From: Patch.Groenewegen
To: Jennifer.Roach
Subject: RE: Amendment to collaboration agreement with PHO
Date: Tuesday, May 8, 2018 10:07:28 AM

Yes, still awaiting legal's review / comments.

From: Jennifer.Roach
Sent: Monday, May 07, 2018 12:20 PM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>
Subject: FW: Amendment to collaboration agreement with PHO
Importance: High

Patch – I gave you Matt's comments and his request for legal review a week ago. You got it right?

From: Elizabeth Kiggins [mailto:Elizabeth.Kiggins@oahpp.ca]
Sent: Monday, May 07, 2018 12:10 PM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>
Cc: Jennifer.Roach <Jennifer.Roach@gov.yk.ca>; Erin Hobin <Erin.Hobin@oahpp.ca>; Matt.King <Matt.King@gov.yk.ca>
Subject: RE: Amendment to collaboration agreement with PHO
Importance: High

Hi Patch,

I'm following up regarding the amendment to the collaboration agreement. Please let me know if this is acceptable. If you have any questions or would like to discuss, don't hesitate to ask.

Best regards,
Elizabeth

Elizabeth Kiggins
Research Facilitator, Research and Ethics
Public Health Ontario | Santé publique Ontario
480 University Avenue, Suite 300 | 480, avenue Université, bureau 300
Toronto, ON, M5G 1V2
t: 647 260 7192 f: 647 260 7600 e: *elizabeth.kiggins@oahpp.ca*

From: Elizabeth Kiggins
Sent: April-26-18 11:20 AM
To: Patch.Groenewegen@gov.yk.ca
Cc: 'Jennifer.Roach@gov.yk.ca'; Erin Hobin; Matt.King@gov.yk.ca
Subject: RE: Amendment to collaboration agreement with PHO

Hi Patch,

Thanks again for your help with the financial reporting. I also wanted to follow up with you regarding

the amendment to the collaboration agreement.

Could you please review and let us know if the amendment is acceptable? If you have no changes, you can return a scanned copy to me and I will circulate it for signature at PHO.

If you have any questions, please let me know.

Best,
Elizabeth

Elizabeth Kiggins
Research Facilitator, Research and Ethics
Public Health Ontario | Santé publique Ontario
480 University Avenue, Suite 300 | 480, avenue Université, bureau 300
Toronto, ON, M5G 1V2
t: 647 260 7192 f: 647 260 7600 e: *elizabeth.kiggins@oahpp.ca*

From: Elizabeth Kiggins
Sent: April-11-18 2:13 PM
To: Matt.King@gov.yk.ca; Patch.Groenewegen@gov.yk.ca
Cc: 'Jennifer.Roach@gov.yk.ca'; Erin Hobin; Research
Subject: Amendment to collaboration agreement with PHO

Hello Matt and Patch,

Please find attached an amendment to the collaboration agreement between PHO and YLC for Erin Hobin's Health Canada funded project, "Examining alcohol warning labels as a tool to increase public awareness of alcohol-related health risks and reduce alcohol intake at the population level; Evidence to inform alcohol labelling policy and practice."

Could you please review the amendment and, if it is acceptable, return one signed copy to research@oahpp.ca by email?

If you have any questions or need any further information, please let me know.

Thanks,
Elizabeth

Elizabeth Kiggins
Research Facilitator, Research and Ethics
Public Health Ontario | Santé publique Ontario
480 University Avenue, Suite 300 | 480, avenue Université, bureau 300
Toronto, ON, M5G 1V2
t: 647 260 7192 f: 647 260 7600 e: *elizabeth.kiggins@oahpp.ca*

From: Jennifer.Roach
To: Patch.Groenewegen
Cc: Matt.King
Subject: RE: Amendment to Collaboration Agreement between YLC and PHO
Date: Wednesday, May 9, 2018 10:10:01 AM
Attachments: image001.png

Patch – can you please call Erin about this? You provided me with an update earlier this week and I understand that it is still with legal review.

Jennifer Roach
Executive Assistant
Yukon Liquor Corporation, Yukon Lottery Commission | President's Office
T 867-667-5265 | Yukon ca

From: Erin Hobin [mailto:Erin.Hobin@oahpp.ca]
Sent: May-09-18 8:39 AM
To: Jennifer.Roach <Jennifer.Roach@gov.yk.ca>
Subject: Amendment to Collaboration Agreement between YLC and PHO

Hi Jennifer,

Would Matt have a few minutes today for a telecom to discuss the amendment to our collaboration agreement?

The amendment was emailed to Matt and Patch on April 11 and it has yet to be returned. We are unable to move forward with several research activities for the alcohol labelling study until this agreement is signed.

Thank you for your time and attention.

Best,
Erin

From: Elizabeth Kiggins
To: Patch.Groenewegen
Cc: Matt.King; Nour Schoueri-Mychasiw; Erin Hobin
Subject: RE: URGENT: Amendment for review and signature
Date: Thursday, June 7, 2018 6:29:10 AM
Importance: High

Hi Patch,
I'm following up on the message below. Could you please let me know if you and your legal counsel are free for 30 minutes on **Friday, June 8 from 3-4:30pm Eastern?** (Note the time window has slightly changed because a conflict came up for Erin).
Thanks,
Elizabeth

From: Elizabeth Kiggins
Sent: June-05-18 10:59 AM
To: 'Patch.Groenewegen@gov.yk.ca'
Cc: Matt.King@gov.yk.ca; Nour Schoueri-Mychasiw; Erin Hobin
Subject: RE: URGENT: Amendment for review and signature
Importance: High

Hi Patch,
I have connected with Erin and our legal counsel to find possible time to meet. We are free on **Friday, June 8 from 3-5pm Eastern**.
Could you please let me know if you and your legal counsel have 30 minutes free during that time slot?
Thanks,
Elizabeth

From: Patch.Groenewegen@gov.yk.ca [mailto:Patch.Groenewegen@gov.yk.ca]
Sent: May-28-18 10:55 AM
To: Erin Hobin
Cc: Elizabeth Kiggins; Alwin Kong; Matt.King@gov.yk.ca; Nour Schoueri-Mychasiw; timstock@uvic.ca
Subject: RE: URGENT: Amendment for review and signature

Good morning again,
It seems my legal contact is back in office tomorrow, Tuesday, so I have asked we connect a.s.a.p. then.
Thanks,
Patch

From: Patch.Groenewegen
Sent: Monday, May 28, 2018 6:29 AM
To: Erin Hobin <Erin.Hobin@oahpp.ca>
Cc: Elizabeth Kiggins <Elizabeth.Kiggins@oahpp.ca>; Alwin Kong <Alwin.Kong@oahpp.ca>; Matt.King <Matt.King@gov.yk.ca>; Nour Schoueri-Mychasiw <Nour.Schoueri-Mychasiw@oahpp.ca>; Tim Stockwell (timstock@uvic.ca) <timstock@uvic.ca>
Subject: Re: URGENT: Amendment for review and signature

Morning Erin et al.
Thanks for clarifying whose email is your legal counsel. I will reach out to ours when in office this morning.

I checked with the store on Saturday and they have not received the beer / cider labels yet although they have received the other three. Question also is - do you want the beer / cider to be applied to 500 and 450 ml cans that are now on shelves? Or would you rather the LRDG applied to those sizes instead?
Happy conference and good week ;)
Patch
Sent from my BlackBerry 10 smartphone on the Bell network.

From: Erin Hobin
Sent: Monday, May 28, 2018 04:34
To: Patch.Groenewegen
Cc: Elizabeth Kiggins; Alwin Kong; Matt.King; Nour Schoueri-Mychasiw; Tim Stockwell (timstock@uvic.ca)
Subject: RE: URGENT: Amendment for review and signature

Hi Patch,
Our legal counsel is Alwin Kong (Alwin.Kong@oahpp.ca) and he is expecting to connect with YLC legal as soon as possible to discuss the remaining items in the amendment.
Also, can you please confirm that YLC has received and is applying the standard drink labels?
Please note that I am attending a conference in Montreal from Monday to Thursday but will have access to email.
Best,
Erin

From: Patch.Groenewegen@gov.yk.ca [mailto:Patch.Groenewegen@gov.yk.ca]
Sent: May-25-18 5:51 PM
To: Erin Hobin
Subject: RE: URGENT: Amendment for review and signature

Erin,
I left you a voicemail; let's connect directly.
Thanks,
Patch

From: Erin Hobin [mailto:Erin.Hobin@oahpp.ca]
Sent: Thursday, May 24, 2018 6:43 AM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>; Elizabeth Kiggins <Elizabeth.Kiggins@oahpp.ca>
Cc: Nour Schoueri-Mychasiw <Nour.Schoueri-Mychasiw@oahpp.ca>; Matt.King <Matt.King@gov.yk.ca>; Alwin Kong <Alwin.Kong@oahpp.ca>
Subject: URGENT: Amendment for review and signature
Importance: High

Hi Patch,
Thanks for sending the changes and comments to the amendment.
I think it would be helpful and most efficient to connect YLC and PHO legal counsel.
Could you please help with arranging?
Thanks again.
Best,
Erin

From: Patch.Groenewegen@gov.yk.ca [mailto:Patch.Groenewegen@gov.yk.ca]
Sent: May-23-18 1:08 PM

To: Elizabeth Kiggins
Cc: Erin Hobin; Nour Schoueri-Mychasiw; Matt.King@gov.yk.ca
Subject: RE: Amendment for review and signature

Good day Elizabeth,

Please see attached changes and comments.

Thanks,

Patch

From: Elizabeth Kiggins [mailto:Elizabeth.Kiggins@oahpp.ca]
Sent: Wednesday, May 16, 2018 7:29 AM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>
Cc: Erin Hobin <Erin.Hobin@oahpp.ca>; Nour Schoueri-Mychasiw <Nour.Schoueri-Mychasiw@oahpp.ca>; Matt.King <Matt.King@gov.yk.ca>
Subject: RE: Amendment for review and signature

Hi Patch,

Thanks for meeting with Erin and I yesterday to discuss the collaboration agreement amendment. I incorporated all of YLC's revisions and sent it to our Legal counsel. 73(a)

. Please see the attached. I have include a version with comments as well as a clean version.

Also, 73(a) .

Could you please review the attached? If this version is acceptable, please have the clean copied signed and send it to me by email. We are looking forward to getting this amendment signed!

Many thanks,

Elizabeth

From: Elizabeth Kiggins [mailto:Elizabeth.Kiggins@oahpp.ca]
Sent: Monday, May 14, 2018 7:12 AM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>; Erin Hobin <Erin.Hobin@oahpp.ca>; Matt.King <Matt.King@gov.yk.ca>
Cc: timstock@uvic.ca; sophie.bellefeuille@canada.ca; vallance@uvic.ca; Nour Schoueri-Mychasiw <Nour.Schoueri-Mychasiw@oahpp.ca>
Subject: RE: Printing Standard Drink Labels today
Importance: High

Hi Patch,

Thanks for providing the feedback on the amendment. I didn't see an attachment on your email. Would you be able to incorporate your requested changes in the amendment document? I will have 74(1)(a) .

Also, regarding the indemnity, as an agent of the Crown, Public Health Ontario (PHO) is subject to the requirements of the Financial Administration Act (FAA). Section 28 of the FAA, prohibits 74(1)(a)

.

Looking forward to receiving the revised amendment from you so we can keep this project moving forward!

Thanks,

Elizabeth

Elizabeth Kiggins
Research Facilitator, Research and Ethics
Public Health Ontario | Santé publique Ontario
480 University Avenue, Suite 300 | 480, avenue Université, bureau 300
Toronto, ON, M5G 1V2
t: 647 260 7192 f: 647 260 7600 e: *elizabeth.kiggins@oahpp.ca*

From: Patch.Groenewegen@gov.yk.ca [mailto:Patch.Groenewegen@gov.yk.ca]
Sent: May-12-18 4:38 PM
To: Erin Hobin; Matt.King@gov.yk.ca
Cc: timstock@uvic.ca; sophie.bellefeuille@canada.ca; vallance@uvic.ca; Nour Schoueri-Mychasiw; Elizabeth Kiggins
Subject: RE: Printing Standard Drink Labels today

Hello Erin,

73(a)

.

Also, at the end of Schedule A, there are some additional clauses that we desire to alter and define

74(1)(a), 73(a)

.

There are some other suggested amendments; however, the aforementioned are two of considerable concern.

Regards,

Patch

From: Erin Hobin [mailto:Erin.Hobin@oahpp.ca]
Sent: May-10-18 12:48 PM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>; Matt.King <Matt.King@gov.yk.ca>
Cc: Tim Stockwell (timstock@uvic.ca) <timstock@uvic.ca>; Bellefeuille, Sophie (HC/SC) (sophie.bellefeuille@canada.ca) <sophie.bellefeuille@canada.ca>; Kate Vallance (vallance@uvic.ca) <vallance@uvic.ca>; Nour Schoueri-Mychasiw <Nour.Schoueri-Mychasiw@oahpp.ca>; Elizabeth Kiggins <Elizabeth.Kiggins@oahpp.ca>
Subject: Printing Standard Drink Labels today
Importance: High

Hi Patch and Matt,

I am emailing because I am going to move forward with printing the standard drink labels today. If we do not move forward before receiving the executed amendment from you, we will not be able to proceed logistically.

The Standard Drink labels will be identical in size to the LRDG labels (1.25’ x 2’), and will be ordered in quantities of:

- Wine = 60,000
- Beer, Ciders, Coolers = 60,000
- Spirits = 60,000
- 2L Ciders = 4,000

Looking forward to receiving the executed amendment as soon as possible. If you have questions, please contact me immediately.

Best,
Erin

From: Jennifer.Roach
To: Patch.Groenewegen
Subject: FW: Minister Eby
Date: Monday, June 18, 2018 11:45:01 AM
Attachments: image002.png
73(a)
2018-02-15 LTR HCMinister.pdf
2018-05-29 resp HCMinister.pdf

Here is some information attached.

From: Jennifer.Roach
Sent: Monday, June 18, 2018 9:49 AM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>
Cc: Matt.King <Matt.King@gov.yk.ca>
Subject: FW: Minister Eby

Patch – I think we may need an information briefing note for the minister (ready for Matt to review by end of day tomorrow)? I may have some information for you – can you call me when you get a minute please? 667-5265.

From: Monica.Nordling
Sent: Monday, June 18, 2018 9:40 AM
To: Matt.King <Matt.King@gov.yk.ca>
Cc: Jennifer.Roach <Jennifer.Roach@gov.yk.ca>; Mia.Archambault <Mia.Archambault@gov.yk.ca>; Phyllis.Rowsell <Phyllis.Rowsell@gov.yk.ca>
Subject: Minister Eby

Good morning Matt,

I am currently setting up a meeting with Minister Eby while he is in town on the 25th for the Human Rights Conference. When we had a conference call with him regarding the label study, he agreed to meet while he was in town. I'm hoping to get a bit of background material to support the conversation.
Once the meeting is finalized I will let you know the details.
Cheers,
Monica

Monica Nordling
Executive Assistant to Honourable John Streicker
Minister of Community Services
Minister responsible for the French Language Services Directorate
Minister responsible for the Yukon Liquor Corporation and the Yukon Lottery Commission
Cabinet Office | Government of Yukon
T 867-393-7427 | Yukon.ca

From: JAG WEBFEEDBACK JAG:EX [AGWEBFEEDBACK@gov.bc.ca]
To: Matt.King [Matt.King@gov.yk.ca]
Subject: 73(a)
Date: Wednesday, February 14, 2018 11:36:56

The Honourable Tracy-Anne McPhee
Minister of Justice and Minister of Education
Government of Yukon

The Honourable John Streicker
Minister Responsible for the Yukon Liquor Corporation
and the Yukon Lottery Commission
Government of Yukon

Email: Matt.King@gov.yk.ca

Dear Ms. McPhee and Mr. Streicker:

73(a)

Yours truly,

Original signed by:

David Eby, QC
Attorney General

Office of the Minister
Box 2703,Whitehorse, Yukon Y1A 2C6

February 15, 2018

Honourable Minister Petitpas Taylor
Minister of Health
HCMinister.MinistreSC@Canada.ca

BY EMAIL

Dear Minister Petitpas Taylor,

For over 25 years, our government has been affixing warning labels to alcohol, alerting Yukoners to the risk of drinking during pregnancy. Alcohol consumption is high in the Yukon, as is the incidence of Fetal Alcohol Spectrum Disorders.

Recently, researchers out of the University of Victoria and Ontario Health proposed to carry out a label study to evaluate the effectiveness of warning labels to inform consumers about safe drinking. Funding for that study came through Health Canada – thank you.

That study began last November. Labels in the study included messages on drinking while pregnant, cancer, and safe drinking guidelines (a label regarding standard drinks was yet to come in the study). The Northwest Territories, who for many years have also used warning labels regarding drinking and pregnancy, was the control case, while the Yukon was the test case.

In December we paused the label study. Alcohol producers expressed concerns about the study and in particular, concerns regarding the use of the cancer label. 74(1)(a)

.

We have decided to invite the researchers to restart their study without the use of the cancer labels. We believe that the conversation regarding the risks of cancer due to alcohol should be addressed at the national level. The reason I am writing to you today is to ask that Health Canada take the lead on considering this issue.

Sincerely,

John Streicker
Minister of Community Services

Minister of Health | Ministre de la Santé

Ottawa, Canada K1A 0K9

MAY 29 2018

The Honourable John Streicker, M.L.A.
Minister of Community Services
Government of Yukon
john.streicker@gov.yk.ca

Dear Minister:

Thank you for your correspondence of February 15, 2018, regarding the alcohol labeling study taking place in the Yukon's Whitehorse liquor store and your suggestion that Health Canada lead a national conversation on the risk of cancer due to alcohol consumption. I regret the delay in responding.

I share your concerns regarding the risks associated with alcohol consumption and the harms associated with its problematic use. According to the Canadian Tobacco, Alcohol, and Drugs Survey, as of 2015, almost 80 percent of Canadians 15 and older drink alcohol. Further, recent data from the Canadian Community Health Survey indicates that almost 20 percent of Canadians 12 and older can be classified as heavy drinkers.

The Government of Canada supports a more comprehensive, collaborative, compassionate and evidence-based approach to addressing problematic substance use. These values are reflected in the new Canadian Drugs and Substances Strategy (CDSS), which restores harm reduction alongside prevention, treatment, and enforcement as key pillars supported by a strong evidence base. You may be interested to know that the strategy now covers the problematic use of all psychoactive substances including alcohol. More information on the CDSS is available online at **https://www.canada.ca/en/health-canada/news/2016/12/new-canadian-drugs-substances-strategy.html**.

You will understand my concern when I learned that the Health Canada funded study *Examining Alcohol Warning Labels as a Tool to Increase Public Awareness of Alcohol-Related Health Risks and Reduce Alcohol Intake at the Population Level: Evidence to Inform Alcohol Labelling Policy and Practice* was paused.

.../2

I am pleased to hear the project will resume albeit with some modifications. As we elaborate the goals of the CDSS in the coming year, we will continue to work with provincial and territorial partners to consider new initiatives that can address problematic substance use.

Again, thank you for writing on this very important issue.

Yours sincerely,

The Honourable Ginette Petitpas Taylor, P.C., M.P.

From: Patch.Groenewegen
To: Matt.King
Cc: Jennifer.Roach
Subject: REVIEW: label study info note
Date: Monday, June 18, 2018 1:50:43 PM
Attachments: image001.png
InfoNote_LabelStudy.docx

As per request.

From: Jennifer.Roach
Sent: Monday, June 18, 2018 11:45 AM
To: Patch.Groenewegen
Subject: FW: Minister Eby

Here is some information attached.

From: Jennifer.Roach
Sent: Monday, June 18, 2018 9:49 AM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>
Cc: Matt.King <Matt.King@gov.yk.ca>
Subject: FW: Minister Eby

Patch – I think we may need an information briefing note for the minister (ready for Matt to review by end of day tomorrow)? I may have some information for you – can you call me when you get a minute please? 667-5265.

From: Monica.Nordling
Sent: Monday, June 18, 2018 9:40 AM
To: Matt.King <Matt.King@gov.yk.ca>
Cc: Jennifer.Roach <Jennifer.Roach@gov.yk.ca>; Mia.Archambault <Mia.Archambault@gov.yk.ca>; Phyllis.Rowsell <Phyllis.Rowsell@gov.yk.ca>
Subject: Minister Eby

Good morning Matt,

I am currently setting up a meeting with Minister Eby while he is in town on the 25th for the Human Rights Conference. When we had a conference call with him regarding the label study, he agreed to meet while he was in town. I'm hoping to get a bit of background material to support the conversation.

Once the meeting is finalized I will let you know the details.

Cheers,
Monica

Yukon

Monica Nordling
Executive Assistant to Honourable John Streicker
Minister of Community Services
Minister responsible for the French Language Services Directorate
Minister responsible for the Yukon Liquor Corporation and the Yukon Lottery Commission
Cabinet Office | Government of Yukon
T 867-393-7427 | Yukon.ca

Information Note

Alcohol Warning Labels — "Northern Territories Alcohol Study"

Yukon Liquor Corp.

Key Points:

- By resuming participation in the study, we aim to gather evidence on the effectiveness of labelling to support future public health policy related to the use of labels – a practice in place for more than 27 years in Yukon.
- The Government of Yukon announced its decision to resume its participation in the Northern Territories Alcohol Study on February 15 (cancer-risk label removed).
- The Whitehorse Liquor Store staff began affixing the Low-Risk Drinking Guidelines labels again on April 13, and introduced the Standard Drink labels on May 28.
- The Yukon Liquor Corporation is in the process of launching social marketing materials to inform customers about low-risk drinking guidelines and standard drinks information. This marketing material will support the label study and will eventually fan out across the territory later this summer.
- We aim to conclude the study as planned: affixing study labels will end July 31, and the six-week in-store survey will also end July 31.
- Next steps include: researchers will wrap up the survey on July 31; YLC will share historic sales data with the researchers to determine any changes in behaviour; survey and study results will be drafted for YLC review prior to release.

Context:

- Yukon resumed its participation in the study on April 13, 2018, after it "paused" its participation due to concerns raised by the alcohol industry with respect to 74(1)(a) . The study continues to garner media attention at the local, national and international levels.

Background on external letters of support:

- 76(1), 74(1)(a)
- February 15, 2018: YLC minister emailed Canada's Minister of Health— Petitpas Taylor—noting YG decided to invite the researchers to restart their study without the use

Information Note

Alcohol Warning Labels — "Northern Territories Alcohol Study"

Yukon Liquor Corp.

of the cancer labels, and requested Health Canada to lead the conversation about the risks of cancer due to alcohol at the national level.

- May 29, 2018: Health Canada responded noting a new Canadian Drugs and Substances Strategy (CDSS) aims to restore harm reduction alongside prevention, treatment and enforcement as key pillars supported by a strong evidence base, and that the study now covers the problematic use of all psychoactive substances including alcohol. The letter also noted pleasure that YG resumed the label study despite most modifications.

- December 12, 2016: Canada announced of its updated drug strategy: The Canadian Drugs and Substances Strategy (CDSS) that replaces the National Anti-Drug Strategy. The inclusion of harm reduction pillar is meant to address the current opioid crisis, and to work toward preventing the emergence of new crises. Canada is committed to ensuring its policies under the CDSS are based on a strong foundation of evidence, including data related to harm reduction policies, program and interventions, so to better identify trends, target interventions, monitor impacts and support evidence-based decisions.

