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"We Have a Right to Know": Exploring Consumer Opinions on Content, Design and Acceptability of Enhanced Alcohol Labels

Kate Vallance[1,*], Inna Romanovska[2], Tim Stockwell[1], David Hammond[3], Laura Rosella[4], and Erin Hobin[2]

[1]Centre for Addictions Research of BC, PO Box 1700 STN CSC, Victoria, British Columbia, Canada V8Y 2E4, [2]Health Promotion, Chronic Disease and Injury Prevention, Public Health Ontario, 480 University Ave, Suite 300, Toronto, Ontario, Canada M5G 1V2, [3]School of Public Health & Health Systems, University of Waterloo, 200 University Ave W, Waterloo, Ontario, Canada N2L 3G1, and [4]Dalla Lana School of Public Health, University of Toronto, 27 King's College Circle, Toronto, Ontario, Canada M5S 1A1

*Corresponding author: Centre for Addictions Research of BC, University of Victoria, PO Box 1700 STN CSC, Victoria, British Columbia, Canada V8Y 2E4. Tel: +1-250-472-5934; E-mail: vallance@uvic.ca

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Abstract

Aims: This study aimed to refine content and design of an enhanced alcohol label to provide information that best supports informed drinking and to gauge consumer acceptability of enhanced alcohol labels among a subset of consumers.
Methods: Five focus groups (n = 45) were conducted with stakeholders and the general public (age 19+) across one jurisdiction in northern Canada. Interviews were transcribed and analyzed using NVivo software.
Results: The majority of participants showed strong support for enhanced alcohol labels with an emphasis on the consumers' right to know about the health risks related to alcohol. Participants preferred larger labels that included standard drink (SD) information, national low-risk drinking guidelines presented as a chart with pictograms, cancer health messaging and a pregnancy warning. Supporting introduction of the labels with a web resource and an educational campaign was also recommended.
Conclusions: Displaying enhanced labels on alcohol containers that include SD information, low-risk drinking guidelines and other health messaging in an accessible format may be an effective way to better inform drinkers about their consumption and increase awareness of alcohol-related health risks. Introduction of enhanced labels shows potential for consumer support.
Short summary: Focus group findings indicate strong support for enhanced alcohol labels displaying SD information, national drinking guidelines, health messaging and a pregnancy warning. Introduction of enhanced alcohol labels in tandem with an educational campaign may be an effective way to better inform Canadian drinkers and shows potential for consumer support.

INTRODUCTION

Alcohol consumption is associated with a number of negative outcomes ranging from acute injuries, death and chronic disease to violence and other social harms (Rehm *et al.*, 2010; Parry *et al.*, 2011; Lim *et al.*, 2012; World Health Organization, 2015; Public Health Agency of Canada, 2016). In Canada, around 80% of the population reports consuming alcohol with estimates showing that another 80% of the alcohol consumed is drunk at or exceeding recommended

national guidelines for lower-risk drinking (Zhao *et al.*, 2015; Public Health Agency of Canada, 2016). Despite international expert bodies such as WHO confirming a causal connection between alcohol use and multiple cancers (including breast cancer), a survey found 70% of Canadians were unaware that alcohol could cause cancer (CPAC, 2011). A large proportion of drinkers have also been shown to underestimate their alcohol consumption and may therefore have inaccurate knowledge of their potential for associated risks (Stockwell *et al.*, 2014; Zhao *et al.*, 2015).

In 2011, national low-risk drinking guidelines (LRDGs) were developed in Canada to better inform drinkers of the associated harms with alcohol and to encourage lower-risk patterns of alcohol consumption (Butt *et al.*, 2011). The guidelines set evidence-based daily and weekly alcohol consumption limits for men and women to reduce the risk of negative health outcomes and to help drinkers monitor their consumption (Butt *et al.*, 2011). The LRDGs measure alcohol in 'standard drink' (SD) doses based on ethanol content to ensure consistency across different beverage types and strengths (Butt *et al.*, 2011). Despite the introduction of this population-level health promotion initiative, knowledge of the LRDGs among drinkers remains low (around 26% as of 2012). Alcohol containers currently only list the percent of alcohol by volume (%ABV), which has been shown to make it difficult for drinkers to track their alcohol consumption (Stockwell *et al.*, 1991a, 1991b; Stockwell, 2006; Kerr and Stockwell, 2012; Statistics Canada, 2012a; Osiowy *et al.*, 2015; Wettlaufer, 2017; Hobin *et al.*, 2017).

