavy drinking sessions *at least once a month* (34% males, 17% females). Spirits Canada notes that over 50% of pregnancies are unplanned, and it is clear from CAS results that women of child-bearing age are especially likely to consume alcohol in a risky fashion. The highest risk time for damage to the foetus is during the first month after conception, when women do not know they are pregnant. It is likely, therefore, that a high proportion of the population may benefit from being reminded of the health and safety risks of alcohol consumption.

Specifically in relation to Bill C-206, the proposed legislation for alcohol warning labels for Canada is very similar to that currently in place in the United States. On the basis of the evidence reviewed here, it could be expected that the introduction of such labels would be noticed by most drinkers and especially by young and high-risk drinkers. Furthermore, it could be expected that, initially at least, these labels would trigger informal discussions about the health consequences of alcohol consumption. It is also likely that the already high levels of public support for warning labels in Canada would further increase in the years following their introduction. It is possible that the labels might prompt some women who are already light drinkers to drink slightly less when they are pregnant. It is also possible that seeing the labels might discourage a few people from driving after drinking. It is unlikely, however, in the absence of a wide range of other strategies to encourage Canadians to engage in safer alcohol use, that the warning labels would on their own result in an overall reduction in hazardous alcohol consumption or specific risk behaviours such as drinking and driving.

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About the author

Tim Stockwell is currently the Director of the Centre for Addictions Research of BC at the University of Victoria, British Columbia, Canada, and a full Professor in the Department of Psychology there. He has been involved in alcohol policy research for over 25 years, has published over 200 articles, reports and books, and has held various senior appointments such as Director of Australia's National Drug Research Institute (1996 to 2004), Director of the Alcohol Education and Rehabilitation Foundation (2001 to 2004), Member of the WHO Alcohol Policy Strategy Advisory Committee and Australia's National Expert Advisory Committee on Alcohol. Professor Stockwell holds a Masters degree in Psychology and Philosophy from the University of Oxford, UK, a Masters degree in Clinical Psychology from the University of Surrey, UK, and a PhD from the Institute of Psychiatry, University of London, UK.

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