Background about the study:

- June 18, 2018: Survey staff are set up in the Whitehorse Liquor Store and have begun the six-week survey that will run until July 31, when the affixing labels work also concludes.
- May 28, 2018: Whitehorse Liquor Store staff began applying the Standard Drink labels.
- April 13, 2018: Whitehorse Liquor Store staff resumed participation by affixing Low-Risk Drinking Guidelines labels to the majority of product in store, while finalizing the Standard Drink label. The following table illustrates the label schedule:

Study Labels Matrix and Timeline

Alcohol containers	Starting April 13	May 28 onward	June	July
750ml Wine (any ABV% strength)	LRDG	SD L1	SD L1	SD L1
750ml Spirits (any ABV% strength)	LRDG	SD L2	SD L2	SD L2
2L Coolers	LRDG	SD L3	SD L3	SD L3
355ml and 341ml Beer, Cider, Coolers including 6-packs of bottles/cans & 6-, 12-, 15-, 24-pack cardboard cases of cans	LRDG	SD L4	SD L4	SD L4
Fortified wine/liqueurs (all sizes)	LRDG	LRDG	LRDG	LRDG

Information Note

Alcohol Warning Labels — "Northern Territories Alcohol Study"

Yukon Liquor Corp.

All other sizes of cider, beer coolers, wine, etc.	LRDG	LRDG	LRDG	LRDG
• **Small producers** (all Yukon) • **~40ml mini bottles** • **beer bombers**	No label	No label	No label	No label

- February 15: 2018: Government of Yukon announces it is inviting researchers to resume the Northern Territories Alcohol Study.
- December 19, 2017: YLC paused its participation in the label study.
- The Northern Territories Alcohol Study is as a multi-phase study that began in April 2017 with a survey to gather baseline data on attitudes, opinions and behaviours related to alcohol use. The study was designed to run for eight months with two test jurisdictions with Yukon applying new labels and NWT being the control group not changing labels.
- Yukon Liquor Corporation (YLC) engaged with researchers in 2014 and in 2015 assisted the research team to carry out three focus groups in Yukon to examine the merits of such a labelling study. In October 2015, the research team applied for a grant for Health Canada and was successful in obtaining the funding in 2017.
- As one of two jurisdictions in Canada that uses labels, Yukon agreed to participate in the Health Canada funded the study led by University of Victoria and Public Health Ontario.
- Yukon government's interest is in evaluating whether use of warning labels are an effective way to raise awareness and influence consumer behaviour. The third party academic level study presents an opportunity to evaluate whether labels have any effect in changing consumer behaviors leading toward responsible consumption and healthier choices. The evidence would inform future policy decisions with respect to use of labels.
- YLC has used warning labels since 1991 on all wine, spirit and packaged liquor products. The brightly coloured labels warn the public of the risks of consuming alcohol by pregnant women and raise public awareness of Fetal Alcohol Spectrum Disorder (FASD).

Approved by:

_____ _____

President, Yukon Liquor Corporation [Date approved]

From: Patch.Groenewegen
To: Matt.King
Cc: Jennifer.Roach
Subject: RE: Label study web page
Date: Thursday, October 25, 2018 2:31:49 PM

As per what is noted in BN LQ-08 …

* Researchers are analyzing data and will develop reports to be posted on a University of Victoria's website (www.alcohollabels.cisur.ca):

Wave 1 baseline report, explains the project and July 2017 survey results

* Anticipated release timing: September 2018

Wave 2 data report, explains study pause and February 2018 survey results

* Anticipated release timing: October 2018

Wave 3 report, explains July 2018 survey data and a full analysis of the study.

* Anticipated release timing: early 2019

From: Patch.Groenewegen
Sent: Wednesday, October 24, 2018 10:26 AM
To: Matt.King <Matt.King@gov.yk.ca>
Cc: Jennifer.Roach <Jennifer.Roach@gov.yk.ca>
Subject: FW: Label study web page

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: Tuesday, August 28, 2018 8:45 AM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>
Cc: Kate Vallance (vallance@uvic.ca) <vallance@uvic.ca>; Tim Stockwell (timstock@uvic.ca) <timstock@uvic.ca>; Nour Schoueri-Mychasiw <Nour.Schoueri-Mychasiw@oahpp.ca>
Subject: Label study web page

Hi Patch,

Tim's team has created a URL for the labelling study – www.alcohollabels.cisur.ca and will start populating it with stuff soon (e.g., baseline report). For now it is more of static project description page.

Thanks,

Erin

From: Scott.Westerlaken
To: Matt.King; Patch.Groenewegen
Cc: Jennifer.Roach
Subject: FW: label study paper #1 feedback
Date: Wednesday, December 5, 2018 10:15:43 AM
Attachments: image001.png
DOC000.pdf
image003.png

Some notes from Peter Maher attached.

Scott Westerlaken, UXC
Marketing and Social Responsibility Coordinator
Yukon Liquor Corporation | Social Responsibility, Policy and Planning
T 867-667-3709 | C 867-332-2595 | Yukon.ca

From: Peter Maher <Peter_Maher@gov.nt.ca>
Sent: Wednesday, December 5, 2018 10:14 AM
To: Scott.Westerlaken <Scott.Westerlaken@gov.yk.ca>
Subject: RE: label study paper #1 feedback

Scott,

I have attached a couple of e-mail strings that will give you an idea of my position/relationship with the label study group. Please don't share them with anybody but Matt and Patch.

Thanks,

Peter

From: Scott.Westerlaken@gov.yk.ca <Scott.Westerlaken@gov.yk.ca>
Sent: Tuesday,December,2018 5:03 PM
To: Peter Maher <Peter_Maher@gov.nt.ca>
Subject: label study paper #1 feedback

Hi Peter,

Matt King asked me to reach out in regards to comments on the paper and if you had any and possibly sharing. We are still in the process of compiling our comments and we should have them complete by Friday.

Thanks in advance,

Scott Westerlaken, UXC
Marketing and Social Responsibility Coordinator
Yukon Liquor Corporation | Social Responsibility, Policy and Planning
T 867-667-3709 | C 867-332-2595 | Yukon.ca

Peter Maher

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: Thursday,December,7-2017 1:58 PM
To: Peter Maher
Subject: RE: Labels

Mr. Maher,

I will add both of these suggestions to the report.

Thank you for this feedback, I appreciate your time and effort.

Please let me know if you have anything further.

Best,
Erin

From: Peter Maher [mailto:Peter_Maher@gov.nt.ca]
Sent: December-07-17 3:53 PM
To: Erin Hobin
Subject: RE: Labels

Dr. Hobin,

In your conclusion you make the following statement: "When asked to recall messages on the current alcohol warning labels, over 65% of the participants in both jurisdictions were able to recall label messages related to alcohol and FASD or pregnancy, 15% recalled label messaged about alcohol/operating machinery, and about 20% reported "Don't Know".

The following should be added after labels: "using a multiple choice delivery method". The following clarification should be added after don't know. "It should be noted that some Whitehorse participants picked warning messages that are used in the NWT and not in the Yukon.".

I can understand that you may not agree with my feedback so I suggest that you release the report whenever you please.

Peter

From: Erin Hobin [mailto:Erin.Hobin@oahpp.ca]
Sent: Thursday,December,2017 12:45 PM
To: Peter Maher <Peter_Maher@gov.nt.ca>
Subject: RE: Labels

Mr. Maher,

I will be sure to cc you on all correspondence in the future that includes your name, and am fine with you expressing your concerns about the results of the baseline survey in Whitehorse and Yellowknife with Dr. Corriveau.

As per my email on December 1, your feedback on the interpretation of the baseline survey results is still welcome; however, I continue to stand by the integrity of the research protocols and measures applied in this study. Consistent

with other research-grade surveys assessing participant awareness and recall of product labels, the baseline survey conducted in Whitehorse and Yellowknife liquor stores assesses consumer awareness of labels, then uses measures to first assess *unprompted recall of label messages* (open-ended response), followed by *prompted recall of label messages* (close-ended responses).

We would soon like to share the baseline survey report with other stakeholders, including Dr. Corriveau. Please let us know when you are available in the next two weeks to provide further feedback on the report via email or a telecom.

Best,
Erin

From: Peter Maher [mailto:Peter_Maher@gov.nt.ca]
Sent: December-06-17 3:34 PM
To: Erin Hobin
Subject: Labels

Dr. Hobin,

I have been forwarded a copy of the e-mail that you sent on December 6, 2017 to Dr. Andre Corriveau, the Chief Public Health Officer for the NWT. I would expect that if you are mentioning me by name I would be copied on the correspondence. I find it disturbing that you make no mention to Dr. Corriveau about my concerns with your baseline report and conclusions. I intend to clarify that with Dr. Corriveau this afternoon. Going forward, if you chose to mention my name in further correspondence or communications, I would expect it to be clearly stated that you and I are not in agreement on the baseline survey conclusions.

Mársı | Kinanāskomitin | Thank you | Merci | Hąį' | Quana | Qujannamiik | Quyanainni | Máhsı | Máhsı | Mahsì

Peter Maher
Director, Liquor Operations
NWT Liquor Commission
Finance
Government of the Northwest Territories

2nd floor, Greenway Building
31 Capital Drive
Hay River NT X0E 1G2

Phone: 867-874-8702
Cell: 867-875-7899
www.gov.nt.ca

Peter Maher

From: Peter Maher
Sent: Friday,December,1-2017 11:02 AM
To: 'Erin Hobin'
Cc: Tim Stockwell (timstock@uvic.ca)
Subject: RE: Northern Territories Alcohol Study - Baseline Report

Erin,

As I stated in our earlier conversation, I agreed to participate and support this program expecting that it would provide data as to the effectiveness on non-effectiveness of warning labels in an unbiased scientific survey. The message I get from your report is that you are strong proponents of warning labels on alcohol. If that is your mandate or objective it should be stated up front in your report. I also disagree with your findings on label notice and influence based on the multiple choice option given to the participants. Based on my personal experience, if there were not multiple choice answers, I feel your results would be significantly lower. I also question using Tim Horton's gift cards to encourage participation in the survey. I think it compromises the scientific data.

As I stated very clearly in our conversation, I supported a very unbiased scientific study. I do not feel that has happened in this case and as such, I will not endorse your conclusions.

Peter

From: Erin Hobin [mailto:Erin.Hobin@oahpp.ca]
Sent: Friday,December,2017 7:52 AM
To: Peter Maher <Peter_Maher@gov.nt.ca>
Cc: Tim Stockwell (timstock@uvic.ca) <timstock@uvic.ca>
Subject: RE: Northern Territories Alcohol Study - Baseline Report

Good morning Peter,

The new alcohol warning labels have now been launched in the liquor store in Whitehorse. My colleague, Kate Vallance, and I were in Whitehorse for the launch, and believe it went very well and has been well received by the public health community. We have a telecom later today with the Yukon Liquor Corporation to further discuss the labels as well as any concerns from the alcohol industry. We will continue to send you updates over the course of the study.

Also, I wanted to follow up with you regarding the revised baseline report from the exit surveys we conducted in liquor stores in Whitehorse and Yellowknife in May/June 2017.

Do you have comments or questions? Your feedback is much appreciated. Once we are all satisfied with the report, I would like to share it with Health Canada, the primary funder of this study.

All the best. Have a great weekend.

Erin

From: Erin Hobin
Sent: November-08-17 3:43 PM
To: 'Peter_Maher@gov.nt.ca'

Cc: Tim Stockwell (timstock@uvic.ca)
Subject: Northern Territories Alcohol Study - Baseline Report

Hi Peter,

Please find attached to this email a copy of the revised baseline report from the exit surveys we conducted in liquor stores in Whitehorse and Yellowknife in May/June 2017.

As per our discussion, we have strengthened the language describing the low label saliency in both Whitehorse and Yellowknife, and have added a sentence cautioning about the use of self-reported survey data and underestimating alcohol use.

Also, we have now coded the open-ended survey question assessing unprompted awareness of alcohol labels and have added these results to the report.

Please review and let me know if you have questions or concerns. Happy to chat about it.

Lastly, please note that the intervention warning labels will be launched in the liquor store in Whitehorse on Monday, November 20.

Best,
Erin

From: Nour Schoueri-Mychasiw
Sent: October-31-17 3:33 PM
To: Erin Hobin
Subject: RE: Northern Territories - Baseline Report

Please use these files.

N.

From: Nour Schoueri-Mychasiw
Sent: October-31-17 2:56 PM
To: Erin Hobin
Subject: Northern Territories - Baseline Report

Hi Erin,

Please find attached the revised baseline report in Word and PDF.

Please take a look at page 15, last sentence. I changed FASD to pregnancy. Let me know if you want it changed back.

Also, take a look at the blurb I added on page 16, end of the paragraph.

Let me know if you have any other revisions or catch something. I also changed the report date to November.

N.

Nour Schoueri-Mychasiw, PhD
Senior Research Coordinator
Health Promotion, Chronic Disease & Injury Prevention

From: Patch.Groenewegen
To: Scott.Westerlaken; Loree.Stewart; Jennifer.Roach
Subject: FW: Confidential - Paper #1
Date: Friday, December 7, 2018 11:16:15 AM
Attachments: Paper_1_Study_Plan_181127_YLCnotes.pdf

FYI – since you were on this file at one point this past week.

From: Patch.Groenewegen
Sent: Friday, December 07, 2018 11:15 AM
To: 'Erin Hobin' ; Matt.King ; Brendan.Hanley
Cc: Tim Stockwell (timstock@uvic.ca) ; Kate Vallance (vallance@uvic.ca) ; Simran Shokar ; Nour Schoueri-Mychasiw
Subject: RE: Confidential - Paper #1

Good day folks,
As discussed, attached is our feedback to this report, which includes Matt's comments too.
Note: line 407, it seems you have a note within to attain permissions from NWT … still outstanding?
Thank you for the extended time for me to review it as well and provide input.
For clarification purposes – is this report intended to be the final report or is there yet another to come?
Regards,
Patch

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: Tuesday, November 27, 2018 1:15 PM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>; Matt.King <Matt.King@gov.yk.ca>; Brendan.Hanley <Brendan.Hanley@gov.yk.ca>
Cc: Tim Stockwell (timstock@uvic.ca) <timstock@uvic.ca>; Kate Vallance (vallance@uvic.ca) <vallance@uvic.ca>; Simran Shokar <Simran.Shokar@oahpp.ca>; Nour Schoueri-Mychasiw <Nour.Schoueri-Mychasiw@oahpp.ca>
Subject: Confidential - Paper #1
Importance: High

Hello Patch, Matt, and Brendan,
Hope you are all doing well!
Our research team is putting the final touches on paper #1 from the alcohol labelling study. Briefly, this paper (please see attached) uses waves 1 and 2 survey data to test the impact of the enhanced alcohol labels on consumer salience, processing, and self-reported alcohol consumption.
At this time, it is important that this paper please **remains strictly confidential** and is not shared beyond the people listed on this email.
Please review the paper and email your feedback to me on or before **Wednesday, December 5th**, as we are scheduled to submit the paper to the American Journal of Public Health on Thursday, December 6th. If you have questions or would like to chat about the paper, I am in the office and happy to schedule a telecom.
Please also note that we will have paper #2 ready before the end of December 2018.
All the best,
Erin

From: Erin Hobin
To: Patch.Groenewegen; Matt.King; Brendan.Hanley
Cc: timstock@uvic.ca; vallance@uvic.ca; Nour Schoueri-Mychasiw; Simran Shokar
Subject: RE: Confidential - Paper #1
Date: Friday, December 14, 2018 11:37:10 AM

Hi Patch,
Wanted to follow-up again with some final revisions made to the paper that was submitted this week to the American Journal of Public Health examining the impact of the labels with the cancer warning and national drinking guideline messages. I incorporated almost all of your comments into the final draft – thanks again for the thorough review.
Examples of the revisions include:

1. Revisions to the statement indicating that intervention labels were applied to "all alcohol containers, with the exception of single serve beer and cider, in the single liquor store in the treatment site"
2. Revisions to the conclusions in both the abstract and main text to soften language related to "mandatory labels".
3. Revisions to the statement referring to labels being applied in Yukon for past "27 years" not 30 years.
4. Confirmation that we started offering a $10 incentive to survey participants during the baseline data collection starting May 12, 2017. Therefore, a $10 incentive was offered to participants in all of the baseline and follow-up survey data collections, with the exception of the first week of baseline.

Generally, it takes 6 to 12 months for an academic paper to be submitted, reviewed, and published. I will provide updates along the way.
Happy holidays to you and your family.
Erin

From: Patch.Groenewegen@gov.yk.ca [mailto:Patch.Groenewegen@gov.yk.ca]
Sent: December-07-18 2:15 PM
To: Erin Hobin; Matt.King@gov.yk.ca; Brendan.Hanley@gov.yk.ca
Cc: timstock@uvic.ca; vallance@uvic.ca; Simran Shokar; Nour Schoueri-Mychasiw
Subject: RE: Confidential - Paper #1

Good day folks,
As discussed, attached is our feedback to this report, which includes Matt's comments too.
Note: line 407, it seems you have a note within to attain permissions from NWT … still outstanding?
Thank you for the extended time for me to review it as well and provide input.
For clarification purposes – is this report intended to be the final report or is there yet another to come?
Regards,
Patch

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: Tuesday, November 27, 2018 1:15 PM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>; Matt.King <Matt.King@gov.yk.ca>; Brendan.Hanley <Brendan.Hanley@gov.yk.ca>
Cc: Tim Stockwell (timstock@uvic.ca) <timstock@uvic.ca>; Kate Vallance (vallance@uvic.ca) <vallance@uvic.ca>; Simran Shokar <Simran.Shokar@oahpp.ca>; Nour Schoueri-Mychasiw

<Nour.Schoueri-Mychasiw@oahpp.ca>
Subject: Confidential - Paper #1
Importance: High
Hello Patch, Matt, and Brendan,
Hope you are all doing well!
Our research team is putting the final touches on paper #1 from the alcohol labelling study. Briefly, this paper (please see attached) uses waves 1 and 2 survey data to test the impact of the enhanced alcohol labels on consumer salience, processing, and self-reported alcohol consumption.
At this time, it is important that this paper please **remains strictly confidential** and is not shared beyond the people listed on this email.
Please review the paper and email your feedback to me on or before **Wednesday, December 5th**, as we are scheduled to submit the paper to the American Journal of Public Health on Thursday, December 6th. If you have questions or would like to chat about the paper, I am in the office and happy to schedule a telecom.
Please also note that we will have paper #2 ready before the end of December 2018.
All the best,
Erin

From:	Patch.Groenewegen
To:	"Kate Vallance"; Matt.King; Brendan.Hanley
Cc:	Tim Stockwell; Simran Shokar; Nour Schoueri-Mychasiw; Erin Hobin (Erin.Hobin@oahpp.ca)
Subject:	RE: Confidential - Paper #2
Date:	Wednesday, January 9, 2019 12:39:19 PM
Attachments:	Paper 2_Study Design Baseline_28122018_YLCedits_090118.pdf

Good day folks,
Attached are YLC's comments and review.
Thanks,
Patch

From: Kate Vallance
Sent: Friday, December 28, 2018 10:03 AM
To: Patch.Groenewegen ; Matt.King ; Brendan.Hanley
Cc: Tim Stockwell ; Simran Shokar ; Nour Schoueri-Mychasiw ; Erin Hobin (Erin.Hobin@oahpp.ca)
Subject: RE: Confidential - Paper #2

Hello Matt, Patch and Brendan,
Hope you have all been having a lovely holiday season! As Erin mentioned, we have a second paper ready to submit that will be going to the Journal of Studies on Alcohol and Drugs in January. This paper (see attached) describes the original study design and some results from the baseline surveys and then outlines some of the modifications that were made to the study design after the pause in the intervention.
As with the first paper, it is important that this paper please **remains strictly confidential** and is not shared beyond the people listed on this email.
If you could have a look and send any comments by **Wednesday, January 9th**, that would be greatly appreciated!
Thanks and wishing everyone a happy New Year!
Kate

Kate Vallance, MA
Research Associate
Canadian Institute for Substance Use Research
University of Victoria
Phone: 250-472-5934
Email: vallance@uvic.ca
Facebook: www.facebook.com/UVic.CISUR
Twitter: www.twitter.com/UVic_CISUR
Websites: www.cisur.ca | www.cmaps.ca
www.alcoholpolicy.cisur.ca | www.alcohollabels.cisur.ca
I honour with respect the Lkwungen-speaking peoples
on whose territory I live and work and the Songhees,
Esquimalt and WSÁNEĆ peoples whose relationships
with the land continue to this day.

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: Friday, December 07, 2018 12:26 PM
To: Patch.Groenewegen@gov.yk.ca; Matt.King@gov.yk.ca; Brendan.Hanley@gov.yk.ca
Cc: Tim Stockwell <timstock@uvic.ca>; Kate Vallance <vallance@uvic.ca>; Simran Shokar <Simran.Shokar@oahpp.ca>; Nour Schoueri-Mychasiw <Nour.Schoueri-Mychasiw@oahpp.ca>

Subject: RE: Confidential - Paper #1

Hi again Patch,

The paper reviewed will be submitted for publication to a peer-reviewed academic journal – this process usually takes 6 months to a year to complete. After the paper is published, our team will likely want to post the paper on the project website.

Additionally, we are preparing a Wave 2 stakeholder report (similar to the baseline report) that will

76(1)

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Please let me know if you have any further questions.

Best,

Erin

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: Friday, December 07, 2018 11:39 AM
To: Patch.Groenewegen@gov.yk.ca; Matt.King@gov.yk.ca; Brendan.Hanley@gov.yk.ca
Cc: Tim Stockwell <timstock@uvic.ca>; Kate Vallance <vallance@uvic.ca>; Simran Shokar <Simran.Shokar@oahpp.ca>; Nour Schoueri-Mychasiw <Nour.Schoueri-Mychasiw@oahpp.ca>
Subject: RE: Confidential - Paper #1

Hi Patch and Matt,

Thank you for your comments on your first day back from vacation. I will review and incorporate as I revise the final draft of the manuscript.

Please note this paper only reflects Waves 1 and 2 survey data and time period (May 2017 – March 2018), it does not include Wave 3. Our team has taken very detailed notes to ensure the study processes and procedures are accurate.

Also, the study design does include survey measures (label plus media related measures) in both Whitehorse and Yellowknife before and after the intervention in an effort to control for secular influences outside of the labels, such as the media coverage.

All the best and happy holidays.

Erin

From: Patch.Groenewegen@gov.yk.ca [mailto:Patch.Groenewegen@gov.yk.ca]
Sent: December-07-18 2:15 PM
To: Erin Hobin; Matt.King@gov.yk.ca; Brendan.Hanley@gov.yk.ca
Cc: timstock@uvic.ca; vallance@uvic.ca; Simran Shokar; Nour Schoueri-Mychasiw
Subject: RE: Confidential - Paper #1

Good day folks,

As discussed, attached is our feedback to this report, which includes Matt's comments too.

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To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>; Matt.King <Matt.King@gov.yk.ca>; Brendan.Hanley <Brendan.Hanley@gov.yk.ca>
Cc: Tim Stockwell (timstock@uvic.ca) <timstock@uvic.ca>; Kate Vallance (vallance@uvic.ca)

<vallance@uvic.ca>; Simran Shokar <Simran.Shokar@oahpp.ca>; Nour Schoueri-Mychasiw <Nour.Schoueri-Mychasiw@oahpp.ca>

Subject: Confidential - Paper #1

Importance: High

Hello Patch, Matt, and Brendan,

Hope you are all doing well!

Our research team is putting the final touches on paper #1 from the alcohol labelling study. Briefly, this paper (please see attached) uses waves 1 and 2 survey data to test the impact of the enhanced alcohol labels on consumer salience, processing, and self-reported alcohol consumption.

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Please also note that we will have paper #2 ready before the end of December 2018.

All the best,

Erin

From: Erin Hobin
To: Patch.Groenewegen; Matt.King; Brendan.Hanley
Cc: Tim Stockwell (timstock@uvic.ca); Kate Vallance (vallance@uvic.ca); Nour Schoueri-Mychasiw
Subject: Canadian Centre for Substance Use and Addiction - national conference 2019
Date: Thursday, January 24, 2019 1:16:34 PM
Attachments: CCSA_Abstract_190124 KV_EHupdated.docx
Importance: High

Good afternoon,

In our Health Canada grant, we identified the Canadian Centre for Substance Use and Addiction's national conference 2019 as one venue for disseminating the results of the alcohol label study.