Experimental studies in Australia and Canada have indicated that providing labels with SD information facilitated greater accuracy in estimates of alcohol intake as compared to %ABV labels (Stockwell *et al.*, 1991a; 1991b; Osiowy *et al.*, 2015; Wettlaufer, 2017). The Canadian study by Osiowy *et al.* (2015) showed that around two-thirds of participants felt that SD labels would assist them in following the LRDGs. Results of an online experimental survey conducted by Hobin *et al.* (2017) showed that larger labels with both SD and LRDG information enabled drinkers to more accurately estimate the number of SD in a container and calculate the number of drinks to reach the daily limits of the LRDG. Hobin *et al.*'s study also showed that the majority of participants supported enhanced labels that included SD information and that over half felt that having the LRDG also on the labels would cause them to reflect on their drinking in relation to the guidelines.

Labeling with additional messaging outlining health risks from drinking is another strategy previously used to good effect in the field of tobacco harm reduction (Hammond *et al.*, 2003, 2013). Research on tobacco warning labels has shown that large labels providing a direct message, using full color graphics, and posted in a prominent and consistent location on the package were effective for increasing awareness, changing attitudes and changing behavior among smokers (Hammond, 2011). Two recent Australian studies investigated the potential for introducing cancer warning statements to labels on alcohol containers and results of the first study showed that 70% of respondents felt that labels with cancer warning messages could raise awareness and prompt conversations about cancer risk (Miller *et al.*, 2016). The second study using focus groups and a large national survey, found that participants had favorable to neutral responses to the inclusion of cancer warning labels on alcohol containers, suggesting they may be broadly acceptable to the public (Pettigrew *et al.*, 2014).

Research conducted by Hobin *et al.* (2017) is the first to evaluate the effectiveness and acceptability of enhanced alcohol labels, which include both SD and LRDG information in addition to specific health messaging. The purpose of the current study was to conduct further examination of elements of the enhanced labels introduced and tested by Hobin *et al.* to gain more insight into the content and design that might best support informed drinking and to gauge consumer acceptability among a subset of consumers in Canada.

METHODS

Overview

Focus groups were used to refine the content and design of Hobin *et al.*'s (2017) enhanced alcohol labels by qualitatively exploring consumer perceptions and acceptability in more detail. Results of the experimental online survey informed development of the focus group questions and protocols and were used to narrow down which alcohol label variations would be further tested in the focus groups. For a more thorough description of the experimental online study, see the companion paper by Hobin *et al.* (2017).

Focus groups

The focus groups were conducted in the Yukon, a territory in northern Canada. Focus groups are a popular method for assessing health messages and developing interventions to meet consumer needs, particularly among marginalized populations (Halcomb *et al.*, 2007). Yukon has a diverse population with relatively high per capita alcohol consumption and more young adults and Indigenous populations than the rest of Canada (Statistics Canada, 2011; 2012b; 2012c; Thomas, 2012). A further benefit of the study location is that Yukon has been putting small (~1 inch^2) warning stickers on their alcohol containers since the mid-1990s and is now considering testing the introduction of an enhanced label to replace them. The current labels contain the simple statement: 'Warning: drinking alcohol during pregnancy can cause birth defects'. The study has ethics approval from the Public Health Ontario's Ethics Review Board.

Sample and recruitment

Four focus groups were conducted with Yukon residents. Two groups (n = 7 and 11) were held in the capital city of Whitehorse (population ~25,000) and two (n = 9 and 9) were held in small rural communities with a liquor store. The sessions were each ~90–120 min in length, conducted in English, and held in accessible locations. The participants were recruited through advertisements in local media and social media such as Facebook, by word of mouth, and through posters in various downtown locations. The focus groups included participants ages 19–65, who had consumed at least one alcoholic drink in the past 30 days. Participants were recruited in advance of the sessions so quotas were used in an effort to include equal proportions of male and female participants, participants with and without a high school education, and participants with an Indigenous background when possible. Non-drinkers were excluded because drinkers represent the most plausible target group for the enhanced alcohol label intervention. Participants received an incentive of $50 for attending the focus group session and up to $50 for travel costs.