We have funding to cover the travel costs for two stakeholders and two researchers to attend the conference and present our study.

Please find attached to this email a draft abstract for a 60-minute panel presentation (~20 minutes x 3 presentations) that includes an overview of the study, experience with industry and revising the intervention and study design, and discussing the results and lessons learned.

The due date for the abstract is **MONDAY, JANUARY 28**. Please let me know if you have feedback and are interested in participating as soon as possible.

Apologies for the very tight timelines.

Erin

Word Count: 24707

Title: Communicating risks to drinkers: a real-world study testing the impact of alcohol labels.

Learning objective for the presentation: Discuss the Northern Territories Alcohol Label Study in Yukon, including key findings and considerations for applying alcohol labels in other Canadian jurisdictions.
~~To examine the impact of alcohol labels with a cancer warning, national drinking guidelines, and standard drink information based on a world-first study piloting enhanced labels in two of Canada's Northern Territories. Discuss the Northern Territories Alcohol Label Study in Yukon, including key findings and our barriers to applying alcohol labels to other jurisdictions in Canada.~~

Background: ~~Enhanced alcohol warning labels can be an effective tool to support more informed and safer alcohol consumption.~~ Funded by Health Canada, this ~~project~~research evaluated the impact of enhanced warning labels implemented in Whitehorse, Yukon as compared to the~~a control~~comparison site ~~in~~ Yellowknife, Northwest Territories. The study was modified partway through due to interference from national alcohol industry representatives. ~~The first study to examine the impact of alcohol labels with a cancer warning, national drinking guidelines, and standard drink information was launched in the liquor store in Whitehorse in November 2017. However, after only one month into the eight month intervention, the Yukon government halted their participation in the study and stopped applying labels due to significant pressure from the national alcohol industry. The study recommenced after a four month delay on the condition that the cancer labels were dropped.~~

Objectives:

- ~~Outline~~Provide an overview of the ~~the original study design of the~~ alcohol label study;
- Report on the impact of alcohol industry interference including the modified study design;
- ~~To h~~Highlight key results ~~from baseline and follow-up surveys in both control and comparison sites~~and lessons learned ~~and learnings from the alcohol label study,~~
  - ~~a study designed to test if evidence-informed alcohol labels are an effective tool for supporting more informed and safer alcohol consumption.~~
  - ~~~~

Formatted: Indent: Left: 0.5 , No bullets or

Methods: This~~e~~ quasi-experiment~~al design.~~ involved partnering with government liquor distribution agencies to ~~apply~~ test the impact of evidence-informed labels on alcohol containers in the intervention (Whitehorse) liquor store ~~in the intervention (Whitehorse)~~ relative to the comparison condition (Yellowknife). Surveys were conducted among randomly selected liquor store customers before and after the label intervention to assess differences between conditions over time in key outcomes. ~~Modifications were required to the study design as a result of alcohol industry interference.~~

Results: ~~Baseline~~ Pre-intervention data identified low consumer awareness of alcohol-related health risks and drinking guidelines. Despite the industry interference, significant increases in

label salience and processing, alcohol-related knowledge, and self-reported impact of the labels on drinking behaviours in the intervention relative to the comparison condition were detected.

Conclusions: Enhanced alcohol labels are effective for conveying health risks and promoting safer consumption to drinkers. Implementation of stronger safeguards against alcohol-industry interference and further unimpeded real-world testing of enhanced alcohol labels is recommended ~~going forward~~.

From: Erin Hobin
To: Brendan.Hanley; Patch.Groenewegen; Matt.King
Cc: timstock@uvic.ca; vallance@uvic.ca; Nour Schoueri-Mychasiw
Subject: RE: Canadian Centre for Substance Use and Addiction - national conference 2019
Date: Friday, January 25, 2019 9:29:29 AM

Hi Brendan,

Thanks for reviewing and supporting the abstract. I think we have some time to confirm panel representation. It would be fantastic if you're able to attend, but understand if you can't.

Talk soon,
Erin

From: Brendan.Hanley@gov.yk.ca [mailto:Brendan.Hanley@gov.yk.ca]
Sent: January-24-19 11:35 PM
To: Erin Hobin; Patch.Groenewegen@gov.yk.ca; Matt.King@gov.yk.ca
Cc: timstock@uvic.ca; vallance@uvic.ca; Nour Schoueri-Mychasiw
Subject: RE: Canadian Centre for Substance Use and Addiction - national conference 2019

Hi Erin: the abstract looks good, thanks. I am interested but can't confirm as yet if I will be available for the conference; at any rate, I can access other funding sources if I go. Let me know when you need to confirm panel representation and I will see if I can work out my schedule before then.
Brendan

Brendan E. Hanley MD CCFP(EM) MPH
Chief Medical Officer of Health, Yukon
204 Lambert Street, 4th Floor
PO Box 2703 (H-2)
Whitehorse, YT Y1A 1Z4
Phone: (867) 456-6136
Cell: (867) 332-1160

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: Thursday, January 24, 2019 1:25 PM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>; Matt.King <Matt.King@gov.yk.ca>; Brendan.Hanley <Brendan.Hanley@gov.yk.ca>
Cc: Tim Stockwell (timstock@uvic.ca) <timstock@uvic.ca>; Kate Vallance (vallance@uvic.ca) <vallance@uvic.ca>; Nour Schoueri-Mychasiw <Nour.Schoueri-Mychasiw@oahpp.ca>
Subject: RE: Canadian Centre for Substance Use and Addiction - national conference 2019

Hi again,

Please find attached to this email a clean version of the abstract.

My previous email included the track changes – sorry.

Thanks again,
Erin

From: Erin Hobin
Sent: January-24-19 4:16 PM
To: Patch.Groenewegen@gov.yk.ca; Matt.King@gov.yk.ca; 'Brendan Hanley' (Brendan.Hanley@gov.yk.ca) (Brendan.Hanley@gov.yk.ca)
Cc: Tim Stockwell (timstock@uvic.ca); Kate Vallance (vallance@uvic.ca); Nour Schoueri-Mychasiw
Subject: Canadian Centre for Substance Use and Addiction - national conference 2019
Importance: High

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The due date for the abstract is **MONDAY, JANUARY 28**. Please let me know if you have feedback and are interested in participating as soon as possible.

Apologies for the very tight timelines.

Erin

From: Tim Stockwell
To: John.Streicker; Paul.McConnell
Cc: Brendan.Hanley; Norman Giesbrecht; Ashley Wettlaufer; Kate Vallance; Clifton [VCH] Chow; Amanda Farrell-Low
Subject: Forthcoming Yukon alcohol policy specific brief report
Date: Tuesday, April 16, 2019 10:59:31 AM
Attachments: yt summary EMBARGOED.pdf

Dear Minister Streicker

I hope this note finds you well, thank you again for all the support with the famous alcohol labelling study last year which is gradually finding its way into print in academic journals now. Given the intense interest in alcohol policy in the Yukon at present I thought I should give you a heads up that we will be releasing a Yukon specific summary report next week on Wednesday 24 April, embargoed copy is attached. We do hope you will find report constructive and helpful. It is one of a series of 13 such reports, one for each Canadian jurisdiction. Please let us know if you have any queries about the report or our project.

Mr McConnell, congratulations on your new appointment and I hope our paths cross before too long. Thanks for the continuing help with our research from your office

With best wishes

Tim

Dictated by voice recognition - apologies for any errors
Tim Stockwell, PhD, FRSC, FCAHS
Director, Canadian Institute for Substance Use Research
Professor, Department of Psychology
University of Victoria, BC
Tel: 1 250 472 5445
Fax: 1 250 472 5321
Cell: 1 250 415 7376
Website:www.uvic.ca/research/centres/cisur
Facebook:www.facebook.com/UVic.CISUR
Twitter: www.twitter.com/UVic_CISUR

Reducing Alcohol-Related Harms and Costs in Yukon: A Policy Review

University of Victoria
Canadian Institute for Substance Use Research

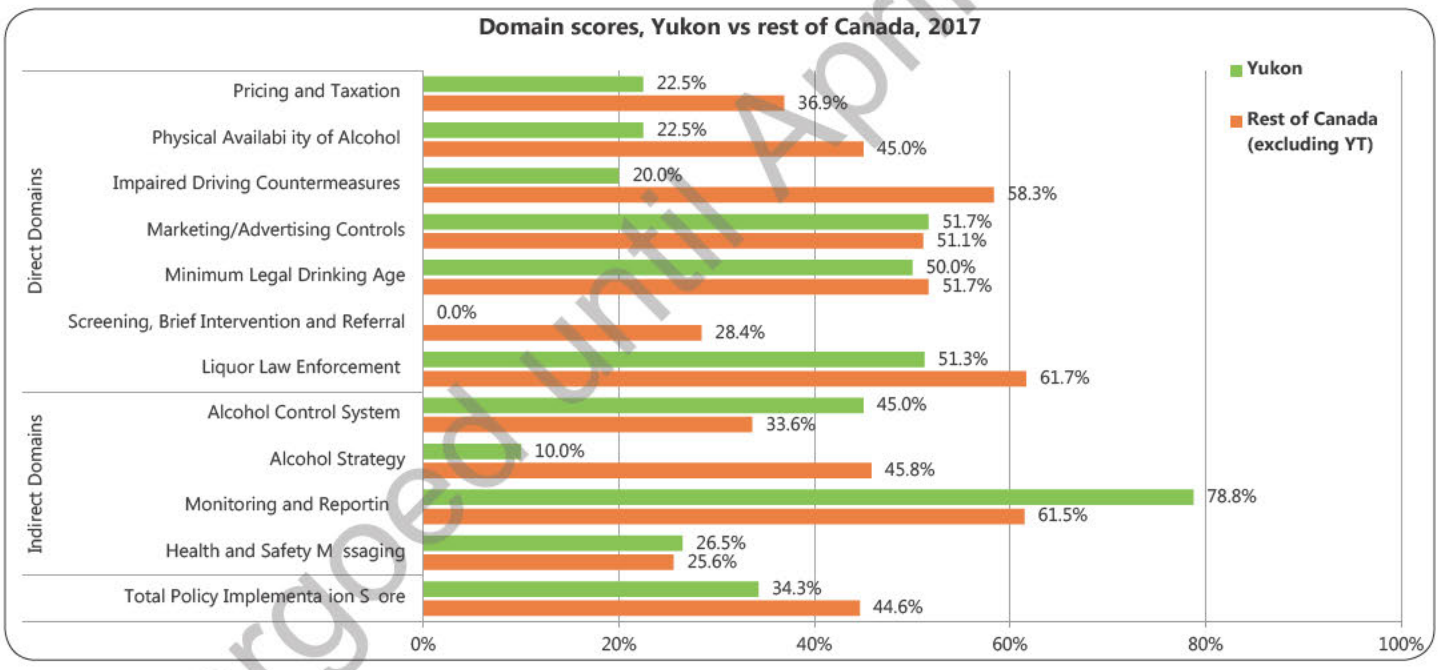
Yukon

Population (2016)	**35,874**
Per capita alcohol consumption age 15+*	**15L pure ethanol****
Overall alcohol harm costs (2014)	**$41M**
Net revenue from alcohol (2014)***	**$17M**
Type of alcohol retail system	**Mixed government/ private system**

The Provincial and Territorial Canadian Alcohol Policy Evaluation (CAPE) project is a rigorous assessment of whether evidence-based alcohol policies were implemented within each province and territory in 2017. A comprehensive alcohol policy framework was developed, containing gold standard best practices across 11 different policy domains. The first seven domains have evidence of effectiveness as means of directly reducing population level consumption of alcohol and/or related harms. The last four domains are composed of evidence-based strategies that more indirectly facilitate implementation of the first seven domains. See Stockwell et al, 2019[a] for the full methodology and findings.

The three territories represent distinct cultural and geographical contexts but are also unique in terms of population size and dispersion with varying alcohol regulatory frameworks and less infrastructure capacity. Despite these differences, the evidence-based policies assessed in this project are still relevant and the same study protocol has been carefully applied, to the extent possible, to evaluate their implementation across these three jurisdictions.

The scores presented in this summary reflect the deg ee to which Yukon has implemented the gold standard best practices captured i the CAPE alcohol policy framework. **Overall, Yukon scored 34% in 2017, which is 11% below the average of 45% for the rest of Canada (excluding Yukon).**



Promising practices in Yukon

- Yukon's liquor licensing board has a number of g**old standard best practices in place for determining outlet placement** for on-premise establishments such as restaurants and bars and off-premises retail stores, which take into account factors such as the current distribution of outlets.
- There is a **strong ratio of liquor inspectors** to the number of on-premise establishments and off-premise retail store outlets in Yukon. Further, inspections of on-premise establishments are completed more frequently for higher risk outlets such as liquor primary premises which often include bars or taverns.
- The **penalties for liquor law violations in Yukon reflect the severity** of the violation and can escalate for repeat offences; penalties are also publicly reported on the liquor corporation's website.
- Yukon is one of only two Canadian jurisdictions that currently requires **mandatory warning labels** be applied to all alcohol beverage containers sold in retail stores. Yukon recently participated in a Health Canada study piloting new evidence-based labels, which included low-risk drinking guidelines, standard drink information, and a health warning containing a cancer message.

*Adjusted to account for unrecorded alcohol consumption. **Equivalent to 878 standard drinks (1 standard drink contains 17.05mL of pure alcohol and is equivalent to 341mL of 5% beer; 142mL of 12% wine; or 43mL of 40% spirits). *** Net income of liquor authorities, total taxes, and other revenue. See CAPE report for full list of data sources.[a]

Strengthening alcohol policies in Yukon

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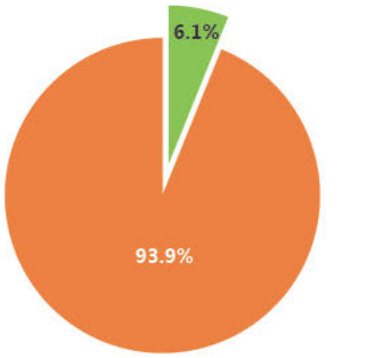
	Policy Domain	Score	Selected recommendations
DIRECT DOMAINS	Pricing and Taxation	22% F	Implement legislated minimum alcohol prices in Yukon and set the price to at least **$1.75* per standard drink for off-premise retail stores and $3.50* per standard drink for on-premise establishments**, after taxes with no exceptions (*2019 prices). **Update all alcohol prices annually** to reflect Yukon-specific inflation rates to ensure alcohol does not become less expensive relative to other goods over time.
	Physical Availability	23% F	Limit the availability of alcohol by **reducing trading hours**; do not allow early morning alcohol sales (i.e. before 1:00am) or late-night sales (i.e. after 8pm for off-premise retail stores and 1am for on-premise establishments) without exceptions
	Impaired Driving Counter-measures	20% F	Strengthen the graduated licensing program (GLP) in Yukon by **increasing the minimum eligibility age to 16**, increasing the duration of stage 1 from 6 months up to 12 months and **extending the zero tolerance BAC for 3 years beyond program completion**. Adjust the **administrative license suspension (ALS) periods** to have a minimum 3-day ALS for the first occurrence and 7-day ALS for the second occurrence; the ALS should include **mandatory vehicle impoundment** for the first occurrence and include a **licence reinstatement fee**. **Penalties should be increased or modified** for all drivers when the presence of a drug is detected in addition to alcohol. Implement **mandatory interlock programs** in conjunction with license suspensions requiring program completion prior to relicensing.
	Marketing and Advertising Controls	52% D-	Implement **stronger marketing restrictions in Yukon beyond the Canadian Radio-television and Telecommunications (CRTC)** regulations that specifically protect priority populations including youth, women and girls and minority groups, those in recovery from addiction. **Strengthen sponsorship restrictions** to further limit exposure to youth and direct targeting of youth or young adults. Appoint an independent authority responsible for enforcement with **mandatory pre-screening requirements** and introduce an **independent complaint system**. **Increase the proportion of health and safety messaging** on Yukon's social media accounts.
	Minimum Legal Drinking Age	50% D-	Increase the **minimum legal drinking age**; give consideration to **graduated drinking policies** that grant phased-in legal access to alcohol by limiting the amount and type of alcohol that can be purchased in specific settings between the ages of 19 and 21. **Prohibit the extension of social hosting laws beyond private residences** e.g. on-premise establishments.
	Screening, Brief Intervention/ Referral	0% F	Collaborate with health care professionals to **develop screening, brief intervention and referral (SBIR) practice guidelines and tools to be implemented in a health care setting and online** or consider adopting the SBIR resource developed by the College of Family Physicians. Online tools can increase accessibility, especially among younger populations or those not accessing health care in a clinical setting; **implementation of SBIR tools should be tracked** in order to inform future SBIR activities. Work with health care providers in order to **increase the proportion of physicians or other clinical staff who routinely ask adults 18+ about their alcohol use.**
	Liquor Law Enforcement	51% D-	Implement a **risk-based licensing and enforcement program** for on-premise establishments, off-premise retail stores, and special occasion permits to inform licensing conditions and enforcement schedules based on outlet and licence holder characteristics as well as incident data. Have **defined follow-up period for failed compliance checks** and liquor law violations and **introduce a mystery shopper program** for off-premise retail stores to ensure compliance with minimum drinking age laws. Make **the liquor service training program (B.A.R.S.) mandatory** for all staff and volunteers at all licensed events, special occasion permits, venues, on-premise establishments and off-premise stores.
INDIRECT DOMAINS	Alcohol Control System	45% F	Ensure the Yukon Liquor Corporation **reports to a ministry with a focus on public health and/or safety and legislate earmarked funds to support harm reduction initiatives and health promotion messaging;** protection of public health and safety should be an explicitly stated objective of the control system. **Phase out ferment on premise outlets,** which encourage the bulk sale of inexpensive alcohol.
	Alcohol Strategy	10% F	**Develop a Yukon alcohol-specific government-endorsed strategy** that has dedicated funding and includes a range of evidence-based public health and policies and interventions; ensure the strategy is **developed without industry input.** **Identify a leader to facilitate implementation of the strategy** with systems in place to monitor implementation and effectiveness; the **strategy should be updated every five years** to ensure it aligns with current evidence.
	Monitoring and Reporting	79% B+	Ensure that key alcohol-related indicators such as consumption, alcohol-related hospitalizations, deaths and crime are **updated and publicly reported through a centralized system at least annually.** Allocate **dedicated funding for staff time and resources** to tracking and reporting of alcohol-related indicators.
	Health and Safety Messaging	27% F	**Strengthen the current alcohol warning labels** in Yukon by including pictorial images and having rotating messages cover health and safety, standard drink information and national low-risk drinking guidelines. Require **mandatory display of alcohol warning signage in all locations that sell or serve liquor**, which include a variety of health-focused messaging such as FASD risks and pregnancy, impaired driving and injury risks, alcohol's risks to minors, low-risk drinking guidelines and alcohol's chronic disease and health impacts.
	Total Policy Implementation Score	34% F	**A comprehensive list of gold standard best practice alcohol policies is available in Appendix C of the full CAPE report[¤].**

Yukon: selected findings, 2017

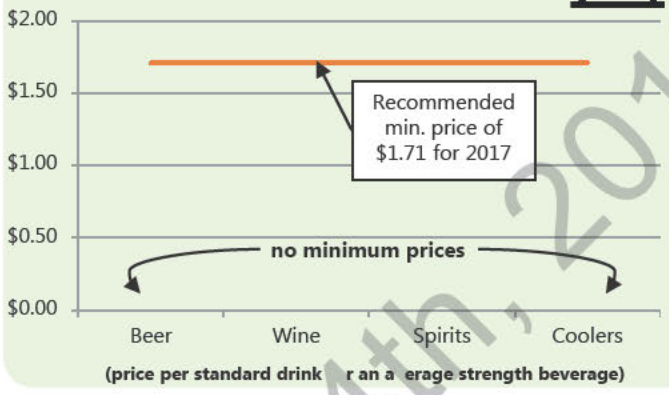
Yukon alcohol retail stores, 2017



Best practice is 100% government-run alcohol retail stores

Yukon minimum prices per standard drink, 2017

Off-premise retail stores



On-premise establishments (restaurants, bars, etc.)

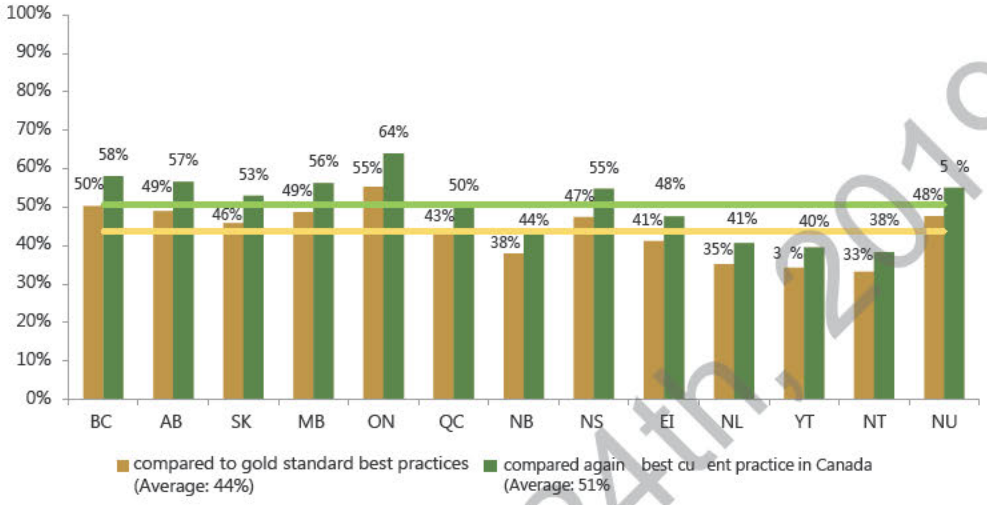
Select Best Practices for Impaired Driving Countermeasures Across the Territories

	Yukon	Northwest Territories	Nunavut
Has a graduated licensing program (GLP) in place	☑	☑	☐
.05% BAC administrative license suspension (ALS) has mandatory vehicle impoundment for 1st offence	☐	☐	☐
ALS period for 1st offence at least 3 days	☐	☐	☐
ALS period for 2nd offence at least 7 days	☐	☑	☐
Mandatory interlock program for *Criminal Code* impaired driving	Voluntary program	Voluntary program	No interlock program

How does Yukon stack up against other provinces and territories?

Even though the provinces and territories scored poorly overall in relation to gold standard best practices, many examples of strong alcohol policy components were found across Canada. **In fact, if a province or territory chose to implement all of these best current practices that were identified they would have scored 87% (Grade A).** Based on these best current practices identified across all jurisdictions, the scores were scaled up to show how the provinces and territories measure up against best current practices in Canada (green bars).

Total policy implementation scores by province and territories, 2017



Next steps for reducing alcohol-related harms and costs in Yukon

- In light of the substantial and increasing harm from alcohol use, give greater priority to funding and implementing effective alcohol policies such as those outlined in this summary and in the full report[¤].
- Position liquor boards within ministries directly concerned with health and safety rather than with finance and economic development.
- Learn from other provinces' and territories' expe iences with successful implementation of effective alcohol policies (see Best Practice Leaders identified on P11 o the full report[¤]).
- Government should take action in concert with NGOs and other stakeholders to implement a combination of population level policies prioritising the first seven policy areas as identified in this summary.
- Inform the public about the risks of alcohol, including the comparative risks of alcohol and other substances, to create a more supportive climate for enacting effective policies. This can be achieved with initiatives such as consistent public health messaging on a range of health topics.
- Carefully document policy changes and regularly monitor and evaluate alcohol-related public health and safety outcomes to better inform futu e policy development.

Suggested citation: Chow C., Vallan e, K., Wettlaufer, A., Stockwell, T., Giesbrecht, N., April, N., Asbridge, M., Callaghan, R., Cukier, S., Davis-MacNevin, P., Dube, M., Hynes, G, Ma n R., Solomon, R., Thomas, G., Thompson, K. (2019). Reducing Alcohol-Related Harms and Costs in Yukon: A Policy Review. Victoria, BC: Canad an Ins itute for Substance Use Research, University of Victoria.

Acknowledgements: Thank you to all of the provincial and territorial stakeholders who provided valuable feedback for this project as well as assisting with data col ction and validation activities. We gratefully acknowledge MADD Canada for permitting us to use materials from their 2017 legislative review. Thanks also to our three external expert reviewers, Robyn Burton, Toben Nelson and Tanya Chikritzhs and to all of the extended members of the pr ject team. This study was funded by Health Canada's Substance Use and Addictions Program. The views expressed herein do not necessarily rep sent he views of Health Canada or the other organizations acknowledged.

¤ To learn more about the Canadian Alcohol Policy Evaluation Project, read other jurisdictional summaries and download the full federal and jurisdictional reports, visit alcoholpolicy.cisur.ca or email cisur@uvic.ca.

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From: Paul.McConnell
To: Jennifer.Roach
Subject: FW: News re: Canadian Alcohol Policy Evaluation
Date: Tuesday, October 8, 2019 3:21:43 PM
Attachments: McConnell letter.pdf

From: Tim Stockwell
Sent: Tuesday, October 8, 2019 1:56 PM
To: Paul.McConnell
Cc: Kate Vallance ; Ashley Wettlaufer ; Norman Giesbrecht
Subject: News re: Canadian Alcohol Policy Evaluation

Dear Mr. McConnell,

Please see the attached letter of information regarding the Canadian Alcohol Policy Evaluation (CAPE) project. Hard copies of CAPE report documents will follow by post.

Sincerely,

Tim Stockwell and the CAPE team

Tim Stockwell, PhD, FRSC, FCAHS
Director, Canadian Institute for Substance Use Research
Professor, Department of Psychology
University of Victoria, BC
Tel: 1 250 472 5445
Fax: 1 250 472 5321
Cell: 1 250 415 7376
Website:www.uvic.ca/research/centres/cisur
Facebook:www.facebook.com/UVic.CISUR
Twitter: www.twitter.com/UVic_CISUR

University of Victoria

Canadian Institute for Substance Use Research
Technology Enterprise Facility PO Box 1700 STN CSC Victoria BC V8W 2Y2 Canada
T 250-472-5445 | F 250-472-5321 | uvic.ca/cisur

October 8th, 2019

Paul McConnell
Yukon Liquor Corporation
9031 Quartz Road
Whitehorse Yukon Y1A 4P9

Dear Mr. McConnell,

We are delighted to announce the release of 15 reports by the Canadian Institute for Substance Use Research (CISUR) and the Centre for Addiction Mental Health (CAMH). These reports came out earlier this year and form part of a Health Canada funded research project on alcohol and public health/safety: *Strategies to Reduce Alcohol-Related Harms and Costs in Canada: A Review of Federal, Provincial, and Territorial Policies*, otherwise known as the Canadian Alcohol Policy Evaluation (CAPE) Project. Two of the reports evaluate the effectiveness of federal alcohol policies and the overall effectiveness of provincial and territorial policies and the remaining 13 reports each summarize the implementation of effective policies designed to reduce the public health and safety harms associated with alcohol use in Canada across all provinces and territories. Links to all 15 reports in English and French are available below.

Alcohol was estimated to be responsible for $14.6 billion worth of economic costs in Canada in 2014 as a consequence of impacts on healthcare, law enforcement and national productivity (CSUCH). Contributing to these costs were 14,800 deaths, 139,000 years of productive life lost and 88,000 hospital admissions. These costs exceed the net revenue from alcohol in Canada, which in 2014 totaled **$10.9 billion.** Further, each province and territory also runs such a deficit from alcohol. One of the underlying rationales for the CAPE project was to stimulate discussion on appropriate and high-impact responses to alcohol harm in Canada among government sectors and civil society groups. We are sending these reports for your information as matters relating to alcohol policy are relevant to your office.

The CAPE reports identify both best practices and areas for improvement for Canadian governments to reduce harms and economic costs from alcohol use. The reports also provide specific, evidence-based recommendations for improved outcomes in each jurisdiction in such areas as traffic safety, liquor law enforcement, pricing and taxation, health screening and advertising restrictions. We will be providing your office with a selection of hard copy reports in the mail and we hope the reports will be useful in your deliberations.

University of Victoria
Canadian Institute for Substance Use Research
Technology Enterprise Facility PO Box 1700 STN CSC Victoria BC V8W 2Y2 Canada
T 250-472-5445 | F 250-472-5321 | uvic.ca/cisur

We have presented jurisdiction-specific results to 28 government stakeholder groups across the country to date. If you or your colleagues have not yet participated in any of these stakeholder presentations, we would be very pleased to develop a tailored webinar presentation of the findings; please contact Ashley Wettlaufer to make arrangements. We also launched a feedback survey for stakeholders who kindly acted as data validators over the course of the project and are very pleased to note that the majority of respondents indicated that the study findings and project launch activities were helpful. More information and related resources are also available on the CAPE project page. Finally, we are pleased to announce the upcoming launch of an interactive mapping tool that will present an overview of key alcohol policy and regulatory information by provincial, territorial and federal jurisdictions. A preliminary version of this alcohol policy mapping tool will be released at the Canadian Centre on Substance Use and Addictions' Issues of Substance 2019 conference taking place in Ottawa in late November. We will also send out a launch notification to our stakeholder networks at that time.

2019 CAPE Reports
CAPE Report: Federal (Fr)
CAPE Report: Provincial/territorial FULL (Fr) | Executive Summary (Fr)
CAPE Summary reports: BC | AB | SK | MB | ON | QC (EN) | Qc (Fr) | NB | NS | PE | NL | YT | NT | NU

Sincerely,

Tim Stockwell and the CAPE project team

Tim Stockwell, Principal investigator, Canadian Institute for Substance Use Research, University of Victoria, BC
Norman Giesbrecht, Co-Principal Investigator, Centre for Addiction and Mental Health, ON
Ashley Wettlaufer, Centre for Addiction and Mental Health, ON
Kate Vallance, Canadian Institute for Substance Use Research, BC
Clifton Chow, Canadian Institute for Substance Use Research, BC
Nicole April, Institut national de santé publique du Québec, QC
Mark Asbridge, Dalhousie University, NS
Russell Callaghan, Canadian Institute for Substance Use Research & University of Northern British Columbia, BC
Samantha Cukier, Dartmouth College, NS
Parnell Davis-MacNevin, St. Francis Xavier University, NS
Marianne Dube, Institut national de santé publique du Québec, QC
Geoff Hynes, Canadian Institute for Health Information, ON
Robert Mann, Centre for Addiction and Mental Health, ON
Robert Solomon, Western University, ON
Gerald Thomas, Canadian Institute for Substance Use Research and BC Ministry of Health, BC
Kara Thompson, St. Francis Xavier University, NS

From: Erin Hobin
To: John.Streicker
Cc: timstock@uvic.ca; Paul.McConnell; Monica.Nordling
Subject: RE: Yukon alcohol labelling study out