A fifth focus group session with nine community stakeholders was also held in Whitehorse. Participants in the stakeholder focus group were recruited via a combination of purposive and snowball sampling to recruit individuals working in roles that intersected health and alcohol such as social work, health promotion, alcohol

and drug services, and marketing and social responsibility for the local liquor corporation (a government-owned alcohol monopoly).

Data collection

All five focus groups were conducted by a local research facilitator using a semi-structured interview guide. The focus groups included visual alcohol label materials, including two different versions of the labels, and a series of open-ended questions. The facilitator introduced the labels, provided the background information and posed the questions. The facilitator also moderated the sessions by asking follow up questions or probes when relevant, recapping participant feedback to ensure clarity and regularly making space in the discussion for each participant to speak if they wished. First, participants were provided with empty beer, spirits and wine bottles labeled with the proposed labels displaying a health message, SD information, the LRDG in a chart or as a pictogram and a pregnancy warning symbol (Fig. 1). Because there was an existing pregnancy warning label in Yukon, a pregnancy warning symbol was included in as part of the revised label content designed for the focus groups. Second, as a rationale for the importance of introducing labels, participants were verbally provided with background information about SDs, Canada's LRDG and information about acute and chronic alcohol-related harms. Providing this background information facilitated participants' ability to focus on reviewing the content and design of the labels. Third, participants were asked to review labels one at a time, and to reflect upon the following questions: (a) what they noticed about the labels; (b) if the label information was clear and easy to understand; (c) if the label information made them think about the health risks of drinking alcohol; (d) if the label information was sufficient enough to potentially impact drinking behaviors and (e) if they thought there was any relevant information missing from the label. Fourth, participants were asked to choose which of the two labels was more effective for conveying a health message, SD information, the LRDG, and the pregnancy warning and explain why. Fifth, participants engaged in a group discussion and responded to questions about the size of the label and where the label should be located on alcohol containers.

Analysis

All of the focus group sessions were audio-recorded, transcribed verbatim and reviewed for consistency. Transcripts were then coded line-by-line through closely reading and then coding discrete units of text to create a framework that captured relevant themes and 'patterns of meaning' in the data (Braun and Clarke, 2006). Thematic analysis was conducted using NVivo 10, a qualitative analysis software package used to manage, code and structure data. The coding framework itself was informed by themes that emerged iteratively during the analysis as well as by the primary aims of the focus groups. Results of the thematic analysis were used to create a summary highlighting most salient issues that emerged and to inform initial revisions to the enhanced alcohol label. The summary and the revised alcohol label were later shared with participants as a form of member-checking and to confirm that the analysis was an accurate reflection of their contributions.

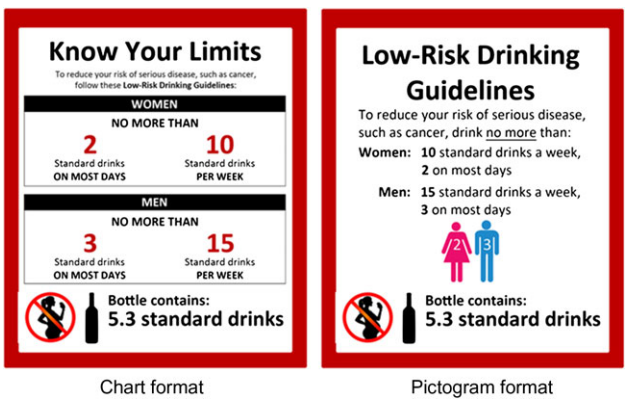

Fig. 1. Enhanced alcohol labels as viewed by focus group participants.

RESULTS

In total, 36 residents and nine stakeholders participated in the five focus groups. Among the stakeholders, two participants represented health promotion, two represented addiction services, three represented health services and medicine, and two represented the government liquor corporation's social responsibility and marketing teams. Participant characteristics and patterns of alcohol consumption are outlined in Table 1.

Support for alcohol labels and impact on drinking behavior

Overall, the stakeholder and resident participants voiced strong support for having the enhanced labels on alcohol containers and the intrinsic value of the labels was a theme that emerged clearly across all groups. No participant in any of the five focus groups expressed opposition to the labels or their introduction on alcohol containers. The information presented on the labels was perceived as new, useful, important, and having the potential to impact consumer

Table 1. Characteristics of focus group participants (residents only) ($n = 36$)

	% (*n*)
Age (mean, standard deviation)	42, 14.4
Gender	
Male	36.1 (13)
Female	63.9 (23)
Education level	
Less than high school	28.1 (9)
Completed high school	71.9 (23)
Employment	
Full-time	42.9 (15)
Part-time	14.3 (5)
Unemployed	42.9 (15)
Household income	
<$45,000	72.2 (26)
$45,000–$99,999	27.8 (10)
$100,000+	0.0 (0)
Don't know/refused	0.0 (0)
Race/ethnicity	
White	33.3 (12)
Indigenous	58.3 (21)
Other	13.0 (3)
Drinking frequency past year	
Less than 1 a week	54.3 (19)
1 a week or more	45.7 (16)
Don't know/refused	0.0 (0)
4+ (Females) / 5+ (males) drinks on one occasion past year	
Less than 1 a month	36.1 (13)
1 a month or more	52.8 (19)
Don't know/refused	11.1 (4)

behavior. As one resident expressed after seeing the labels, 'really, this is like life-changing for me right now'. Many of the participants highlighted that the labels provide consumers with information that could potentially influence their decision to purchase alcohol given that is a product that may have an impact on their health. As one resident noted, '…I really didn't think about it…I didn't know it was that serious, because I usually just go way over the limit that's on [the label], so it's good to have this'. Participants indicated that introducing enhanced labels could be key factor in better informing drinkers about the risks of alcohol use and another theme that emerged centered around consumers having the right to know about related risks so they could make more informed decisions.

While some participants, particularly the stakeholders, expressed hesitation about the effectiveness of the labels for changing behaviors, most felt the labels could make a substantial contribution to alcohol control at a critical point of intervention. As one of the stakeholders pointed out, 'the reason to put labels on the bottle is because we believe that there's a segment of the population that will make a behavioral choice based on reading the label at the point of having a bottle in their hand. We think that's an important intersection point where we can affect the outcome…'. When discussing the relevance of the labels within the context of health promotion and impact on pattern of drinking, another stakeholder further mentioned, 'this is a similar effort you focus on a normal consumer and to give them more awareness that there is in fact a limit…'. Some residents felt that the labels might have less of an effect on certain types of drinkers but many felt the information presented on the labels could be a useful way of prompting new conversations with friends and family about alcohol consumption and related harms.

Label content: LRDGs and SD information

Participants in both the stakeholder and resident groups all felt it would be necessary to have both the SD information as well as the LRDG on alcohol containers for consumers to be able to fully understand their own patterns of consumption and potentially modify their behavior. Some residents initially found interpreting the SD information to be challenging but their comprehension increased relatively quickly over the course of the discussion as familiarity with the labels grew. As one resident said, 'I was confused about this at first when I first read it, but then once you explained it, I thought it was like the coolest thing'. Because of the initial difficulty in understanding the labels, there was a clear theme around the need for knowledge translation and both residents and stakeholders recommended launching an awareness campaign in tandem with the introduction of the labels. They felt this would serve not only to promote the labels but also to provide guidance about how to interpret and apply the SD information in relation to the LRDG making them more effective overall.

Label format: visual presentation of LRDGs

The LRDG information was presented to the focus group participants in two different ways: as a pictogram and as a chart (Fig. 1). The visual impact of the pictograms was favored by many participants and as one resident stated, 'the little people icons are a big part of it. Those grab you instantly, you know. You want to know more when you see those because it's not something you normally see on an alcohol bottle… It sparks your curiosity'. The chart element of the second version of the LRDG was seen as a familiar and easily accessible design, such as for nutritional information, for a recipe or for technical instructions. As one resident pointed out, 'there's nothing to distract you. The numbers are bold and stand out. If you want to get that information out at first glance, you don't really have to look further'. After reviewing the labels with the two variations of the LRDG information, participants ultimately felt that a combination of the pictogram and the chart would be the most effective way to present the LRDG. This highlighted the importance of consumer accessibility and participants felt that by combining the two formats the labels would be more easily understood by people who do not speak English or have low literacy.

Label content: health messages and pregnancy warning symbol

All of the participants in the stakeholder and resident focus groups agreed that the health warnings, and specifically the warning about the increased risk of cancer, were an important element of the enhanced labels and the theme of the consumers' right to know emerged once again. For many of the residents, the link between alcohol and cancer was new information and they felt a health message was important for increasing awareness of this issue and supporting consumers in making more informed decisions. As one resident pointed out, '…when you actually look at this [label], and then you're like, oh yeah, I'm probably going to drink this whole thing… just looking at [the health message] just makes you think'. Residents also suggested including a web link on the labels where consumers could access more detailed information and resources and felt this could further engage drinkers and their social networks.