Date: Friday, May 1, 2020 4:42:03 PM
Attachments: 001-Babor Editor"s Corner.pdf
001-Hobin.pdf
001-Schoueri-Mychasiw.pdf
001-Stockwell.pdf
001-Vallance-1.pdf
001-Vallance-2.pdf
001-Zhao.pdf

Good afternoon Minister,
Thank you for your response, especially during these unprecedented times. I hope you and your family are well too.
Tim Stockwell and I are very interested in discussing the findings of this work with you.
I have attached to this email the 6 full papers that are being published in the Special Series in the Journal of Studies on Alcohol and Drugs, as well as commentary discussing this research. Please also note there are 3 other studies from this research that have already been published in separate journals, including one paper suggesting that *consumers who become aware of alcohol-related cancer risks have almost 2 times higher odds of supporting alcohol minimum unit pricing policies*.
I look forward to hearing from you and scheduling a time to further discuss.
All the best,
Erin

From: John.Streicker@gov.yk.ca [mailto:John.Streicker@gov.yk.ca]
Sent: May 1, 2020 6:17 PM
To: Erin Hobin
Cc: timstock@uvic.ca; Paul.McConnell@gov.yk.ca; Monica.Nordling@gov.yk.ca
Subject: Re: Yukon alcohol labelling study out

Thanks Erin,
Hope you are well.
I will have a read. One of my other roles has me responsible for the COVID-19 emergency here in the Yukon, so my days are busy. After I have had a read maybe we could set up a call to discuss your findings.
Stay safe,
John

Hon. John Streicker
Minister of Community Services |
Direction des services en français |
Liquor Corporation |
Lotteries Commission |
T 867-393-7427 | Yukon.ca

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: May 1, 2020 11:48 AM
To: John.Streicker
Cc: Tim Stockwell (timstock@uvic.ca)
Subject: Yukon alcohol labelling study out

Dear Minister Streicker,

On **Monday May 4th at 5am GMT**, we are releasing a series of publications from our Yukon alcohol labelling study as part of a Special Section in the Journal of Studies on Alcohol and Drugs. This study is co-lead by Erin Hobin of Public Health Ontario and Tim Stockwell of the Canadian Institute of Substance Use Research. We wanted to provide you, **in confidence, with an embargoed copy** of the two media releases going out from the journal and from the institution of one of the principal investigators on the study as well as some additional documents related to the publications.

Attached to this email you will find:

- Embargoed media release from the University of Victoria
- Embargoed media release from the Journal of Studies on Alcohol and Drugs
- Two page backgrounder on the labels study
- Abstracts and citation information from the 6 articles that form part of the Special Section
- Infographics related to the publications (2 full and 2 brief)

Please do not share these documents before the embargo is lifted on Monday May 4th at 5am GMT.

Key labelling study results:

• About 300,000 labels were applied to 98 per cent of alcohol containers sold in the liquor store in Whitehorse over the study period.

• Prior to the new labels, consumer awareness of alcohol's cancer risk, of Canada's national drinking guidelines, and of the number of standard drinks in containers was low.

• After the new labels were introduced in the main liquor store in Whitehorse, consumer **awareness of alcohol's cancer risk and Canada's national drinking guidelines increased** in Whitehorse compared to Yellowknife, where no new labels had been added.

• Consumers who became **aware that alcohol can cause cancer were twice as likely to express support policies to increase the price of cheap alcohol** as those who were unaware of the alcohol-cancer link.

• Analysis of the sales data showed that average alcohol consumption in Whitehorse decreased by 6% during the study period compared to NWT and neighbouring regions in Yukon.

• Average consumption of alcohol sold in **labelled** alcohol containers ***decreased*** by 7 per cent while average consumption of alcohol from the many fewer **unlabeled** containers ***increased*** by 7 per cent.

• Expert legal analysis showed that the Canadian alcohol industry lobbyists statements about the legality of alcohol warning labels was flawed. Instead, the analysis showed that Canadian territories and provinces have a duty to inform consumers about the health risks of a product they are involved in distributing, promoting and selling. Failure to adequately inform consumers exposes governments to future civil lawsuits as happened with tobacco.

Project website: www.AlcoholLabels.CISUR.ca

Thank you for your support and contributions to this work.

Erin

Editor's Corner

The Arrogance of Power: Alcohol Industry Interference With Warning Label Research

IN THIS ISSUE, the *Journal of Studies on Alcohol and Drugs* publishes a set of interrelated articles that speak volumes about the potential role of alcohol warning labels in the prevention of alcohol-related morbidity and mortality. At a time when the alcohol industry and public health authorities are both moving toward the development of procedures that would advise consumers about the health hazards of alcohol consumption, alcohol scientists at Public Health Ontario and the Canadian Institute for Substance Use Research at the University of Victoria have been conducting groundbreaking studies that are sure to advance alcohol labeling policy, labeling research, and prevention theory.

Groundbreaking research

In the first article, Zhao et al. (2020) describe an innovative analysis of the population- level impact of introducing evidence-informed alcohol warning labels in Whitehorse, Yukon, that included (a) a cancer warning, (b) low-risk drinking guidelines, and (c) standard drink messages. An interrupted time series analysis evaluated the effects of these labels for 28 months before and 14 months after starting the intervention. Compared with neighboring regions of Yukon and the Northwest Territories (which served as control sites), per capita sales of labelled products (the great majority of sales) declined in the intervention community by 6.6%, whereas sales of the many fewer unlabeled products increased by 6.9%. The results suggest an accumulating effect over time when highly visible labels with impactful messages are introduced in rotation.

In addition to the warning labels' influence on population alcohol sales, a set of related studies was conducted to evaluate consumer awareness of alcohol-related health information and how this is affected by the introduction of various warning labels. Vallance et al. (2020a) assessed consumers' baseline knowledge of alcohol-related health information by conducting surveys with 836 liquor store patrons. They found a low level of knowledge of alcohol–breast cancer risk (24.4%), limited ability to calculate a standard drink (28.9%), and low knowledge of daily (48.9%) and weekly (47.6%) low-risk drinking limits. Support for health warnings (55.4%) and standard drink information (51.0%) was moderate. The authors conclude that despite the rather low level of alcohol-related health knowledge, there was moderate support for alcohol warning labels as a tool to raise awareness. As might be expected, support was lower among heavy drinkers than other among groups.

Hobin et al. (2020) tested the effects of the cancer warning labels on drinkers' recall and knowledge. Two to 4 months after application of the cancer labels, unprompted and prompted recall increased to a greater extent in the intervention versus comparison sites. Similar results were found 6 months after the intervention for all three outcomes.

Using a creative two-group pretest–posttest quasi-experimental design, Schoueri-Mychasiw et al. (2020) examined the impact of national low-risk drinking guideline labels. Awareness of the drinking guidelines increased from 30.7% pre- to 67.0% post-intervention and was 2.89 times greater in the intervention versus comparison site. This study showed that enhanced alcohol labels are noticed and may be an effective strategy for increasing awareness and knowledge of national drinking guidelines.

Another direction taken in this research program was precipitated quite unexpectedly when alcohol industry lobbyists pressured the Yukon government to temporarily shut down the research. Two articles address the influence of the alcohol industry itself.

In the first article, Vallance et al. (2020b) analyzed media coverage of alcohol warning labels with a cancer message in Canada, and compared the Yukon coverage with a related initiative in Ireland. This kind of research is particularly important because media coverage can influence public debate and policy outcomes, especially if it is more aligned with the interests of the alcohol industry than with those of public health authorities. The investigators found that 68.4% of media articles covering the Yukon study (n = 38) and 18.9% covering the Ireland Bill (n = 37) were supportive of alcohol warning labels with a cancer message. Industry arguments opposing the warning labels were similar across both contexts, often containing statements from industry representatives distorting or denying the evidence that alcohol causes cancer. The finding that news coverage of alcohol warning

labels with a cancer message was more supportive in Canada than in Ireland may have been due to media coverage of the industry's opposition to the warning label study itself. By drawing attention to its own lobbying activities, the industry may have inadvertently increased public support for alcohol policies and helped to further broadcast the message that alcohol is a cause of cancer.

In their concluding "Perspectives" article, Stockwell et al. (2020) explore three issues in the ongoing debate over alcohol warning labels: (a) a consumer's right to know, (b) a government's responsibility to inform, and (c) an industry's power to thwart both consumer rights and government responsibility. These issues are discussed not only in the context of the Yukon labeling study but also in relation to recent industry interference in alcohol labeling policy in South Korea and Ireland. The authors describe how their federally funded scientific study in Canada was affected by industry interference. Despite a temporary pause in the labeling program, enough data were collected to make these reports possible. In similar fashion, industry complaints in South Korea helped to weaken that country's implementation of cancer warning labels. And in Ireland, cancer warnings faced continuing legal opposition from industry groups.

The Arrogance of power

In addition to the interference observed in Canada, South Korea, and Ireland, alcohol industry tactics are raising eyebrows in other parts of the world as well. These tactics are notable because of their inconsistency with the industry's public pronouncements that they are committed to encourage "responsible drinking" through guidance labels and other measures to prevent alcohol-impaired driving and youth drinking.

In Africa, one transnational beer producer has been described in a recent book by Van Beemen (2019) as a company engaged in tax avoidance, high-level corruption, unfair competition, collaboration with dictators, and human rights violations. In Vietnam, the alcohol industry, especially the large transnationals, successfully lobbied against a recent draft alcohol law that contained many of the World Health Organization–recommended alcohol policy best buys (Movendi International, 2019a, 2019b).

The arrogance of the industry's economic and political power would be extremely discouraging to the public health community were it not for the opportunities it provides for what can be described as pseudo-stakeholder countermarketing. This term represents the synthesis of concepts that have emerged from recent studies of the alcohol industry. Stakeholder marketing refers to the design and implementation of marketing activities to maximally benefit all stakeholders, including consumers, shareholders, employees, nonprofit organizations and society at large (Smith et al., 2010). Often this takes the form of corporate social responsibility (CSR) initiatives under the assumption that companies can "do well" by "doing good." The problem with the alcohol industry's CSR activities from a public health perspective is that they tend to more effective at promoting brand awareness than they are at doing any good for the health of their consumers (Babor et al., 2019). Thus, much of the industry's CSR can be seen as a form of pseudo-stakeholder marketing. And when the industry lobbies government officials to oppose cancer warning labels by claiming that they have already developed untested "guidance labels," or when they threaten legal action to shut down a research project to test the impact of labels developed by independent experts, they are using their political power to make a statement that is not very conducive to real stakeholder marketing. Public health authorities have been attentive to the lessons learned from the tobacco industry, whose anti-scientific tactics eventually became a self-inflicted counter-marketing campaign when their bad behavior was exposed by investigative journalists and social scientists examining documents obtained through court litigation. The Yukon studies reported here are a good example of how the alcohol industry is capable of creating the same kind of pseudo-stakeholder counter-marketing that broadcasts the very messages they want to suppress.

Three conclusions that cannot be ignored

No single study or program of research conducted in one country is likely to provide definitive answers to critical policy questions about alcohol warning labels. But the articles in this thematic section of the Journal of Studies on Alcohol and Drugs offer a clear set of conclusions that cannot be ignored.

- Alcohol warning labels, when implemented in a clear and visible way, can not only communicate important health information to consumers, but also discourage them from purchasing alcohol.
- Enhanced alcohol labels are noticed and may be an effective population-level strategy for increasing awareness and knowledge of cancer risks and national drinking guidelines, including the kinds of brief intervention messages that health professionals are now expected to communicate to their hazardous drinking patients.
- Additional cancer label intervention studies are needed to refine the messages and study their impact in research programs that are not compromised by industry interference.

Conflict-of-Interest Statement

The author has no conflicts of interest to declare.

Funding Declaration

The author received no funding to support the writing of this editorial.

Thomas F. Babor, ph.d., m.p.h.[a,b,*]
[a]*Editor,* Journal of Studies on Alcohol and Drugs

[b]*Professor, Department of Public Health Sciences*
UConn Health,
Farmington, Connecticut

**babor@uchc.edu*

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Testing Alcohol Labels as a Tool to Communicate Cancer Risk to Drinkers: A Real-World Quasi-Experimental Study

ERIN HOBIN, PH.D.,[a,b,*] ASHINI WEERASINGHE, M.P.H.,[a] KATE VALLANCE, M.A.,[c] DAVID HAMMOND, PH.D.,[d] JONATHAN MCGAVOCK, PH.D.,[e] THOMAS K. GREENFIELD, PH.D.,[f] NOUR SCHOUERI-MYCHASIW, PH.D.,[a] CATHERINE PARADIS, PH.D.,[g] & TIM STOCKWELL, PH.D.[c]

[a]*Public Health Ontario, Toronto, Ontario, Canada*
[b]*Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada*
[c]*Canadian Institute for Substance Use Research, University of Victoria, Victoria, British Columbia, Canada*
[d]*School of Public Health and Health Systems, University of Waterloo, Waterloo, Ontario, Canada*
[e]*Children's Hospital Research Institute of Manitoba, University of Manitoba, Winnipeg, Manitoba, Canada*
[f]*Alcohol Research Group, Public Health Institute, Emeryville, California*
[g]*Canadian Centre for Substance Use and Addiction, Ottawa, Ontario, Canada*

ABSTRACT. Objective: This study tested the initial and continued effects of cancer warning labels on drinkers' recall and knowledge that alcohol can cause cancer. **Method:** A quasi-experiment was conducted to examine changes in the intervention versus comparison site for three outcomes: unprompted and prompted recall of the cancer warning, and knowledge that alcohol can cause cancer. The intervention site applied cancer warning labels to alcohol containers in its liquor store for 1 month, and the two liquor stores in the comparison site did not apply cancer labels. In total, 2,049 unique cohort participants (1,056 male) were recruited at liquor stores in the intervention and comparison sites to participate in surveys 4 months before labels were applied and 2 and 6 months after the cancer label was halted because of alcohol industry interference. Generalized estimating equations tested differences in outcomes between sites over time adjusting for socio-demographics and other covariates. **Results:** Two months after the cancer label, unprompted (+24.2% vs. +0.6%; adjusted odds ratio [AOR] = 32.7, 95% CI [5.4, 197.7]) and prompted (+35.7% vs. +4.1%; AOR = 6.2, 95% CI [3.6, 10.9]) recall increased to a greater extent in the intervention versus comparison site. There was a 10% greater increase in knowledge (+12.1% vs. +11.6%; AOR = 1.1, 95% CI [0.7, 1.5]) 2 months after the cancer label in the intervention versus comparison site. Similar results were found 6 months after the intervention for all three outcomes. **Conclusions:** In a real-world setting, cancer warning labels get noticed and increase knowledge that alcohol can cause cancer. Additional cancer label intervention studies are required that are not compromised by industry interference. (*J. Stud. Alcohol Drugs, 81,* 000–000, 2020)

CANCER IS A LEADING CAUSE of disability and premature death globally (Global Burden of Disease Cancer Collaboration, 2017; Global Burden of Disease 2017 Causes of Death Collaborators, 2018). Estimates suggest that almost 40% of cancer cases are attributable to preventable risk factors, including alcohol (Poirier et al., 2019). Global alcohol consumption has increased 70% since 1990 (Manthey et al., 2019), and 2 billion people currently consume alcohol regularly. In 2012, alcohol caused approximately 480,000 cancer deaths, constituting 5.8% of total cancer deaths worldwide (Praud et al., 2016). Data show cancers are the predominant source of total alcohol-attributable deaths in higher income countries, particularly among those over age 50 (Global Burden of Disease 2016 Alcohol Collaborators, 2018). The ethanol in alcoholic beverages has been classified as a Group 1 carcinogen (the highest category of risk) since 1988 and is confirmed to be causally related to malignant tumors in at least seven sites, including high prevalence and often fatal cancers such as those of the colon and breast (International Agency for Research on Cancer[IARC], 2010a, 2010b). The causal relationship is accepted by expert groups, including the World Cancer Research Fund and the American Society for Clinical Oncology (LoConte et al., 2018; World Cancer Research Fund/American Institute for Cancer Research [AICR], 2007). Recent evidence extends the relationship between alcohol and increased cancer risk beyond heavy consumption to moderate and light drinking and to all types of alcohol including wine, beer, and spirits, concluding that there is no safe level of alcohol consumption (Choi et al., 2018; Global Burden of Disease 2016 Alcohol Collaborators, 2018). Drinking one bottle of wine per week is associated with an increase in absolute lifetime cancer risk

Received: August 12, 2019. Revision: March 4, 2020.

This research was supported by a Health Canada–Substance Use and Addictions Program grant (No. 1718-HQ-000003). The views expressed herein do not necessarily represent the views of Health Canada. Thomas K. Greenfield was supported by National Institute on Alcohol Abuse and Alcoholism Grant No. P50 AA005595. Erin Hobin and Tim Stockwell formulated the research question, designed and conducted the study, and led the preparation of the manuscript. Nour Schoueri-Mychasiw and Kate Vallance helped coordinate data collections, and Ashini Weerasinghe led the data analysis and reviewed drafts of the manuscript. All authors contributed to designing the study, interpreting data, and writing the manuscript.

*Correspondence may be sent to Erin Hobin at Public Health Ontario, 480 University Ave., Suite 300, Toronto, ON, M5G 1V2, Canada, or via email at: erin.hobin@oahpp.ca.

equivalent to smoking 10 cigarettes a week for women and 5 for men (Hydes et al., 2019).

Supporting informed and moderate alcohol use is now a crucial part of a public health strategy to reduce the risk of alcohol-related harms. Common policies to reduce population-level alcohol consumption and minimize harms involve restricting legal and physical access to alcohol. Fewer efforts have been made to inform consumers of alcohol-related health risks, particularly cancer, and this lack of awareness constitutes a significant public health need. A review of studies across 16 countries, for example, found only 13% in some jurisdictions are aware of the link between alcohol and cancer (Scheideler & Klein, 2018). In addition to drinkers not being informed, there are biases in how drinkers perceive alcohol-related risks. Public perceptions of alcohol are that it is less harmful than other drugs, and alcohol is largely not understood to be a carcinogen or is seen to be a risk only at high consumption levels (Buykx et al., 2015; Cheeta et al., 2018; *The Lancet,* 2018). The extent to which drinkers appreciate the magnitude of alcohol as a cancer risk, the more they may feel at risk, attend to low-risk drinking guidelines, and reconsider their drinking behaviors (Rosenberg et al., 2018). Research also shows public support for tightening alcohol control policies is stronger when the alcohol–cancer link is understood (Bates et al., 2018; Buykx et al., 2015; Martin et al., 2018; Weerasinghe et al., 2020).

Health warning labels are supported by the World Health Organization (WHO) for raising consumer awareness about the negative consequences of alcohol (WHO, 2010, 2017). In contrast to other information-based interventions, alcohol labels are unique in that drinkers are exposed to health messages at key points of contact—the point-of-purchase and -pour. Extensive international research examining warning labels on tobacco packages indicates that well-designed warning labels, particularly labels on the front of packages, which are large in size with specific health messages that rotate and with color pictures, influence behavior by gaining consumers' attention, eliciting aversive reactions, and keeping the message in consumers' minds (Brewer et al., 2019; Hammond, 2011; Hiilamo et al., 2014; Noar et al., 2017). Labels are appealing because of their low cost to regulators, unparalleled reach among drinkers, and higher exposure among the heaviest drinkers (Greenfield, 1997). Lab and online studies testing alcohol label messages show that cancer warnings are most effective for educating drinkers about the seriousness of alcohol-related health harms and strengthening intentions to reduce alcohol intake compared with other health messages (Al-Hamdani & Smith, 2015, 2017; Jongenelis, 2018; *The Lancet,* 2018). More than 47 countries now mandate alcohol labels. Most mandate labels with vague statements of risk, or cautioning about the risk of drinking alcohol during pregnancy or when operating a motor vehicle (WHO, 2018). Only two countries currently require labels with a cancer warning. Since 2017, alcohol manufacturers in South Korea are required to choose one of three messages, two of which cite cancer risk. Ireland passed legislation in late 2018 mandating cancer warnings on alcohol product labels. With limited uptake worldwide, the effectiveness of cancer warning labels on alcohol remains largely unstudied (Martin-Moreno et al., 2013).

This study is the first real-world study to test if cancer warning labels on alcohol containers are an effective tool for increasing population awareness that alcohol can cause cancer. More specifically, this study tested the initial and continued effects of cancer warning labels on drinkers' recall of the cancer warning and knowledge that alcohol can cause cancer. In addition, this study describes support for health warning labels on alcohol containers and assesses the association between knowledge and support for labels.

Method

Alcohol label intervention

As shown in Figure 1, the alcohol label intervention consisted of three labels stating (a) a cancer warning with specific references to breast and colon cancers, (b) national drinking guidelines, and (c) standard drink information (four separate labels were developed for wine, spirits, coolers, and beer). Label content, size, and format were informed by evidence as well as consultations with local and international health experts and community stakeholders (Blackwell et al., 2018; Hammond, 2011; Hobin et al., 2018; Martin-Moreno et al., 2013; Noar et al., 2017; Pettigrew et al., 2016; Strahan et al., 2002; Vallance et al., 2018; Wettlaufer, 2018; WHO, 2017). The labels were relatively large to make them easily noticed and read, were full color with a bright yellow background and red border so they stood out on the container, and had messages providing new information. They were rotated to avoid wear. Label messages were provided in Canada's two official languages, English and French. Consistent with evidence for effective labeling (Hammond, 2011; Martin-Moreno et al., 2013), a parallel social marketing and awareness campaign was designed that included in-store signage, handouts, a website, toll-free helpline, and radio spots to augment the labels.

Study design

A pre–post quasi-experimental study with comparison group was designed. The intervention site (Whitehorse, Yukon, Canada) was recruited to apply intervention alcohol labels on all alcohol containers, except select local and single-serve beer and cider, in its one government-owned liquor store for an 8-month period. The comparison site (Yellowknife, Northwest Territories, Canada) consisted of two government-owned liquor stores that continued usual labeling practices. These stores are the only government