Due to their exposure to the current labels in Yukon, participants reported a clear understanding of health risks being associated with drinking during pregnancy. Residents indicated universal support for the pregnancy warning symbol on the enhanced label but many also suggested inclusion of additional written messaging such as about the risk of fetal alcohol spectrum disorder (FASD). As one participant noted, '…FAS is something that's not curable, and it's incredibly difficult to manage' and they felt that simply mentioning the risk of birth defects as on the current Yukon label was not sufficient. Themes around accessibility of the labels also emerged in the discussions of the pregnancy warning and participants indicated that a design combining a symbol with text-based messaging would likely be more user-friendly for people with different levels of literacy. A number of residents also felt that the content of the message could be another way to encourage conversations about healthier pregnancies among partners, friends and family.

Label size and location on alcohol containers

Participants in both the stakeholder and resident groups preferred a larger label size because they found it easier to read and felt it would draw more attention. However, stakeholders highlighted that the size and location of the label would likely be impacted by logistical factors including shapes of the bottles, placement of manufacturers' information and packaging. As one stakeholder mentioned, 'size is going to be a tricky one because if you made it much smaller they'd be really hard to read, so I think that's going to be a tough sell to…put a label that's [going to] cover the [product] label…'. Some of the stakeholders also pointed out that there would be resistance from manufacturers to incorporating labels large enough to cover up any of the companies' branding. Participants in the resident groups suggested that if the labels could not be a larger size they should at least be made bold and placed on the front of the bottle to be highly visible. Participants in both groups strongly agreed that the value of having the enhanced labels on containers outweighed to potential resistance from alcohol manufacturers.

Fig. 2. Revised version of enhanced alcohol label.

Based on these findings and Hobin *et al.*'s (2017) earlier study, a subsequent version of the enhanced alcohol label was produced for potential future real-world testing (Fig. 2).

DISCUSSION

This study used focus groups to engage with consumers and stakeholders in Yukon, Canada to gather in-depth feedback on the design, content and acceptability of enhanced labels introduced and tested by Hobin *et al.* (2017). Overall, participants indicated strong support for the enhanced labels and there was no opposition to their potential introduction on alcohol containers. Participants were able to provide valuable feedback on ways to further hone the design and potentially improve the efficacy of the labels. Some of the themes that emerged centered on the overall importance of the enhanced labels, consumers' right to be made aware of the health risks associated with alcohol consumption and the need for the labels to be accessible to a broad range of consumers. Other themes included the labels' potential for initiating significant conversations about alcohol and the importance of ensuring that consumers are sufficiently educated about how to interpret and utilize the labels in relation to their own drinking.

The emerging themes were consistent both the findings from Osiowy *et al.* (2015) and Hobin *et al.* (2017) with most participants supporting inclusion of both SD and LRDG information on enhanced labels. Just as the labels incorporating both the SD and LRDG were found to be more efficacious for tracking alcohol consumption in Hobin *et al.*'s study, findings of the focus groups also indicated that participants preferred labels that included SD and LRGD information. Participants felt that displaying both would be crucial for accurately reflecting on and potentially modifying patterns of alcohol consumption. Participants felt the larger version of the label would be more effective and this was also the case in the earlier experimental online survey and elsewhere (Hammond, 2011; Hobin *et al.*, 2017). The qualitative findings also showed that despite some concern over manufacturers' likely reluctance to having large, prominently displayed labels on alcohol containers, all of the participants felt that the consumers' right to know should take precedence.

While the format of presenting the LRDG as a chart versus a pictogram showed no difference in effectiveness in the earlier online survey (Hobin *et al.*, 2017), one of the key insights from the focus groups was to combine the two different formats of the LRDG information and present them in a chart together with full color pictogram images. In fact, participants felt that the combination of the two formats would make the LRDG information even more user-friendly, attention grabbing and accessible to different levels of literacy. The design of the pregnancy warning symbol was also discussed extensively and participants felt that while it was a key element of the enhanced label they recommended pairing the symbol with related pregnancy health messaging as a way to increase effectiveness and potentially generate useful discussions among friends and family.

Across all of the focus groups, participants consistently reported that simple and direct messaging highlighting the link between alcohol and a range of acute and chronic harms such as cancer was a powerful component of the labels, a finding which has been noted elsewhere (Al-Hamdani and Smith, 2015). Further, similar to recent Australian findings, displaying health messaging addressing a variety of different alcohol-related harms was seen as a way to potentially raise awareness and encourage conversations about alcohol consumption among social networks (Pettigrew *et al.*, 2014; Miller *et al.*, 2016). Another important theme was the need to implement an awareness campaign to help people interpret the information presented on the labels alongside the introduction of the labels on alcohol containers. Participants felt additional public education in the form of a web link on the labels and an accompanying campaign would be a crucial part of increasing the labels' efficacy and encouraging change in drinking behaviors, which is similar to previous findings (Martin-Moreno *et al.*, 2013; Wettlaufer, 2017).

Limitations of the study include a small sample size recruited through convenience sampling that may not be representative of the broader opinions of residents and stakeholders in the Yukon or in other Canadian jurisdictions. In focus group settings there is always potential for certain voices to be heard over others or for some opinions to influence others which may mean that some viewpoints are not reflected in the data. However, throughout the sessions the facilitator took great care to create space in the discussion for anyone who wished to speak. Future research is needed to assess the efficacy of the final design of the enhanced labels in real-world settings and gauge their impact on knowledge of LRDG and SD information, on recall of related health messaging and on drinking behaviors.

CONCLUSION

The focus group participants indicated strong support for large enhanced labels with both SD and LRDG information as the most effective way to assist drinkers in monitoring their alcohol intake relative to national drinking guidelines. Providing LRDG and pregnancy warning information in a combined format with both symbols and text-based messaging may be an effective way to ensure labels are accessible to different subgroups of drinkers. Inclusion of health messaging highlighting risks of alcohol-related harm such as cancer may increase awareness and generate relevant conversations that extend to social networks. Based on the results of this study, introduction of enhanced labels on alcohol containers in tandem with a multi-faceted educational campaign may be an effective way to better inform Canadian drinkers with strong potential for consumer support.

CONFLICT OF INTEREST STATEMENT

None declared.

REFERENCES

Al-Hamdani M, Smith S. (2015) Alcohol warning label perceptions: emerging evidence for alcohol policy. *Can J Public Health-Re Can Sante Publique* **106**:E395–E400. doi:10.17269/CJPH.106.5116.

Braun V, Clarke V. (2006) Using thematic analysis in psychology. *Qual Res Psychol* **3**:77–101. doi:10.1191/1478088706qp063oa.

Butt P, Gliksman L, Beirness D, *et al*. (2011) *Alcohol and Health in Canada: A Summary of Evidence and Guidelines for Low-Risk Drinking*. Canadian Centre on Substance Abuse. http://www.ccsa.ca/Resource%20Library/2011-Summary-of-Evidence-and-Guidelines-for-Low-Risk%20Drinking-en.pdf.

Canadian Partnership Against Cancer. (2011) *Alcohol Use and Cancer in Canada*. Cancer Control Snapshot 5. http://www.cancerview.ca/idc/groups/public/documents/webcontent/rl_crc_snapshot_5.pdf.

Halcomb E, Gholizadeh L, DiGiacomo M, *et al*. (2007) Literature review: considerations in undertaking focus group research with culturally and linguistically diverse groups. *J Clin Nurs* **16**:1000–11. doi:10.1111/j.1365-2702.2006.01760.x.

Hammond D. (2011) Health warning messages on tobacco products: a review. *Tob Control* **20**:327–37.

Hammond D, Fong GT, McDonald PW, *et al*. (2003) Impact of the graphic Canadian warning labels on adult smoking behaviour. *Tob Control* **12**:391–5. doi:10.1136/tc.12.4.391.

Hammond D, Reid J, Driezen P, *et al*. (2013) Pictorial health warnings on cigarette packs in the United States: an experimental evaluation of the proposed FDA warnings. *Nicotine Tob Res* **15**:93–102.

Hobin E, Vallance K, Fei Z, *et al*. (2017) Put a label on it: testing alternative content and designs for enhanced health messaging on alcohol containers. *Alcohol Alcohol*. https://doi.org/10.1093/alcalc/agx052.

Kerr W, Stockwell T. (2012) Understanding standard drinks and drinking guidelines. *Drug Alcohol Rev* **31**:200–5. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3276704/pdf/nihms327163.pdf.