FIGURE 1. Intervention alcohol warning labels (actual size 5.0 cm × 3.2 cm): Alcohol containers sold in the liquor store in the intervention site displayed only one of the labels at any one time

monopoly liquor stores and account for almost all legal off-premise alcohol sales in both cities (Government of Northwest Territories, 2017; Government of Yukon, 2017). Yukon and Northwest Territories were recruited to participate in this experiment because they are currently the only jurisdictions in Canada to require any kind of alcohol warning label. Since 1991, they have used after-market labels on alcohol containers to caution consumers about the risk of drinking while pregnant, with an additional warning in Northwest Territories about drinking and operating machinery and general health concerns (Government of Northwest Territories, 2017; Government of Yukon, 2017; Greenfield, 1997).

Timing of data collections

Two waves of surveys were scheduled in the intervention and comparison sites before and after the intervention labels were implemented in the intervention site. Wave 1 surveys were conducted in both sites over a 6-week period starting May 2017, approximately 4 months before the labels were implemented in the intervention site. Wave 2 surveys were scheduled over a 6-week period starting May 2018, 8 months after implementation. Starting November 20, 2017, two of the intervention labels, the cancer warning and national drinking guidelines, were applied to alcohol containers in the liquor store in the intervention site. The standard drink labels were to be introduced shortly thereafter. However, only 1 month into the 8-month alcohol label intervention period, the government for the intervention site halted their participation in the study owing to significant pressure from representatives of Canada's national alcohol producers and stopped applying labels (Austin, 2018; Vallance et al., 2020).

Based on remaining label stock, approximately 47,000 cancer warning labels and 53,000 national drinking guidelines labels were applied to alcohol containers within the 1-month period. As a result of the unexpected interruption, the study design was modified (Figure 2). Wave 2 surveys were conducted starting February 2018, 2 months after the government paused their participation, in order to capture any impact of the shortened intervention. In April 2018, the government resumed their participation in the label intervention, under the condition that the cancer warning label be excluded. Thus, the labels containing the national drinking guidelines were reinstated in the liquor store in the intervention site starting April 12, 2018, and the standard drink labels followed starting May 28, 2018, up to the end of July 31, 2018. A third wave of surveys (Wave 3) was conducted starting June 2018 to the end of the intervention period in July 2018 to assess the impact of the two labels with drinking guidelines and standard drink information as well as the potential continued effect of the omitted cancer warning label. The social marketing campaign website and toll-free number were implemented in November 2017, at the time of the original intervention launch; however, in-store posters, point-of-sale materials, and radio spots were not implemented owing to industry interference. Full details of the alcohol labeling intervention and study design are described in Vallance et al. (2020).

Recruitment and survey procedures

In Wave 1, a prospective cohort of adult drinkers was recruited by trained research assistants as customers exited the liquor stores in the intervention and comparison sites. A standard intercept technique was used of approaching every person who passed a pre-identified landmark in the liquor store. Eligibility for the survey was established through a screening tool. Eligible participants were given study information and a consent form. Consenting participants were instructed to complete the survey on a tablet independently, without assistance. Participants were offered a gift card as remuneration for their time. In Waves 2 and 3, participants

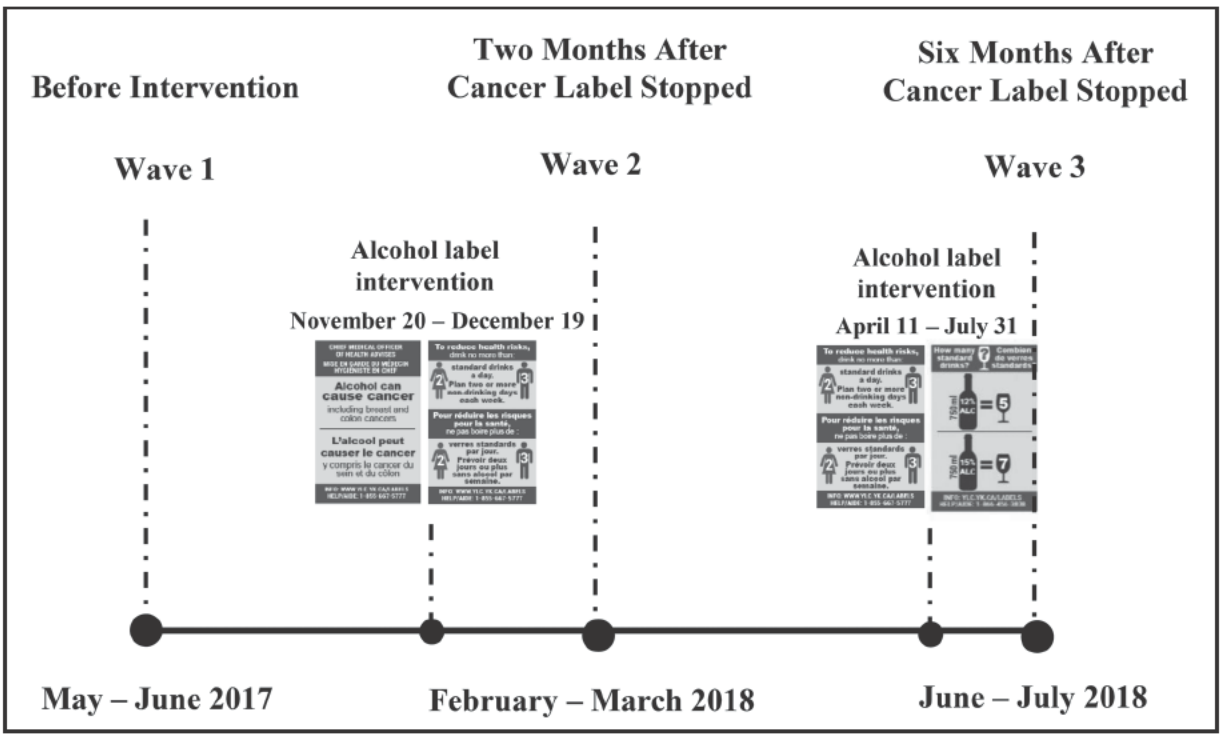

FIGURE 2. Modified study design after alcohol industry interference

who provided their contact information were emailed survey instructions, a unique survey link, and an INTERAC e-transfer as remuneration. In addition, because of attrition in Waves 2 and 3, the sample was replenished using Wave 1 recruitment and survey procedures in the liquor stores in both the intervention and comparison sites. All survey periods continued for 6 weeks, the survey was approximately 18 minutes in length, and survey measures were consistent across waves and sites. All procedures were approved by the Research Ethics Boards at Public Health Ontario (ID 2017-010.04) and the University of Victoria (Protocol 17-161).

Participants

Participants were adults of legal drinking age (≥19), residents of either the intervention or comparison cities, and at the time of recruitment were current drinkers (consumed one or more alcoholic drinks in the past 30 days), purchased alcohol at the liquor store, and did not self-report being pregnant or breastfeeding.

Measures

Noticing labels. To assess noticing alcohol labels, participants were asked if they had seen any warning labels on bottles or cans of beer, wine, distilled spirits, coolers, or ciders. Responses were dichotomized as *noticed* and *did not notice/don't know*. The measure at Wave 1 was anchored with 6 months prior, the measure at Wave 2 from November before follow-up, and Wave 3 from April before follow-up.

Unprompted and prompted recall. Among those who indicated noticing warning labels, participants were first asked an open-ended question to assess what messages they saw on the warning labels on alcohol containers without being prompted. Subsequently, participants were asked if they saw any of the following messages on alcohol containers and asked to check all that apply. Response options included *alcohol and cancer, low-risk drinking guidelines, number of standard drinks in bottles or cans, alcohol may be an addictive drug, alcohol and liver disease, alcohol and trauma, alcohol and fetal alcohol spectrum disorder,* and *drinking alcohol and driving a car or operating machinery.* Both recall measures were anchored similarly to the "noticing labels" measure above. For the unprompted recall measure, a research assistant blinded to experimental conditions coded each response. Any mention of "cancer" was coded as recall of the cancer label. Ambiguous responses were reviewed by and discussed with a second coder to reach consensus.

Knowledge of alcohol as a carcinogen. Knowledge that alcohol can cause cancer was assessed by asking participants, "Based on what you know or believe, can drinking alcohol cause . . . ?" and this item was asked for breast cancer, liver disease, the flu, and [when pregnant] harm to

unborn babies. Response options included "yes," "no," or "don't know," and responses were dichotomized as "yes" versus "no/don't know." Only responses to the cancer item are reported here.

Support for health warning labels on alcohol containers

To assess support for health warning labels on alcohol containers, participants were asked the extent to which they agree or disagree with the statement, "Cans and bottles of alcoholic beverages should be labeled with warnings describing the link between alcohol and diseases, such as cancer." Responses were measured on a 5-point Likert scale (1 = *strongly disagree,* 5 = *strongly agree*) and included "don't know" and "prefer not to say" as options.

Sociodemographic characteristics

Sociodemographic measures included age, sex, ethnicity (White, Aboriginal, and other/don't know/prefer not to say/missing), education (low [completed high school or less], medium [completed trades or college certificate, some university or university certificate below a bachelor's degree], high [university degree or post-graduation], and unknown [don't know/prefer not to say/missing]), and income (low [<CAD$30,000], medium [CAD$30,000–$59,999], high [CAD≥$60,000], and unknown [don't know/prefer not to say/missing]).

Other covariates

Exposure to sources of information on alcohol-related health risks was measured by asking respondents if they had noticed advertising or information that talks about the dangers of drinking alcohol, or encourages people to cut down or stop drinking, in six specific locations (*yes* vs. *no/don't know/prefer not to say*). Health literacy was assessed using the Newest Vital Sign assessment tool (Weiss et al., 2005) and responses were categorized as *limited* (≤1 correct responses), *possibility of limited* (2–3 correct responses), *adequate literacy* (4–6 correct responses), and *unknown* (don't know/prefer not to say/missing). Alcohol use was measured using the quantity/frequency method (Heeb & Gmel, 2005). Participants were asked to indicate how often they drank alcoholic beverages in the past 6 months and how many drinks they usually drank per occasion. Responses were combined to provide a mean number of drinks per week and categorized using Canada's national drinking guidelines as follows: *low* (≤10 for females/15 for males per week), *risky* (11–19/16–29 per week), *high* (≥20/30 per week) (Butt et al., 2011), and *unknown* (don't know/prefer not to say/missing). Last, a time-in-sample variable was created to adjust for participants who participated in one, two, or all three survey waves.

Statistical analysis

Logistic regression models using generalized estimating equations (GEE) were applied to examine the impact of labels on the three main outcomes. GEE models can account for a mix of within-subject correlation that arises from the cohort participants being asked the same questions over multiple survey waves plus the replenishment sample. Difference-in-difference (DID) terms were added to each model to assess the change in outcomes across waves and between sites. The DID terms included an interaction between wave and site, which allowed for a formal test of whether the pattern of change over time in the intervention site was significantly different from the comparison site. Sociodemographic variables and the remaining covariates were included in all models. Education, income, and health literacy were found to be correlated; thus, to improve the stability of the models, only education was used. The exposure to information measures were combined into one variable that indicates if participants were exposed to any source of alcohol information in the media; however, the variable did not make a difference in the results because of the lack of variability across sites, and the final models did not adjust for exposure to media to avoid over-adjusting. "Prefer not to say" and "missing" responses were removed from all outcome measures. As per agreement with the local territorial government partners, ethnicity, defined as White versus other (Aboriginal/other/don't know/prefer not to say/missing), is included in the sample description and adjusted for in the analyses, but not reported in the results.

Support for health warning labels on alcohol containers is reported descriptively, and the overall association between knowledge that alcohol is a carcinogen and support for health warning labels across sites and survey waves is assessed using a GEE model. As previous literature has identified qualitative differences between individuals who respond "yes," "no," and "don't know" to items assessing knowledge that alcohol can cause cancer (Wiseman & Klein, 2019), a sensitivity analysis tested the effect of modeling these responses separately using a GEE model with a multinomial distribution. Last, three-way interactions were tested for each of the three main outcomes across site, wave, and health literacy and alcohol drinking levels. Health literacy was dichotomized as adequate literacy versus all other options, and drinking level was dichotomized as low versus all other options. All analyses were conducted using SAS Version 9.3 (SAS Institute Inc., Cary, NC).

Results

In total, 2,049 unique participants completed at least one of the three surveys. According to AAPOR #4, response rates were 8.9% in the intervention and 8.0% in the comparison sites (American Association for Public Opinion

TABLE 1. Sample characteristics (at recruitment) by experimental condition

Variable	Intervention site (n = 1,233) n (%)	Comparison site (n = 816) n (%)
Wave of recruitment		
1	505 (41.0)	331 (40.6)
2	491 (39.8)	320 (39.2)
3	237 (19.2)	165 (20.2)
Age, in years, M (SD)***	47.4 (14.6)	41.2 (13.7)
Age categories***		
19–24	77 (6.2)	100 (12.3)
25–44	436 (35.4)	379 (46.5)
≥45	720 (58.4)	337 (41.3)
Ethnicity***		
White	891 (72.3)	481 (59.0)
Aboriginal	219 (17.8)	198 (24.3)
Other	123 (10.0)	137 (16.8)
Sex*		
Female (vs. male)	625 (50.7)	368 (45.1)
Education levels*		
Low (completed high school or less)	250 (25.3)	184 (22.6)
Medium (trades or college certificate, some university or university certificate below bachelor's)	437 (35.4)	292 (35.8)
High (bachelor's degree or higher)	490 (39.7)	285 (34.9)
Unknown (DK, PNS, missing)	56 (4.5)	55 (6.7)
Income levels,[a].**		
Low (<$30,000)	197 (16.0)	87 (10.7)
Medium ($30,000 to <$60,000)	222 (18.0)	128 (15.7)
High (≥$60,000)	698 (56.6)	489 (59.9)
Unknown (DK, PNS, missing)	116 (9.4)	112 (13.7)
Alcohol use levels**		
Low volume (≤10/15 for females/males per week)	912 (74.0)	555 (68.0)
Risky volume (11–19/16–29 per week)	96 (7.8)	50 (6.1)
High volume (≥20/30 per week)	121 (9.8)	105 (12.9)
Unknown (DK, PNS, missing)	104 (8.4)	106 (13.0)
Health literacy levels***		
Limited literacy (score ≤1)	369 (29.9)	287 (35.2)
Possibility of limited literacy (score 2–3)	240 (19.5)	160 (19.6)
Adequate literacy (score 4-6)	563 (45.7)	299 (36.6)
Unknown (DK, PNS, missing)	61 (5.0)	70 (8.6)

Notes: DK = don't know; PNS = prefer not to say. [a]In Canadian dollars.
*$p < .05$; **$p < .01$; ***$p < .001$ for Pearson χ^2 test.

Research, 2011). Overall, 53.2% participants were retained at Wave 2, and 47.5% at Wave 3. Table 1 presents the sample characteristics by site at time of recruitment, and Table 2 indicates the sources of information on the dangers of alcohol in the media by wave and site.

The proportion of respondents who noticed the labels was high across all three survey waves in both the intervention (Wave 1 = 80.4%, Wave 2 = 76.7%, Wave 3 = 80.5%) and comparison (Wave 1 = 87.0%, Wave 2 = 78.5%, Wave 3 = 72.9%) sites.

Unprompted recall of the cancer warning message increased to a greater extent between Wave 1 (before the cancer warning label) and Wave 2 (2 months after the cancer warning label was stopped) in the intervention versus comparison site (+24.2% vs. 0.6%; adjusted odds ratio [AOR] = 32.7, 95% CI [5.4, 197.7]), and between Wave 1 and Wave 3 (6 months after the cancer warning label was stopped) (+12.6% vs. +1.6%; AOR = 8.8, 95% CI [1.6, 49.4]) (Table 3; Figure 3a). Results of prompted recall also increased to a greater extent between Waves 1 and 2 in the intervention versus the comparison site (+35.7% vs. 4.1%; AOR = 6.2, 95% CI [3.6, 10.9]), and between Waves 1 and 3 (+23.7% vs. +4.6%; AOR = 3.5, 95% CI [2.0, 6.2]) (Table 3; Figure 3b).

Knowledge that alcohol can cause cancer was low in Wave 1 in both the intervention (25.6%) and comparison (23.0%) sites, and increased in Waves 2 and 3 in both sites (Figure 3c). Although knowledge of alcohol as a carcinogen increased in both sites, the DID analyses revealed a 10% greater increase in knowledge in the intervention relative to the comparison site between both Waves 1 and 2 (+12.1% vs. +11.6%; AOR = 1.1, 95% CI [0.7, 1.5]) and Waves 1 and 3 (+16.0% vs. 11.4%; AOR = 1.1, 95% CI [0.7, 1.6]; Table 3). Results of the models indicate differences ranging from a 30% decrease, a small negative change, to a 50%–60% increase, a substantial positive change. In the sensitivity analyses, results of DID comparisons evaluating the labels' effect on knowledge of alcohol as a carcinogen between intervention and comparison sites for the responses "yes," "no," and "don't know" separately, indicate similar trends when comparing "yes" versus "no" responses and

TABLE 2. Participant reported sources of advertising and information on the dangers of alcohol in the media (% yes)

	Intervention			Comparison		
	Before intervention	2 months after	6 months after	Before intervention	2 months after	6 months after
Source	Wave 1	Wave 2	Wave 3	Wave 1	Wave 2	Wave 3
Television	45.0%	32.3%	25.3%	48.6%	40.2%	29.6%
Radio	31.1%	35.7%	24.5%	31.7%	32.8%	24.9%
Newspaper	29.9%	29.8%	22.9%	29.6%	27.3%	20.8%
Signs or posters in liquor stores	53.1%	55.6%	59.3%	58.3%	61.7%	60.6%
Signs or posters in restaurants or bars	34.1%	32.1%	38.3%	35.4%	31.9%	26.9%
Internet	27.3%	29.1%	24.5%	28.1%	27.5%	20.8%

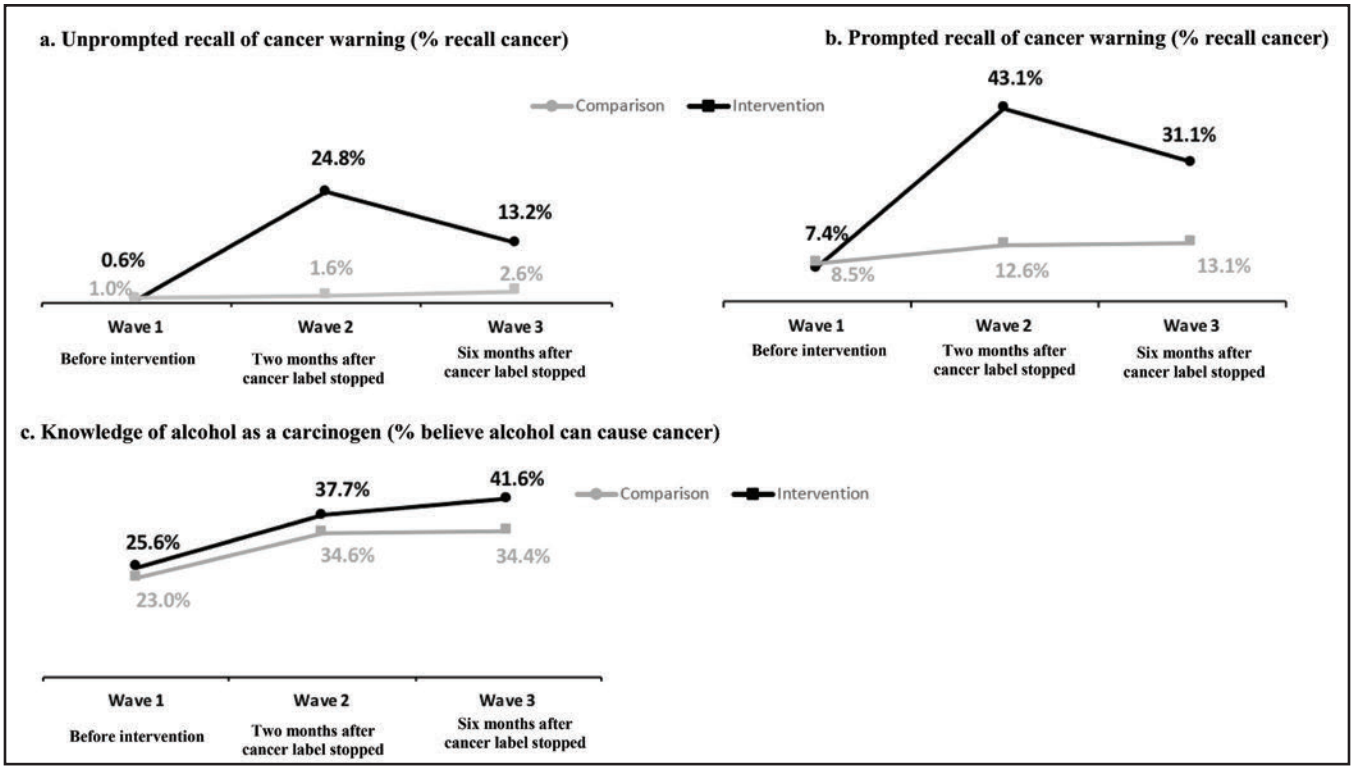

FIGURE 3 (a–c). Percentage of participants recalling cancer warning, unprompted and prompted, and knowledge of alcohol as a carcinogen across survey waves in intervention and comparison sites

"yes" versus "don't know" responses (Supplemental Table A). (Supplemental material is available as an online-only addendum to this article on the journal's website.)

To further confirm the contribution of the cancer warning labels to consumer knowledge, a GEE model with a binomial distribution estimating the relationship between recall, either unprompted or prompted, and knowledge of alcohol as a carcinogen across the three waves was conducted, adjusting for sociodemographics and other covariates, including exposure to sources of information in the media. The results indicated that those who recalled the cancer message had 2.3 greater odds of knowing alcohol can cause cancer (AOR = 2.3, 95% CI [1.9, 2.7]).

Results of the three-way interactions across site, wave, and each of health literacy and drinking level were not statistically significant for prompted and unprompted recall and knowledge that alcohol can cause cancer (Supplemental Table B).

Last, the degree to which participants support health warning labels on alcohol containers is presented in Figure 4, ordered from *strongly disagree* to *strongly agree.* Most participants reported agreeing to strongly agreeing with health warning labels on alcohol containers in the intervention (Wave 1 = 57.4%; Wave 2 = 57.3%; Wave 3 = 61.3%) and comparison (Wave 1 = 53.7%; Wave 2 = 51.6%; Wave 3 = 53.7%) sites. The results also indicated that those who know alcohol can cause cancer are 1.6 times more likely to support health warning labels relative to those who do not

TABLE 3. Results of GEE models for label outcomes: Key comparisons[a,b]

Outcome measure	Comparison	AOR	[95% CI]
Unprompted recall of cancer warning (n = 3,134)	Wave 1: Intervention vs. comparison site	0.6	[0.1, 3.1]
	Wave 2: Intervention vs. comparison site	20.5	[9.4, 44.6]
	Wave 3: Intervention vs. comparison site	5.5	[2.9, 10.6]
	Intervention site: Wave 3 vs. Wave 1	23.3	[7.4, 73.7]
	Intervention site: Wave 2 vs. Wave 1	53.8	[17.0, 170.6]
	Intervention site: Wave 3 vs. Wave 2	0.4	[0.3, 0.6]
	Comparison site: Wave 3 vs. Wave 1	2.6	[0.7, 9.6]
	Comparison site: Wave 2 vs. Wave 1	1.6	[0.4, 6.6]
	Comparison site: Wave 3 vs. Wave 2	1.6	[0.7, 3.9]
	Intervention vs. comparison site: Wave 3 vs. Wave 1	*8.8*	*[1.6, 49.4]*
	Intervention vs. comparison site: Wave 2 vs. Wave 1	*32.7*	*[5.4, 197.7]*
	Intervention vs. comparison site: Wave 3 vs. Wave 2	*0.3*	*[0.1, 0.7]*
Prompted recall of cancer warning (n = 3,251)	Wave 1: Intervention vs. comparison site	0.9	[0.5, 1.5]
	Wave 2: Intervention vs. comparison site	5.6	[4.1, 7.7]
	Wave 3: Intervention vs. comparison site	3.2	[2.3, 4.4]
	Intervention site: Wave 3 vs. Wave 1	5.7	[4.1, 8.1]
	Intervention site: Wave 2 vs. Wave 1	10.0	[7.0, 14.1]
	Intervention site: Wave 3 vs. Wave 2	0.6	[0.5, 0.7]
	Comparison site: Wave 3 vs. Wave 1	1.6	[1.0, 2.5]
	Comparison site: Wave 2 vs. Wave 1	1.6	[1.0, 2.5]
	Comparison site: Wave 3 vs. Wave 2	1.0	[0.7, 1.5]
	Intervention vs. comparison site: Wave 3 vs. Wave 1	*3.5*	*[2.0, 6.2]*
	Intervention vs. comparison site: Wave 2 vs. Wave 1	*6.2*	*[3.6, 10.9]*
	Intervention vs. comparison site: Wave 3 vs. Wave 2	*0.6*	*[0.4, 0.8]*
Knowledge of alcohol as a carcinogen (n = 3,247)	Wave 1: Intervention vs. comparison site	1.2	[0.8, 1.6]
	Wave 2: Intervention vs. comparison site	1.2	[1.0, 1.6]
	Wave 3: Intervention vs. comparison site	1.2	[1.0, 1.6]
	Intervention site: Wave 3 vs. Wave 1	1.9	[1.5,2.4]
	Intervention site: Wave 2 vs. Wave 1	1.7	[1.4, 2.2]
	Intervention site: Wave 3 vs. Wave 2	1.1	[0.9, 1.3]
	Comparison site: Wave 3 vs. Wave 1	1.8	[1.3, 2.4]
	Comparison site: Wave 2 vs. Wave 1	1.6	[1.2, 2.2]
	Comparison site: Wave 3 vs. Wave 2	1.1	[0.9, 1.4]
	Intervention vs. comparison site: Wave 3 vs. Wave 1	*1.1*	*[0.7, 1.6]*
	Intervention vs. comparison site: Wave 2 vs. Wave 1	*1.1*	*[0.7, 1.5]*
	Intervention vs. comparison site: Wave 3 vs. Wave 2	*1.0*	*[0.8, 1.3]*

Notes: GEE = generalized estimating equations; AOR = adjusted odds ratio; CI = confidence interval. [a]All models adjusted for age, ethnicity, sex, education, alcohol use, and time-in-sample; [b]separate logistic models were estimated using GEE for each of the three label outcomes.

know, adjusting for sociodemographics and other covariates (AOR = 1.6, 95% CI [1.38, 1.89]).

[COMP: Figure 4 about here]

Discussion

It is argued by the alcohol industry that drinkers are adequately informed about the health risks of alcohol and that warning labels do not work (Éduc'alcool, 2019; Kane, 2018). Yet, international health experts recommend health warning labels on alcohol as an increasingly popular public health strategy for providing information to consumers about the various health risks of alcohol use (Greenfield, 1997; WHO, 2010, 2017, 2018). This is the first study to experimentally examine the population-level effects of a cancer warning label on alcohol containers in a real-world setting. Label effectiveness is influenced by the extent to which consumers notice, recall, and understand the label information and eventually make the decision to consume the product in a given situation (IARC, 2008). Despite the interrupted and briefer-than-intended application of the cancer warning labels in this study, consumers noticed the labels. Two months after the cancer warning labels, almost 25% of participants exposed to the intervention recalled the cancer warning message unprompted, and recall rose to 43% when prompted. As expected, recall decreased 6 months after the cancer warning labels were removed, demonstrating intervention specificity.

Greater awareness of the cancer risks associated with alcohol is thought to be a potentially effective strategy for strengthening public acceptance of alcohol control measures and awareness of national drinking guidelines (Bates et al., 2018; Buykx et al., 2015; Rosenberg et al., 2018; Weerasinghe et al., 2020). Indeed, the results in the current article indicate a positive association between knowledge and support for alcohol labels. In addition, a separate analysis conducted as part of the larger study and reported in Weerasinghe et al. (2020) suggests that increases in individual-level knowledge that alcohol can cause cancer are associated with

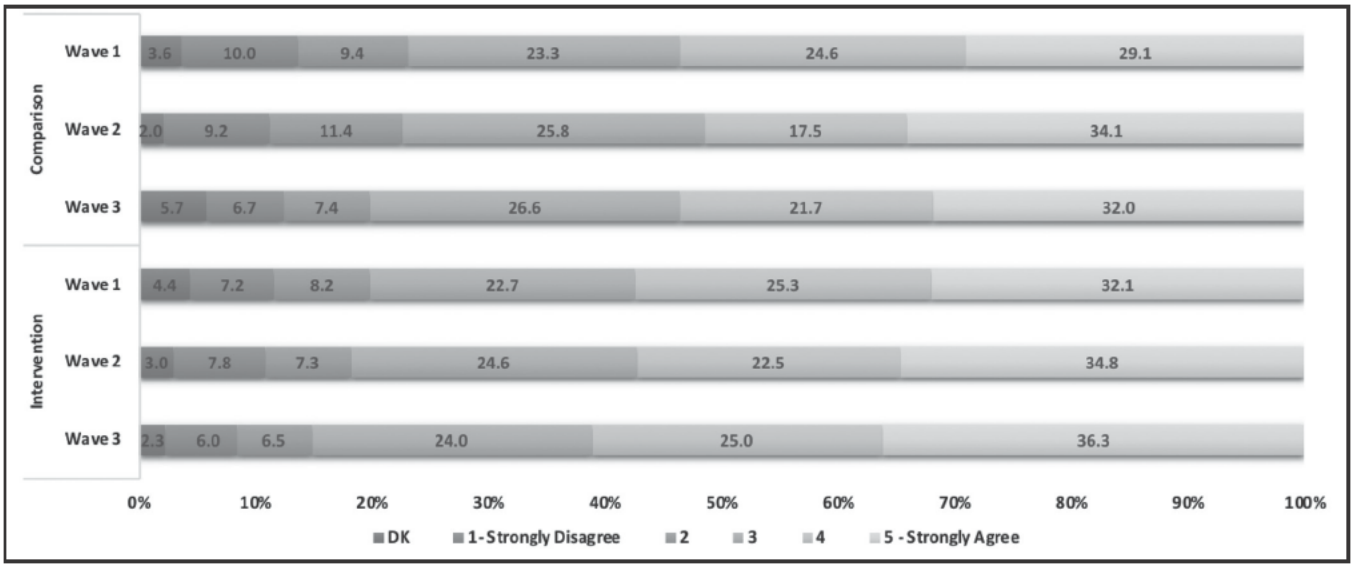

FIGURE 4. Degree of support for health warning labels on alcohol containers across survey waves in intervention and comparison sites (% of participants; n = 2,022 unique participants)

almost two times greater likelihood of supporting minimum unit alcohol pricing policies. In the current article, before the label intervention, knowledge of the alcohol–cancer link was approximately 25% in both sites, low yet consistent with previous estimates in Canada (Public Health Ontario, 2017). Knowledge grew to 41.6% in the intervention site, increasing 12.1% 2 months after, and a further 3.9% 6 months after the warning label was no longer being applied to containers, demonstrating the immediate and continued effects of the cancer labels. This continued effect may be the result of leftover cancer labels on containers still available for purchase in the liquor store or already purchased and served at home or in restaurants. Overall, the 10% greater increase in knowledge in the intervention relative to the comparison site is a modest yet meaningful population-level effect. Results also revealed that drinkers who recalled the cancer label message were 2.3 times more likely to know that alcohol can cause cancer, after controlling for sociodemographic variables, alcohol consumption level, and exposure to sources of information in the media. These findings provide evidence that crucial early processes are required for labels to be an effective means of communicating health information to drinkers.

In this study, differences in knowledge of the alcohol–cancer link between the intervention and comparison sites were attenuated because of the sudden increase in knowledge in the comparison site during the intervention period. The surge in knowledge in the comparison site can likely be explained by the substantial national and international media coverage of the alcohol industry's efforts to stop the alcohol label intervention, specifically the cancer warning label (Austin, 2018; Vallance et al., 2020). The media coverage also may have augmented interest in the label intervention in the intervention site; however, the social marketing and awareness campaign that was originally intended to supplement the alcohol labels in the intervention site, but was not implemented owing to the interruption by the alcohol industry, would have served a similar purpose. This study did include survey measures to control for participant exposure to other sources of alcohol information that may have confounded the effect of the labels during the intervention period; however, there were no measurable differences in these variables between sites, as shown in Table 2, and controlling for these variables in the analyses did not alter the main results. It is plausible that the information measures did not detect differences in media exposure in this study because the measures did not specifically assess media coverage of alcohol labels or the alcohol industry, but instead assessed exposure to advertising or information that talks about the dangers of drinking alcohol, or encourages people to cut down or stop drinking. Additional cancer label intervention studies are required that are not compromised by industry interference.