Lim S, Vos T, Flaxman A, *et al*. (2012) A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet* **380**:2224–60.

Martin-Moreno J, Harris M, Breda J, *et al*. (2013) Enhanced labelling on alcoholic drinks: reviewing the evidence to guide alcohol policy. *Eur J Pub Health* **23**:1082–7. doi:10.1093/eurpub/ckt046.

Miller E, Ramsey I, Baratiny G, *et al*. (2016) Message on a bottle: are alcohol warning labels about cancer appropriate? *BMC Public Health* **16**:139. doi:10.1186/s12889-016-2812-8.

Osiowy M, Stockwell T, Zhao J, *et al*. (2015) How much did you actually drink last night? An evaluation of standard drink labels as an aid to monitoring personal consumption. *Addict Res Theory* **23**:163–9.

Parry C, Patra J, Rehm J. (2011) Alcohol consumption and non-communicable diseases: epidemiology and policy implications. *Addiction* **106**:1718–24.

Pettigrew S, Jongenelis M, Chikritzhs T, *et al*. (2014) Developing cancer warning statements for alcoholic beverages. *BMC Public Health* **14**:786–6. doi:10.1186/1471-2458-14-786.

Public Health Agency of Canada. (2016) *The Chief Public Health Officer's Report on the State of Public Health in Canada 2015: Alcohol Consumption in Canada*. http://healthycanadians.gc.ca/publications/department-ministere/state-public-health-alcohol-2015-etat-sante-publique-alcool/alt/state-phac-alcohol-2015-etat-aspc-alcool-eng.pdf (26 June 2017, date last accessed).

Rehm J, Baliunas D, Borges G, *et al*. (2010) The relation between different dimensions of alcohol consumption and burden of disease: an overview. *Addiction* **105**:817–43.

Statistics Canada. (2011) Population by home language, by province and territory. 2011 Census.

Statistics Canada. (2012a) *Canadian Alcohol and Drug Use Monitoring Survey: Summary Results* for 2012. https://www.canada.ca/en/health-canada/services/health-concerns/drug-prevention-treatment/drug-alcohol-use-statistics/canadian-alcohol-drug-use-monitoring-survey-summary-results-2012.html#s7 (22 June 2017, date last accessed).

Statistics Canada. (2012b) Canadian community health survey annual component. 2012 Questionnaire.

Statistics Canada. (2012c) *Focus on Geography Series, 2011 Census*. Statistics Canada Catalogue no. 98-310-XWE2011004. Ottawa, Ontario. Analytical products, 2011 Census. Last updated October 24, 2012.

Stockwell T, Blaze-Temple D, Walker C. (1991a) The effect of 'standard drink' labelling on the ability of drinkers to pour a 'standard drink'. *Aust J Public Health* **15**:56–63.

Stockwell T, Blaze-Temple D, Walker C. (1991b) A test of the proposal to label containers of alcoholic drinks with alcohol content in standard drinks. *Health Promot Int* **6**:207–15.

Stockwell T. (2006) *A Review of Research Into the Impacts of Alcohol Warning Labels on Attitudes and Behavior*. Vancouver: Centre for Addictions Research of BC.

Stockwell T, Zhao J, Macdonald S. (2014) Who under-reports their alcohol consumption in telephone surveys and by how much? An application of the 'yesterday method' in a national Canadian substance use survey. *Addiction* **109**:1657–66.

Thomas G (2012) *Levels and Patterns of Alcohol Use in Canada*. (Alcohol Price Policy Series: Report 1) Ottawa, ON: Canadian Centre on Substance Abuse. http://www.ccsa.ca/Resource%20Library/CCSA-Patterns-Alcohol-Use-Policy-Canada-2012-en.pdf.

Wettlaufer A. (2017)) Can a label help me drink in moderation? A review of the evidence on standard drink labelling. *Subst Use Misuse*.

World Health Organization. (2015) *Global Status Report on Alcohol and Health 2014*. http://www.who.int/substance_abuse/publications/global_alcohol_report/msb_gsr_2014_1.pdf?ua=1.

Zhao J, Stockwell T, Thomas G. (2015) An adaptation of the Yesterday Method to correct for under-reporting of alcohol consumption and estimate compliance with Canadian low-risk drinking guidelines. *Can J Pub Health* **06**:e204–e9.