The impacts of the cancer warning labels on awareness and knowledge observed in this study are comparable to the population-level effects of two mass media alcohol and cancer campaigns in Australia and the United Kingdom, both of which were multicomponent and likely relatively expensive (Dixon et al., 2015; Martin et al., 2018). The evaluations of these two campaigns lack comparison groups, which limits measuring the contribution of secular trends in the absence of the campaigns; nevertheless, these examples demonstrate the unique benefit of labels and underscore the potential cost-effectiveness of warning labels on alcohol containers that could be introduced at little or no cost to governments.

Results of the current real-world experimental study indicate that cancer warning labels can be an effective interven-

tion for communicating information across subpopulations, as we found no evidence that the label intervention differentially affected participants with varying health literacy and drinking levels. However, the results from this single study should be interpreted cautiously because existing lab-based experimental studies, using diverse study designs and methods to test cancer warnings, (a) found associations between outcomes (e.g., knowledge of alcohol-related health risks, self-reported drinking behavior) and participant characteristics (e.g., sex, drinking level; Miller et al., 2016; Pettigrew et al., 2014, 2016), (b) did not examine the differential impacts of cancer warnings by participant characteristics (Al-Hamdani et al., 2015, 2017; Blackwell et al.,2018; Stafford & Salmon, 2017; Wigg et al., 2016), or (c) did not find evidence to suggest differential impacts for a cancer warning by participant characteristics (Jongenelis et al., 2018). Although the U.S. alcohol warning label does not include a cancer warning message, a relatively large real-world evaluation of this label found that label awareness and recall were highest among heavy drinkers, pregnant women, and young adults (Greenfield et al., 1999; Kaskutas & Greenfield, 1992). More research is required to better understand the impact of alcohol warning labels by receiver characteristics as the effectiveness and equity of information-based interventions have been questioned and, in some countries, the concentrations of alcohol-related hospitalizations and mortality are higher among groups of lower socioeconomic status despite reporting intake levels similar to or comparatively less than more affluent groups (Katikireddi et al., 2017; Probst et al., 2014).

Our results also show that health warning labels on alcohol are unlikely to be received negatively among drinkers, with most participants in both sites supporting health warning labels linking alcohol and diseases, specifically cancer, on alcohol containers. Similar outcomes were observed in previous studies, which reported that responses to cancer-related alcohol warning labels were generally positive (Miller et al., 2016; Pettigrew et al., 2014). Further research is needed to determine if repeated exposure to cancer warning labels on alcohol containers over a longer uninterrupted period may strengthen their impact.

Limitations

This study has several limitations. First, the cancer warning label was halted 1 month into the 8-month intervention period with a 2-month lag between labeling and the Wave 2 survey and a 6-month lag for the Wave 3 survey. This briefer-than-intended intervention period and gap in follow-up survey waves may have attenuated the cancer warning labels' influence, and uncertainty remains about their longer term impact. Next, the DID analyses estimating the alcohol label intervention's effect on changes in knowledge between sites over time did not reach levels of conventional statistical significance. This is likely because of the small sample sizes in both sites, which in turn produced wide confidence intervals and less precise estimates. It is reasonable to assume that these first two limitations (shortened intervention period and small sample sizes), in addition to the media contamination in the comparison site discussed above, led to smaller differences in knowledge between the intervention and comparison sites over time and biased the DID results toward the null. Thus, as recommended, the point estimates and upper and lower limits are described in the results, and a range of potential explanations is discussed (Amrhein et al., 2019).

Next, the study cannot provide representative estimates of the population, because participants were recruited from liquor stores in city centers using systematic recruitment methods. However, given that the stores from which the customers were recruited are virtual monopolies for the off-premise sale of alcohol in both experimental sites, they will have been broadly representative of persons purchasing alcohol in those cities. One bias would have been toward heavier drinkers more likely to buy alcohol frequently, an important target group for warning label interventions. Health knowledge can be assessed several ways. This study used only one measure specific to breast cancer to test participants' knowledge of the alcohol–cancer link. Previous studies examining knowledge of alcohol-related cancers often report the lowest levels for breast cancer relative to other types, such as liver and colon (Buykx et al, 2015; Scheideler & Klein, 2018; *The Lancet,* 2018). Future research could use more comprehensive measures with a higher threshold of knowledge by asking respondents to recall alcohol-related diseases unprompted, or to estimate the likelihood of alcohol-related diseases. Last, given that the alcohol label intervention consists of three complementary label messages, it is difficult to attribute the changes in consumer knowledge of the link between alcohol and cancer solely to the cancer warning. It is possible the other two label messages prompted consumers to reconsider their alcohol drinking and potential harms.

Conclusions

Despite the brief duration of the intervention, the study results support the use of cancer warning labels on alcohol containers as a strategy to increase knowledge of alcohol as a cancer risk, a stated goal of international alcohol control efforts (LoConte et al., 2018; WHO, 2010, 2017; World Cancer Research Fund/AICR, 2007). Overall, drinkers exposed to the label intervention recalled the cancer warning message, and the warning label increased knowledge of the alcohol–cancer link. Increases in knowledge that alcohol can cause cancer in the comparison site and, to some degree, in the intervention site likely reflect the considerable public interest in the media coverage of the alcohol industry's actions to disrupt the study and remove the cancer warning label.

The alcohol industry's opposition to cancer warnings on containers, coupled with the broad public support for health warnings on alcohol, highlights the importance of mandatory alcohol labeling to ensure that consumers are adequately informed.

Acknowledgments

The authors acknowledge all of our research assistants who helped with data collections, as well as the liquor control boards, health and social services, and community partners in Yukon and Northwest Territories for their commitment and support in developing and executing this research. Special thanks also go to Mark Petticrew and Melanie Wakefield for their expertise and guidance.

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Examining the Impact of Alcohol Labels on Awareness and Knowledge of National Drinking Guidelines: A Real-World Study in Yukon, Canada

NOUR SCHOUERI-MYCHASIW, PH.D.,[a] ASHINI WEERASINGHE, M.P.H.,[a] KATE VALLANCE, M.A.,[b] TIM STOCKWELL, PH.D.,[b] JINHUI ZHAO, PH.D.,[b] DAVID HAMMOND, PH.D.,[c] JONATHAN MCGAVOCK, PH.D.,[d] THOMAS K. GREENFIELD, PH.D.,[e] CATHERINE PARADIS, PH.D.,[f] & ERIN HOBIN, PH.D.[a,g,*]

[a]*Public Health Ontario, Toronto, Ontario, Canada*
[b]*Canadian Institute for Substance Use Research, University of Victoria, Victoria, British Columbia, Canada*
[c]*School of Public Health and Health Systems, University of Waterloo, Waterloo, Ontario, Canada*
[d]*Children's Hospital Research Institute of Manitoba, University of Manitoba, Winnipeg, Manitoba, Canada*
[e]*Alcohol Research Group, Public Health Institute, Emeryville, California*
[f]*Canadian Centre on Substance Use and Addiction, Ottawa, Ontario, Canada*
[g]*Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada*

ABSTRACT. Objective: Alcohol labels are one strategy for communicating health information to consumers. This study tested the extent to which consumers recalled alcohol labels with national drinking guidelines and examined the impact of labels on awareness and knowledge of the guidelines. **Method:** A quasi-experimental study was conducted in two jurisdictions in northern Canada examining the impact of labels on the following outcomes: unprompted and prompted recall of the drinking guideline label message, awareness of the drinking guidelines, and knowledge of the daily and weekly recommended drink limits. The intervention site applied labels with national drinking guidelines, a cancer warning, and standard drink information to alcohol containers in its liquor store, whereas the comparison site did not apply these labels. In total, 2,049 cohort participants in both sites were recruited to complete surveys before and at two time points after the intervention. Changes in outcomes were examined using generalized estimating equations. **Results:** After the intervention, unprompted and prompted recall of the drinking guideline label message increased more in the intervention versus comparison site (adjusted odds ratio [AOR] = 10.8, 95% CI [0.9, 127.6]; AOR = 7.0, 95% CI [3.3, 14.9], respectively). Awareness of the drinking guidelines increased 2.9 times more in the intervention versus comparison site (AOR = 2.9, 95% CI [2.0, 4.3]). In addition, knowledge of the daily and weekly drink limits increased 1.5 and 1.4 times more in the intervention versus comparison site, respectively (daily: AOR = 1.5, 95% CI [1.0, 2.1]; weekly: AOR = 1.4, 95% CI [1.0, 2.0]). **Conclusions:** Enhanced alcohol labels get noticed and may be an effective population-level strategy for increasing awareness and knowledge of national drinking guidelines. (*J. Stud. Alcohol Drugs, 81,* 000–000 2020)

GLOBALLY, ALCOHOL USE is the seventh leading risk factor for disability and premature death (GBD 2016 Alcohol Collaborators, 2018) and is the leading risk factor among those ages 15–49 (World Health Organization [WHO], 2018a). Alcohol use is linked to more than 200 diseases, including at least seven types of cancer, and causes 3 million deaths per year globally (GBD 2016 Alcohol Collaborators, 2018; Rehm et al., 2017; WHO, 2018a). Recent estimates indicate that the prevalence of alcohol consumption and amounts consumed have increased globally, and will continue to rise (Manthey et al., 2019). Given the current trends, the total direct and indirect costs (e.g., healthcare, lost productivity, criminal justice) of alcohol use in developed countries, including Canada, exceed those from all illicit substances combined and are similar to or, by some estimates, greater than those for tobacco (Canadian Substance Use Costs and Harms Scientific Working Group, 2018). Population-level strategies to moderate alcohol use are therefore critical for improving public health.

National drinking guidelines exist in 37 countries to promote moderation and to reduce alcohol-related harms (Kalinowski & Humphreys, 2016). Drinking guidelines typically provide upper limits on the number of standard drinks that adults should not exceed in a day and/or week. In Canada, the first nationally endorsed drinking guidelines were released in 2011, with the key guidelines recommending no more than 15 standard drinks in a week for men with no more than 3 on most days, and no more than 10 standard drinks in a week for women, with no more than 2 on most days (Butt et al., 2011). A "standard drink" in Canada is defined as 13.45 grams or 17.05 ml of ethanol, and is equivalent to the following: a 341-ml (12 oz.) can of

Received: September 17, 2019. Revision: January 15, 2020.

This research was supported by a Health Canada Substance Use and Addictions Program grant (Grant #1718-HQ-000003). The views expressed herein do not necessarily represent the views of Health Canada. TKG was supported by a NIAAA grant (No. P50 AA005595). The Project Protocol has an International Registered Report Identifier (IRRID): RR2-10.2196/16320.

*Correspondence may be sent to Erin Hobin at Public Health Ontario, 480 University Ave, Suite 300, Toronto, ON, M5G 1V2, Canada, or via email at: erin.hobin@oahpp.ca.

5% beer or cooler, a 142-ml (5 oz.) glass of 12% wine, and 43 ml (1.5 oz.) of 40% distilled alcohol (Butt et al., 2011). More than 23 million adults (78% of the population) in Canada drink alcohol (Statistics Canada, 2018), with 27% regularly exceeding the weekly limits and 39% exceeding the daily limits in 2008–2010, outlined in the guidelines, after adjusting for underreporting (Zhao et al., 2015). If Canadians who currently drink above the guidelines reduced their consumption to the recommended limits and all others maintained their current drinking patterns, overall consumption in Canada would be reduced by at least 50% (Stockwell et al., 2009).

To adhere to drinking guidelines, consumers must first be aware of and understand the recommended limits of alcohol intake. Public awareness and knowledge of drinking guidelines in Canada and internationally are low (Bowden et al., 2014; Buykx et al., 2018; De Visser & Birch, 2012; Livingston, 2012; McNally et al., 2019; Rosenberg et al., 2018). Mass media campaigns have failed to increase awareness and knowledge of these guidelines. For example, an evaluation of a Canadian social marketing campaign found that awareness of Canada's low-risk drinking guidelines was approximately 19% at baseline (McNally et al., 2019), consistent with other estimates in Canada (Charbonneau et al., 2014; Fox, 2018). Awareness of the guidelines improved by 7% after the campaign, but no differences in knowledge of the recommended drink limits were observed (McNally et al., 2019). Strategies that extend beyond media advertising are needed to increase public awareness of national drinking guidelines. Increasing public awareness of national drinking guidelines is important, as recent data from a large population-based sample of Australian adults demonstrates a positive association between knowledge of recommended drink limits and a self-reported reduction in alcohol consumption, particularly among heavier drinkers (Islam et al., 2019).

Alcohol labels on product containers are one strategy for communicating health information to consumers at key points of contact—the point-of-purchase and -pour—and are recommended by national and international health organizations (Australia Department of Health, 2019; CCSA, 2007; UK Department of Health, 2007; WHO, 2017). Product labels are believed to influence behavior by gaining consumers' attention, eliciting aversive reactions, and keeping the message in consumers' minds (Brewer et al., 2019). Labels are appealing because of their relatively low cost to regulators, unparalleled reach among drinkers, and higher exposure among the heaviest drinkers (Greenfield, 1997). Laboratory and online experiments examining the optimal design of alcohol labels suggest that labels including a health warning, standard drink information, and national drinking guidelines could help consumers monitor their drinking and understand the extent to which this differs from the recommended guidelines (Blackwell et al., 2018; Hobin et al., 2018; Rosenberg et al., 2018).

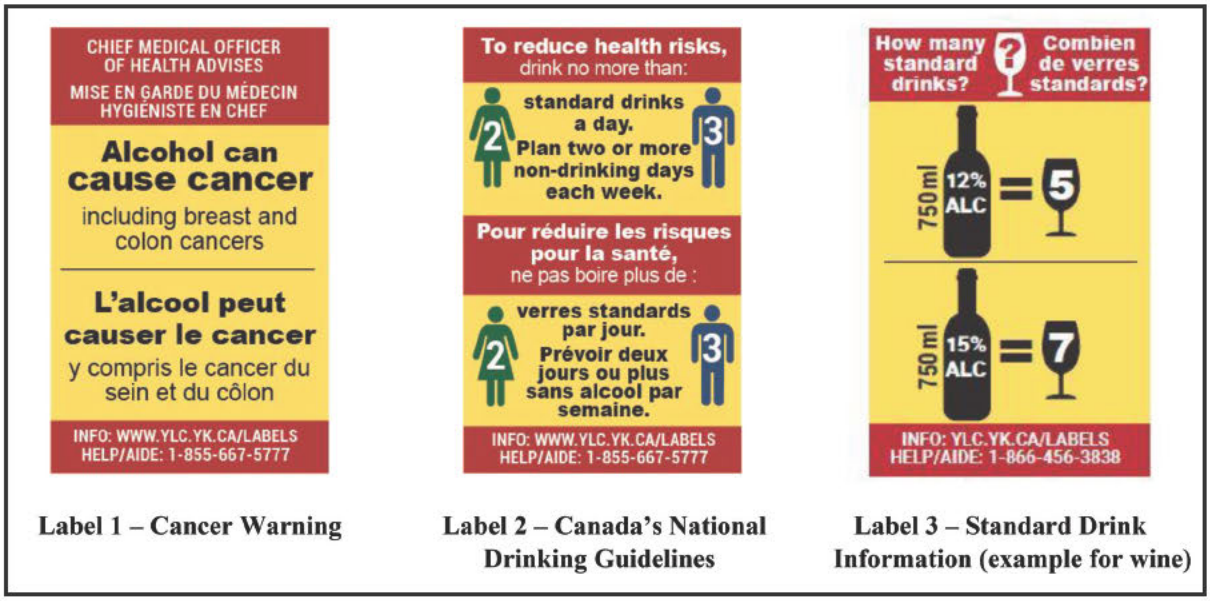
Although Canada does not currently mandate health warning labels on alcohol containers, 47 other countries currently have implemented labels, with the majority requiring warnings cautioning about the risks of drinking while pregnant or while operating a vehicle (WHO, 2018b). Only eight countries mandate standard drink information on labels, and none mandate drinking guidelines (WHO, 2018b). The United Kingdom has a voluntary agreement with the alcohol industry for alcohol labels with pregnancy warnings, unit information, and drinking guidelines; however, recent studies found that these labels are poorly designed and include outdated drinking guideline information (Alcohol Health Alliance UK, 2017; Blackwell et al., 2018; Royal Society for Public Health, 2018). It remains unclear whether well-designed labels are an effective tool for communicating alcohol-related health risks, tracking alcohol consumption, and adhering to recommended drink limits.

This article is one of a series of articles (see Weerasinghe et al., 2020; Hobin et al., in press; Vallance et al., 2020a) from a larger study aiming to test evidence-informed alcohol labels with a cancer warning, national drinking guidelines, and standard drink information. Using an experimental design, in a real-world setting, we tested whether alcohol labels are an effective population-level strategy for supporting more informed and safer alcohol use. The specific objectives of the current article are to (a) determine the extent to which consumers recalled alcohol labels with national drinking guidelines, (b) examine the impact of the alcohol labels on awareness and knowledge of national drinking guidelines, and (c) describe the level of support for alcohol labels with national drinking guidelines.

Method

Alcohol label intervention

The alcohol label intervention included three rotating post-manufacturer labels with (a) a cancer warning, (b) national drinking guidelines, and (c) standard drink information (four separate labels were developed for wine, distilled spirits, coolers, and beer; Figure 1). Label development was informed by previous alcohol and tobacco labeling studies (Greenfield, 1997; Hammond, 2011; Hobin et al., 2018; Pettigrew et al., 2016; Strahan et al., 2002; Vallance et al., 2018) and by consultations with local and international health experts and community stakeholders. The labels were large (5.0 cm × 3.2 cm), used bright colors so they stood out on the containers, provided messages that are largely novel to consumers, and were rotated to avoid wear out (Hammond, 2011; Martin-Moreno et al., 2013). Moreover, the three label messages were designed to complement each other by providing a serious health message to grab consumer attention, and standard drink information and national drinking guidelines to support consumers in tracking consumption



Label 1 – Cancer Warning | **Label 2 – Canada's National Drinking Guidelines** | **Label 3 – Standard Drink Information (example for wine)**

FIGURE 1. Intervention alcohol warning labels (actual size 5.0 cm × 3.2 cm each). The label intervention included three rotating labels: (a) a cancer warning, (b) national drinking guidelines, and (c) standard drink information (four separate labels were developed for wine, spirits, coolers, and beer; wine example shown above). *Note:* Alcohol containers sold in the liquor store in the intervention condition were each labeled with one of the three label options displayed above.

and adhering to recommendations. The labels were printed in Canada's two official languages, English and French, and included a toll-free help line and a website linking to recommendations for minimizing alcohol-related risks. A social marketing campaign consisting of in-store signs, pamphlets, and radio spots was planned to run alongside the labels, as per effective labeling practices (Babor et al., 2010; Thomson et al., 2012; Vallance et al., 2018).

Study design

A real-world quasi-experimental study was conducted among cohort participants recruited in liquor stores in the intervention site (Whitehorse, Yukon, Canada) and the comparison site (Yellowknife, Northwest Territories, Canada). These sites were selected because Yukon and Northwest Territories are the only two jurisdictions in Canada that require post-manufacturer alcohol labels to be applied to most alcohol containers sold in government-run retail liquor stores. Since 1991, labels in both jurisdictions warn consumers about drinking while pregnant, with an additional message in Northwest Territories cautioning against drinking and driving or operating machinery and that alcohol may cause health problems (Government of Northwest Territories, 2017; Government of Yukon, 2016). In addition, the one store in the intervention site and two stores in the comparison site are the only government-run liquor stores in both cities, and between them they account for approximately 50% of alcohol sales in these jurisdictions (Government of Northwest Territories, 2017; Government of Yukon, 2017). The intervention labels were scheduled to replace the original warning labels on all alcohol containers, except single-serve beer and cider (approximately 3% of sales), in the one liquor store in the intervention site for an 8-month period. The two liquor stores in the comparison site continued usual labeling practices (see Vallance et al., 2020a, for a detailed study protocol).

Two waves of surveys were scheduled in the intervention and comparison sites, 4 months before and 8 months after the intervention labels were implemented. The intervention labels with the cancer warning and national drinking guidelines were applied to alcohol containers in the intervention site starting November 20, 2017, with the standard drink label to be introduced shortly after. Liquor store staff were instructed to apply the intervention labels upright and to avoid covering manufacturer labels on the containers.

However, 1 month into the 8-month intervention period, the government in the intervention site paused its participation in the study because of pressure from Canada's alcohol industry and stopped applying labels (Austen, 2018; Vallance et al., 2020a). Based on remaining label stock, approximately 47,000 cancer warning labels and 53,000 national drinking guidelines labels were applied to alcohol containers within the 1-month period. In April 2018, the government resumed its participation, with the caveat that the cancer label be excluded from the label rotation. Thus, the drinking guidelines labels were reinstated starting April 12, 2018, for an additional 3.5 months, and the standard drink labels were reinstated starting May 28, 2018, for 2 months. Approximately 117,000 drinking guidelines labels and 92,000 standard drink labels were applied to alcohol containers between

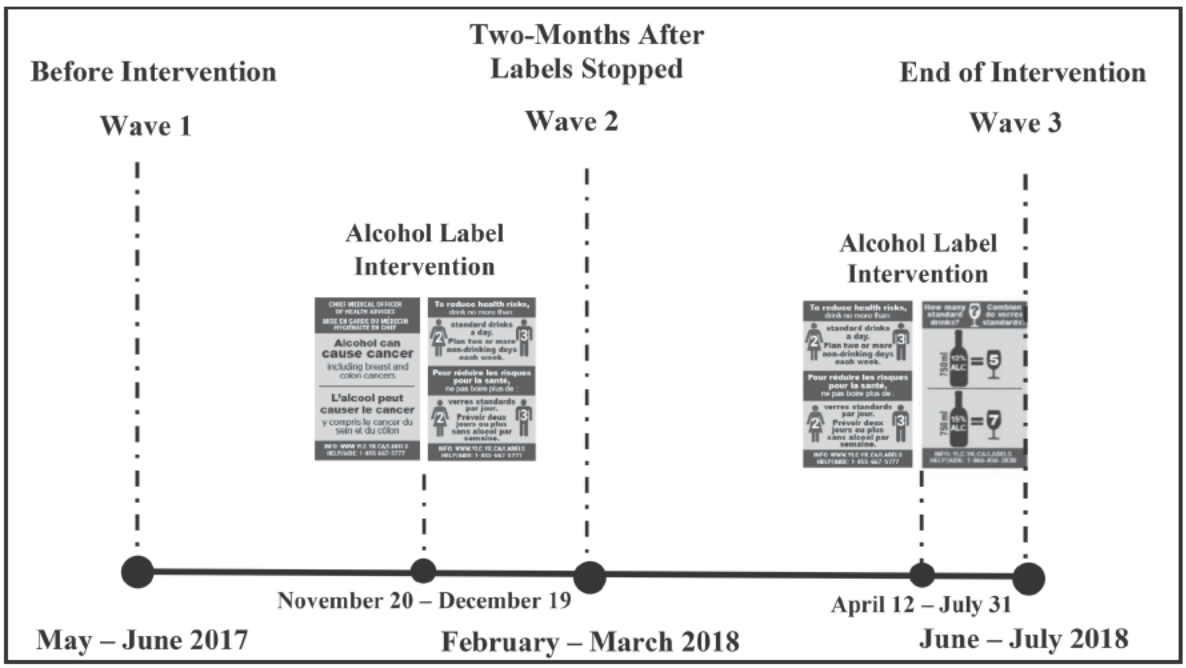


FIGURE 2. Modified study design due to interference from Canada's alcohol industry

April and July 2018. As a result of the interruption in the label intervention, the study design was modified (Figure 2). Wave 2 surveys were conducted starting mid-February 2018, 2 months after the government paused its participation, in order to capture the impact of the shortened intervention. Wave 3 surveys were conducted starting mid-June 2018 to the end of the intervention period in July 2018. The intended promotional campaign was not implemented due to industry interference, with the exception of the project website and a media release at the time of the initial launch of the label intervention in November 2017.

Recruitment and survey procedures

A prospective cohort of adult drinkers was recruited in Wave 1 by trained research assistants (RAs) as they exited the liquor stores in both sites, using a standard intercept technique of approaching every person that passed a pre-identified landmark in the liquor store. Participants were asked to complete a screener on a 10-inch tablet to identify eligibility status. Eligible participants provided consent and completed the Wave 1 survey on the tablet without RA assistance. In Waves 2 and 3, participants who provided their contact information were emailed survey instructions, a unique survey link, and an e-transfer as remuneration. In addition, due to attrition, the sample was replenished using Wave 1 recruitment protocols in both sites (see Vallance et al., 2020a, for the cohort structure). All survey periods lasted approximately 6 weeks, the surveys took approximately 18 minutes to complete, and survey measures were consistent across waves and sites. Study procedures were approved by the Research Ethics Boards at Public Health Ontario (ID 2017-010.04) and the University of Victoria (Protocol 17-161).

Participants

Participants were adults of legal drinking age (≥19), residents of either the intervention or the comparison city, and, at the time of recruitment, were current drinkers (had consumed one or more alcoholic drinks in the past 30 days), had purchased alcohol at the liquor store, and did not self-report being pregnant or breastfeeding.

Measures

Noticing labels. To assess "noticing" the alcohol labels, participants were asked whether they had seen any warning labels on bottles or cans of beer, wine, hard liquor, coolers, or ciders. Responses were dichotomized as "yes" and "no/don't know." The measure at Wave 1 was anchored with 6 months prior, the measure at Wave 2 from November prior to follow-up, and Wave 3 from April prior to follow-up.

Recall. Among those that indicated "noticing," participants were first asked an unprompted open-ended question to indicate what messages they had seen on the warning labels. Subsequently, to assess prompted recall, participants were shown a list of possible label messages and were asked to select all messages that they saw on alcohol containers. Response options included alcohol and cancer, low-risk

drinking guidelines, number of standard drinks in bottles or cans, alcohol may be an addictive drug, alcohol and liver disease, alcohol and trauma, alcohol and fetal alcohol spectrum disorder, and drinking alcohol and driving a car or operating machinery. Both recall measures were anchored similarly to the "noticing labels" measure. For the unprompted recall measure, an RA blinded to experimental conditions coded each response. A second coder reviewed ambiguous responses and discussed them with the first coder to reach consensus. Any reference to drinking guidelines or mention of cancer was coded as recall of national drinking guidelines and recall of the cancer label, respectively.

Awareness of national drinking guidelines. Awareness of the national drinking guidelines was measured by the question, "Were you aware of Canada's Low-Risk Drinking Guidelines before today?" Responses were dichotomized as "yes" and "no/don't know."

Knowledge of sex-specific recommended drink limits. Knowledge of sex-specific daily recommended drink limits was measured by the question, "What is the daily limit of 'standard drinks' recommended for males/females (depending on identified sex) in Canada's Low-Risk Drinking Guidelines?" Participants were asked to enter the number of standard drinks per day. Consistent with the language used in Canada's Low-Risk Drinking Guidelines (Butt et al., 2011) and on the intervention labels, males who reported up to and including three standard drinks and females who reported up to and including two standard drinks were defined as "correct." Similarly, knowledge of sex-specific weekly recommended drink limit was measured by the question, "What is the weekly limit of 'standard drinks' recommended for males/females (depending on identified sex) in Canada's Low-Risk Drinking Guidelines?" Participants were asked to enter the number of standard drinks per week. Males who reported up to and including 15 standard drinks and females who reported up to and including 10 standard drinks were defined as "correct." The responses were dichotomized as "correct" and "incorrect/don't know" for knowledge of drink limits.

Support for labels with national drinking guidelines. Participants were asked if cans and bottles of alcoholic beverages should be labeled with Canada's low-risk drinking guidelines (LRDG). Responses were given on a 5-point Likert scale from 1 = *strongly disagree* to 5 = *strongly agree,* with *don't know* and *prefer not to say* as options.

Sociodemographics. Sociodemographic measures included age, sex, ethnicity (White, Aboriginal, and other/don't know/prefer not to say/missing), education (low [completed high school or less], medium [completed trades or college certificate, some university or university certificate below Bachelor's], high [university degree or post-graduation], and unknown [don't know/prefer not to say/missing]), and income (low [<$30,000], medium [$30,000–$59,999], high [≥$60,000], and unknown [don't know/prefer not to say/missing]). (Income is in Canadian dollars.)

Other covariates. Health literacy was assessed using the Newest Vital Sign assessment tool, a short validated measure to identify health literacy levels (Weiss et al., 2005), and responses were categorized as follows: limited (≤1 correct responses), possibility of limited (2–3 correct responses), adequate literacy (4–6 correct responses), and unknown (don't know/prefer not to say/missing). Alcohol use was measured using the quantity/frequency method (Heeb & Gmel, 2005). Participants were asked to indicate how often they drank alcoholic beverages in the past 6 months, and how many drinks they usually drank per occasion. Responses were combined to provide a mean number of drinks per week and were categorized using Canada's LRDG: low (≤10 for females/15 for males per week), risky (11–19/16–29 per week), high (≥20/30 per week) (Butt et al., 2001), and unknown (don't know/prefer not to say/missing). Last, a time-in-sample variable was created to adjust for participants who participated in one, two, or all three survey waves.

Statistical analysis

Generalized estimating equation (GEE) models using a binomial distribution with logit link function were used to examine the impact of the intervention labels on five outcomes: unprompted and prompted recall of the drinking guidelines label message, awareness of the national drinking guidelines, and knowledge of daily and weekly drink limits. GEE models can account for a mix of within-subject correlation that arises from the cohort participants being asked the same questions over multiple survey waves, in addition to accounting for the replenishment sample (Pepe, 2003). Difference-in-difference (DID) terms were added to each model to assess the change in outcomes across waves and between sites. The DID terms included an interaction between survey wave and site. Sociodemographics and other covariates were included in all models, with ethnicity defined as White vs. other (Aboriginal/other/don't know/prefer not to say/missing). Education, income, and health literacy were found to be correlated; thus, to improve the stability of the models, only education was used. The GEE model estimating unprompted recall of the national drinking guidelines label required the addition of a dummy observation to address non-convergence due to a cell count of 0. "Prefer not to say/missing" responses were excluded from the outcome measures in all models. All analyses were conducted using SAS Version 9.3 (SAS Institute Inc., Cary, NC).

Results

The final sample consisted of 2,049 unique participants, providing 3,277 observations. Response rates in the intervention and comparison sites were 8.9% and 8.0%, respectively (American Association for Public Opinion Research, 2011), with 53.2% of participants retained at Wave 2 and 47.5%

Table 1. Sample characteristics by site at time of initial recruitment

Variable	Intervention site (n = 1,233) n (%)	Comparison site (n = 816) n (%)
Wave of recruitment		
1	505 (41.0)	331 (40.6)
2	491 (39.8)	320 (39.2)
3	237 (19.2)	165 (20.2)
Age, M (SD)***	47.4 (14.6)	41.2 (13.7)
Age categories***		
19–24	77 (6.2)	100 (12.3)
25–44	436 (35.4)	379 (46.5)
≥45	720 (58.4)	337 (41.3)
Ethnicity***		
White	891 (72.3)	481 (59.0)
Aboriginal	219 (17.8)	198 (24.3)
Other	123 (10.0)	137 (16.8)
Sex*		
Female (vs. male)	625 (50.7)	368 (45.1)
Education levels*		
Low (Completed high school or less)	250 (25.3)	184 (22.6)
Medium (Trades or college certificate, some university or university certificate below bachelor)	437 (35.4)	292 (35.8)
High (Bachelor degree or higher)	490 (39.7)	285 (34.9)
Unknown (DK, PNS, missing)	56 (4.5)	55 (6.7)
Income levels**		
Low (<$30,000CAD)	197 (16.0)	87 (10.7)
Medium ($30,000 to <$60,000CAD)	222 (18.0)	128 (15.7)
High (≥$60,000CAD)	698 (56.6)	489 (59.9)
Unknown (DK, PNS, Missing)	116 (9.4)	112 (13.7)
Alcohol use levels**		
Low volume ≤10 for females/15 for males per week	912 (74.0)	555 (68.0)
Risky volume 11–19/16–29 per week	96 (7.8)	50 (6.1)
High volume ≥20/30 per week	121 (9.8)	105 (12.9)
Unknown (DK, PNS, missing)	104 (8.4)	106 (13.0)
Health literacy levels***		
Limited literacy (score ≤1)	369 (29.9)	287 (35.2)
Possibility of limited literacy (score 2–3)	240 (19.5)	160 (19.6)
Adequate literacy (score 4–6)	563 (45.7)	299 (36.6)
Unknown (DK, PNS, Missing)	61 (5.0)	70 (8.6)

Notes: DK = don't know; PNS = prefer not to say.
*p < .05; **p < .001; ***p < .0001 for Pearson ^{2} test.

retained at Wave 3. Participants lost to follow-up between waves were more likely to be younger; be male; have lower education, income, and literacy; consume risky, high, or unknown levels of alcohol; and be in the comparison site. Table 1 presents the sample characteristics of participants by site at time of recruitment. The percentage of participants noticing labels was high in all three waves in both the intervention (Wave 1 = 80.4%; Wave 2 = 76.7%; Wave 3 = 80.5%) and comparison (Wave 1 = 87.0%; Wave 2 = 78.5%; Wave 3 = 72.9%) sites.

Unprompted recall of the drinking guidelines label message increased 3.1 times more between Waves 1 and 2 (+7.3% vs. +0.7%, adjusted odds ratio [AOR] = 3.1, 95% CI [0.3, 32.7]) and 10.8 times more between Waves 1 and 3 (+19.5% vs. +0.8%, AOR = 10.8, 95% CI [0.9, 127.6]; Figure 3a, Table 2) in the intervention versus the comparison site. Results of additional GEE modeling comparisons can be found in Supplemental Table A. (Supplemental material appears as an online-only addendum to this article on the journal's website.)

Prompted recall of the national drinking guidelines label message increased 3.5 times more between Waves 1 and 2 (+13.7% vs. +0.8%, AOR = 3.5, 95% CI [1.7, 7.4]), and 7.0 times more between Waves 1 and 3 (+25.2% vs. +1.1%, AOR = 7.0, 95% CI [3.3, 14.9]; Figure 3b, Table 2) in the intervention site versus the comparison site.

Awareness of the national drinking guidelines in Wave 1, before the alcohol labeling intervention, was 30.8% in the intervention and 35.2% in the comparison site (Figure 3c). The increase in awareness of the national drinking guidelines was 1.9 times greater between Waves 1 and 2 (+20.2% vs. +5.4%, AOR = 1.9, 95% CI [1.3, 2.8]) and 2.9 times greater between Waves 1 and 3 (+36.2% vs. +12.7%, AOR = 2.9, 95% CI [2.0, 4.3]; Figure 3c, Table 2) in the intervention versus the comparison site.

Although knowledge of recommended sex-specific drink

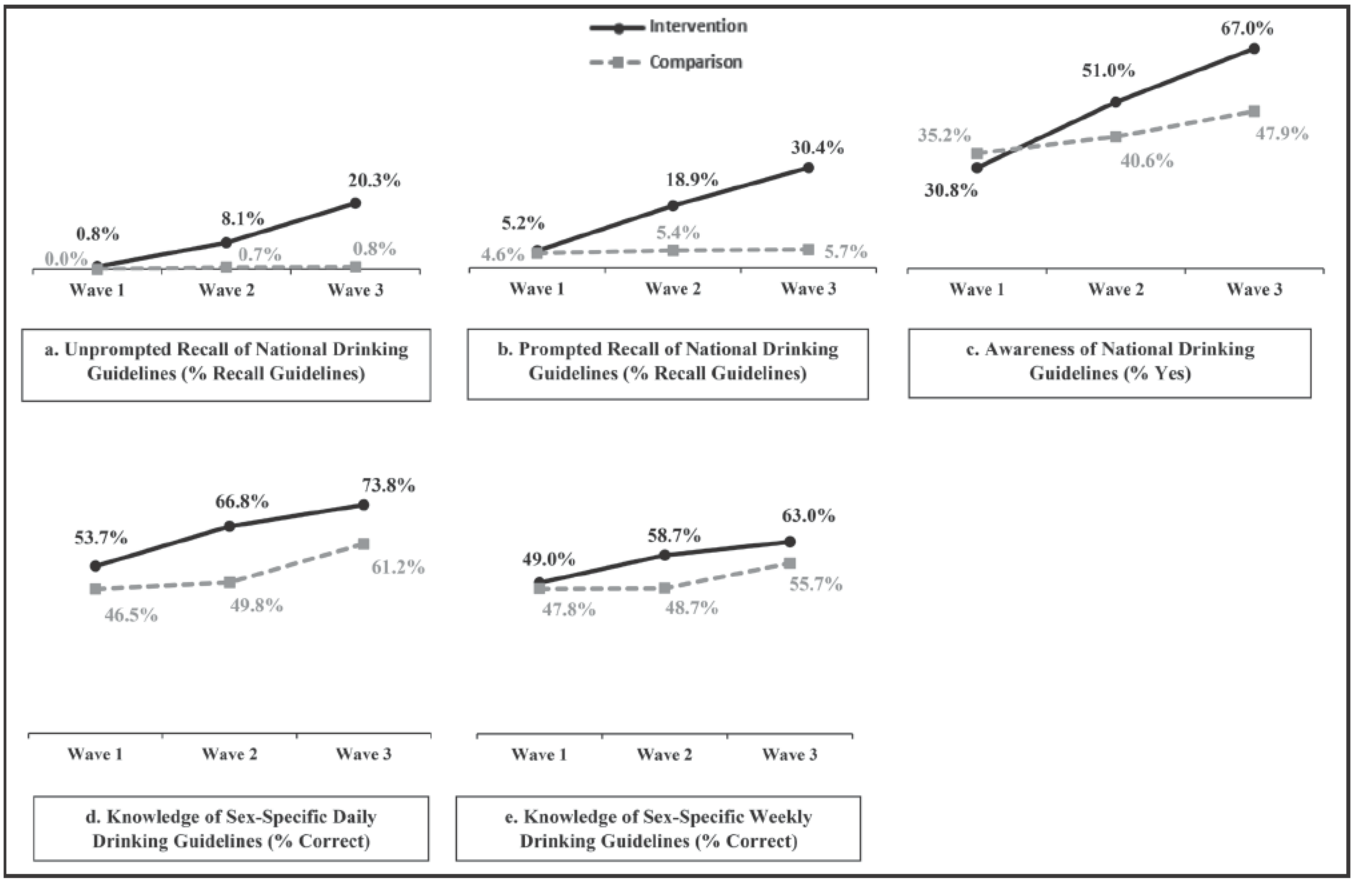


FIGURE 3 (A–E). Impact of intervention alcohol labels on outcomes in intervention and comparison sites (Waves 1 to 3), unadjusted %

limits increased in both sites over the study period, results of the DID analyses showed a 1.5 times greater increase in knowledge of the daily drink limits between Waves 1 and 2 (+13.1% vs. +3.3%, AOR = 1.5, 95% CI [1.0, 2.1]) and 1.5 times greater increase between Waves 1 and 3 (+20.1% vs. +14.7%, AOR = 1.5, 95% CI [1.0, 2.1]; Figure 3d, Table 2) in the intervention versus the comparison site. Similarly, DID results revealed a 1.4 times greater increase in knowledge of the weekly drink limits between Waves 1 and 2 (+9.7% vs. +0.9%, AOR = 1.4, 95% CI [1.0, 2.1]) and a 1.4 times greater increase between Waves 1 and 3 (+14.0% vs. +7.9%, AOR = 1.4, 95% CI [1.0, 2.0]; Figure 3e, Table 2) in the intervention versus the comparison site.

To test the contribution of including a label with a cancer warning alongside a label with the national drinking guidelines, GEE models estimating the relationships between recall of the cancer message, either unprompted or prompted, and awareness and knowledge of drinking guidelines were conducted, adjusting for sociodemographics and other covariates. The results indicated that those who recalled the cancer message were 2.0 times more likely to be aware of the drinking guidelines (AOR = 2.0, 95% CI [1.6, 2.4]), and 1.6 and 1.3 times more likely to know the daily (AOR = 1.6, 95% CI [1.3, 1.9]) and weekly (AOR = 1.3, 95% CI [1.0, 1.5]) drink limits, respectively, compared with those who did not recall the cancer message.

The majority of participants were neutral to strongly supportive of applying labels with national drinking guidelines on alcohol containers in both the intervention (Wave 1 = 71.7%; Wave 2 = 77.3%; Wave 3 = 79.1%) and comparison (Wave 1 = 67.1%; Wave 2 = 68.1%; Wave 3 = 73.2%) sites (Figure 4). See Supplemental Figure A for a visual summary of results.

Discussion

Alcohol drinking guidelines are used internationally to provide evidence-informed recommendations of upper drink limits for low-risk alcohol consumption. To adhere to these drinking guidelines, consumers must be aware of and understand the recommended limits. International research indicates that public awareness and knowledge of drinking guidelines is lower than 50% in most jurisdictions (Bowden et al., 2014; Buykx et al., 2018; De Visser & Birch, 2012; Livingston, 2012; Rosenberg et al., 2018). Experts suggest that providing directional information on how to use alcohol is crucial for the consumer and should accompany the sale of all alcohol products as a public health promotion message

TABLE 2. Results of GEE models for label outcomes—DID comparisons[a,b]

Measure	Comparison	AOR	[95% CI]
Unprompted recall of drinking guidelines label	Intervention vs. comparison site: Wave 3 vs. Wave 1	10.8	[0.9, 127.6]
	Intervention vs. comparison site: Wave 2 vs. Wave 1	3.1	[0.3, 32.71]
	Intervention vs. comparison site: Wave 3 vs. Wave 2	3.5	[0.6, 19.1]
Prompted recall of drinking guidelines label	Intervention vs. comparison site: Wave 3 vs. Wave 1	7.0	[3.3, 14.9]
	Intervention vs. comparison site: Wave 2 vs. Wave 1	3.5	[1.7, 7.4]
	Intervention vs. comparison site: Wave 3 vs. Wave 2	2.0	[1.2, 3.4]
Awareness of drinking guidelines	Intervention vs. comparison site: Wave 3 vs. Wave 1	2.9	[2.0, 4.3]
	Intervention vs. comparison site: Wave 2 vs. Wave 1	1.9	[1.3, 2.8]
	Intervention vs. comparison site: Wave 3 vs. Wave 2	1.5	[1.1, 2.0]
Knowledge of sex-specific daily drinking guidelines	Intervention vs. comparison site: Wave 3 vs. Wave 1	1.5	[1.0, 2.1]
	Intervention vs. comparison site: Wave 2 vs. Wave 1	1.5	[1.0, 2.1]
	Intervention vs. comparison site: Wave 3 vs. Wave 2	1.0	[0.7, 1.4]
Knowledge of sex-specific weekly drinking guidelines	Intervention vs. comparison site: Wave 3 vs. Wave 1	1.4	[1.0, 2.0]
	Intervention vs. comparison site: Wave 2 vs. Wave 1	1.4	[1.0, 2.1]
	Intervention vs. comparison site: Wave 3 vs. Wave 2	1.0	[0.7, 1.3]

Notes: GEE = generalized estimating equation; DID = difference-in-difference; AOR = adjusted odds ratio; CI = confidence interval. [a]All models adjusted for age, ethnicity, sex, education, time-in-sample, and alcohol use; [b]separate logistic models were estimated using GEE for each of the individual measures of warning label effectiveness.

(Cancer Council Australia, 2013). Results of the current study demonstrate that enhanced alcohol labels may be an effective tool for increasing awareness and knowledge of drinking guidelines. Before the labeling intervention, one in three consumers in the current study were aware of Canada's LRDG. Following the intervention, awareness more than doubled in the intervention site, an increase that was more than two times greater among those exposed versus those unexposed to the alcohol labels. This increase in awareness over the study period is consistent with the proportion of participants that recalled the drinking guidelines on the label, either unprompted or prompted, confirming the label's role in boosting participants' awareness of national drinking guidelines in the current study.

Modest increases in knowledge of the daily and weekly drink limits were also observed following exposure to enhanced alcohol labels in the intervention site, both in the shorter term (Waves 1 to 2) and over the full study period (Waves 1 to 3). One explanation for the modest differences in changes in knowledge between sites is that knowledge of the daily and weekly guidelines increased in both the intervention and comparison sites over the study period. Increases among participants in the comparison site not exposed to the label intervention are likely because the study received national and international media coverage following the alcohol industry's interference in the study (Austen, 2018; Joannou, 2018; Vallance et al., 2020a; Vallance et al., 2020b). Although the media largely focused on the cancer warning label, images of the labels with the cancer warning and national drinking guidelines were circulated in the media, and it is possible that the media elicited extra attention to alcohol-related health harms and safer drinking recommendations, including Canada's LRDG. It is worth noting, however, that the intended social marketing campaign was not implemented in the intervention site during the intervention period due to the industry's interference, and the media coverage may have partly replaced the function of the canceled campaign in the intervention site.

Nevertheless, the results of the current study demonstrate the unique benefits of labels for increasing awareness and knowledge of national drinking guidelines. In addition, the study provides evidence that recalling the cancer label message enhanced the intervention impact on LRDG outcomes, highlighting the potential synergistic effects of the rotating labels. Previous population-based interventions that were intended to increase awareness and knowledge of drinking guidelines focused on longer multicomponent information-based campaigns, with various levels of success. Two of

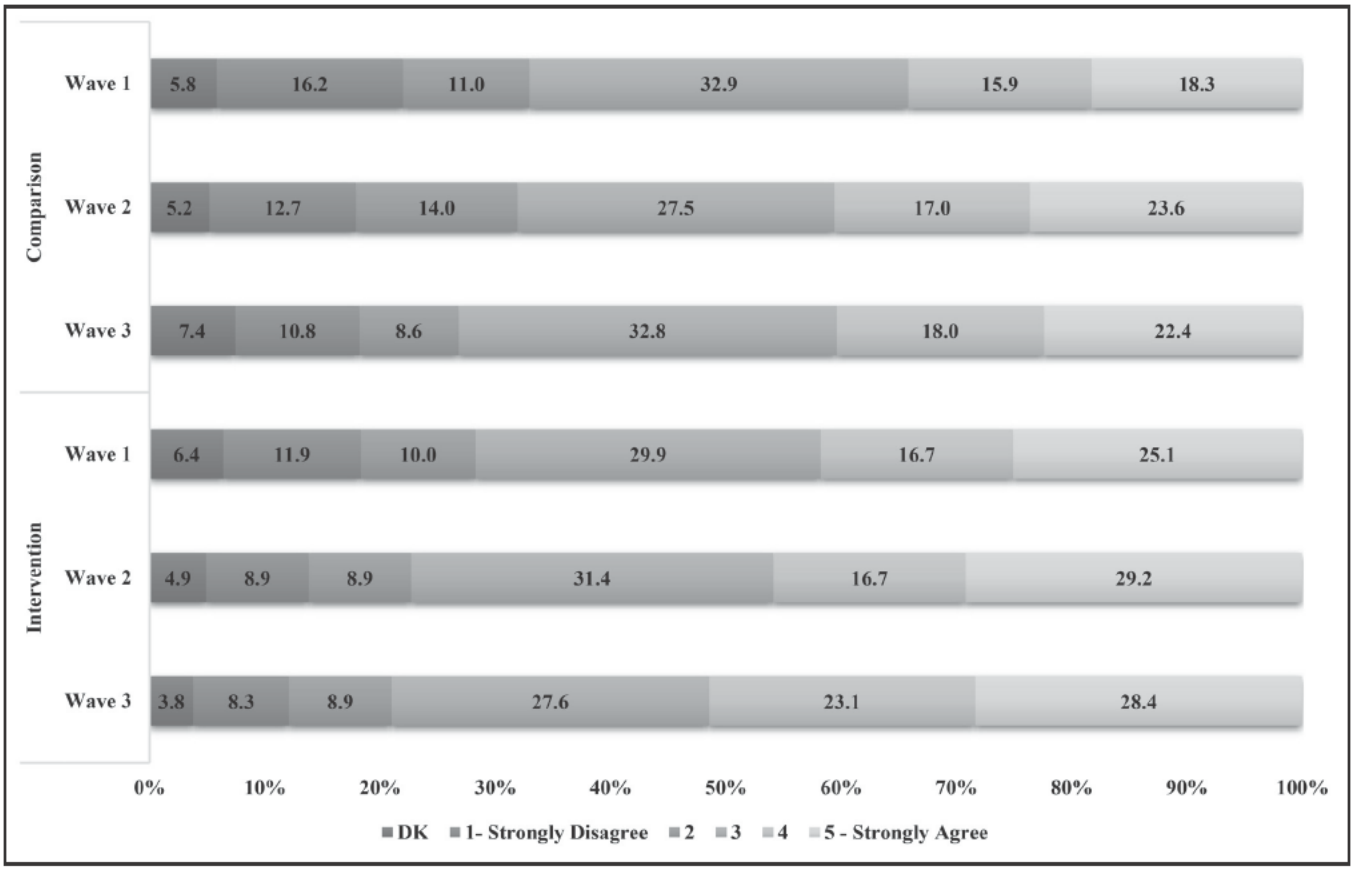


FIGURE 4. Degree of support for national drinking guidelines labels on alcohol containers, unadjusted %. DK = don't know.

these campaigns, one conducted in the Canadian province of Quebec and the other in Denmark, reported increases in knowledge of drink limits following much longer-term and well-resourced campaigns (Éduc'alcool, 2016, 2019; Grønbaek et al, 2001). However, these interventions lacked a comparison group, making it difficult to control for secular influences. Further research is needed to test the impact of an uninterrupted longer-term labeling intervention on awareness and knowledge of drinking guidelines, as well as the impact on actual drinking behavior.

Previous studies have highlighted the association between knowledge of drinking guidelines and lower levels of alcohol use (Bowring et al., 2012; Coomber et al., 2017; Islam et al., 2019), but the underlying mechanisms for this association are not well understood. It is well documented that labels are likely a key component of a comprehensive alcohol strategy to increase consumer awareness of alcohol-related risks and knowledge of safer alcohol use, and ultimately reduce alcohol consumption and harms (Centre for Addiction and Mental Health, 2019; Martin-Moreno et al., 2013; WHO, 2017). Last, the results of the current study show that labels with national drinking guidelines are unlikely to be received negatively among drinkers, as participant support was high in Wave 1 and remained high across the study period in both sites. This is in line with previous research indicating support for drinking guidelines on alcohol labels (Coomber et al., 2017).

The study has several limitations. First, considering that the intervention was interrupted and shortened due to the alcohol industry's interference and the small sample sizes in both sites, the effects of the labels might have been stronger if these limitations had been resolved and the study had been implemented as planned. Next, the study sample was not representative of the site populations, as participants were recruited from liquor stores in city centers using non-probability-based methods, limiting generalizability. In addition, the national media coverage of the alcohol industry's interference in the study may have contaminated the comparison site by exposing information about the study and intervention, particularly the alcohol label messages. Finally, due to very low rates of unprompted recall in the comparison group, DID results lacked precision and produced wide CIs. However, the low rates of recall and awareness of the national drinking guidelines before the alcohol label intervention also provide a strong rationale for enhanced alcohol labels.

Conclusions

Alcohol labels with national drinking guidelines, standard drink information, and a cancer warning may be an effective population-level strategy for increasing awareness of drinking guidelines and knowledge of drink limits, a stated goal of international alcohol control efforts (Australia Department of Health, 2019; CCSA, 2007; UK Department of Health, 2007). This study also supports previous claims that labels with drinking guidelines have high levels of public support. Alcohol labels should aim to maximize population reach and expand on the single pregnancy messages currently used in many jurisdictions.

Acknowledgments

The authors would like to acknowledge all the RAs who helped collect the data, as well as the liquor control boards, health and social services, and community partners in Yukon and Northwest Territories for their commitment and support in developing and executing this research. Special thanks also go to Mark Petticrew and Melanie Wakefield for their expertise and guidance.

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Cancer Warning Labels on Alcohol Containers: A Consumer's Right to Know, a Government's Responsibility to Inform, and an Industry's Power to Thwart

TIM STOCKWELL, PH.D.,[a,*] ROBERT SOLOMON, LL M.,[b] PAULA O'BRIEN, PH.D.,[c] KATE VALLANCE, M.A.,[a] & ERIN HOBIN, PH.D.[d,e]

[a]*Canadian Institute for Substance Use Research, University of Victoria, Victoria, British Columbia, Canada*
[b]*Faculty of Law, Western University, Ontario, Canada*
[c]*Melbourne Law School, University of Melbourne, Victoria, Australia*
[d]*Public Health Ontario, Toronto, Ontario, Canada*
[e]*Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada*

ABSTRACT. Objective: Although the World Health Organization (WHO) declared alcohol a Class 1 carcinogen 30 years ago, few governments have communicated this fact to the public. We illustrate how alcohol industry groups seek to keep their customers in the dark about alcohol-related cancer risks. In Canada, a federallyfunded scientific study examining the introduction of cancer warning labels on containers was shut down following industry interference. We show that the industry complaints about the study had no legal merit. Of 47 WHO member countries with alcohol warning labels, only South Korea requires cancer warnings on alcohol containers. However, industry complaints, supported by sympathetic governments, helped weaken the warning labels' implementation. Ireland has legislated for cancer warnings but faces continuing legal opposition expressed through regional and global bodies. Cancer societies and the public health community have failed to counter industry pressures to minimize consumer awareness of alcohol's cancer risks. Placing cancer warnings on alcohol containers could make a pivotal difference in motivating both drinkers to consume less and regulators to introduce more effective policies to reduce the serious harms of alcohol consumption. (*J. Stud. Alcohol Drugs, 81,* 000–000, 2020)

IT IS ESTIMATED THAT worldwide alcohol is responsible annually for 3 million deaths (Global Burden of Disease 2016 Alcohol Collaborators, 2018), being causally associated with at least 43 major categories of disease or injury identified by more than 400 specific ICD-10 codes (Sherk et al., 2017). The World Health Organization's (WHO) International Agency for Research on Cancer (2010) has recognized since 1987 that alcohol-related cancers contribute significantly to this toll. It is now firmly established that alcohol consumption increases cancer risk in a dose-response fashion with no risk-free level and with causal associations established for breast cancer and various cancers of the digestive tract (e.g., mouth, throat, larynx, esophagus, colon; International Agency for Research on Cancer, 2010). In Canada, it was estimated recently that almost one third of the 15,000 alcohol-attributable deaths in 2014 were related to such cancers (Canadian Substance Use Costs and Harms Scientific Working Group, 2018). The U.S. Centers for Disease Control and Prevention also cites evidence that alcohol causes cancer of the prostate (Zhao et al., 2016). Bagnardi et al. (2015) have found dose-response associations between alcohol use and risk of some 20 cancer types, with many more yet to be formally recognized by WHO's International Agency for Research on Cancer. In this article, we provide examples of how the global alcohol industry works to ensure that the well-established cancer risks posed by its product continue to be overlooked, by both regulators and the public.

In 2017, the American Society of Clinical Oncology (LoConte et al., 2018) published a statement marking 30 years since the WHO first classified ethanol as a Class 1 carcinogen. The American Society of Clinical Oncologyhighlighted a lack of government action to advise the world's two billion alcohol consumers of this risk or to limit their exposure. Many cancer societies have also been remiss in drawing this risk to the public's attention (Amin et al., 2018). Indeed, U.S. public surveys show that a substantial majority of adults have no knowledge or awareness of alcohol's carcinogenicity (LoConte et al., 2018). In a recent household survey in England, only 13% of respondents indicated unprompted knowledge that alcohol increases cancer risk, rising to 32% when prompted(Bates et al., 2018). A survey of liquor store customers in two northern Canadian capital cities found that even prompted awareness of alcohol's cancer risk was present in only one quarter of respondents (Hobin et al., 2020; Vallance et al., 2020b).

Received: December 20, 2019. Revision: January 29, 2020.

This research was supported by a Health Canada–Substance Use and Addictions Program Grant #1718-HQ-00003 and by the Canadian Institute for Substance Use Research, University of Victoria. The views expressed herein do not necessarily represent the views of Health Canada. International Registered Report Identifier (IRRID): RR2-10.2196/16320.

*Correspondence may be sent to Tim Stockwell at the Canadian Institute for Substance Use Research, University of Victoria, P.O. Box 1700 STN CSC, Victoria, BC V8W 2Y2, Canada, or via email at: timstock@uvic.ca.

TABLE 1. Types of warning label requirements in World Health Organization (WHO) member countries

		Health warning types			
Country	WHO member countries *n*	Health warnings *n* (%)	Pregnancy *n* (%)	Underage drinking *n* (%)	Drink driving *n* (%)
Americas	35	13 (37.1)	5 (14.3)	6 (17.1)	5 (14.3)
Africa	46	11 (23.9)	6 (13.0)	14 (30.4)	9 (19.6)
Eastern Mediterranean	21	2 (9.5)	1 (4.8)	1 (4.8)	0 (0.0)
Europe	53	13 (24.5)	13 (24.5)	12 (22.6)	11 (20.8)
Southeast Asia	11	2 (18.2)	0 (0.0)	1 (9.1)	1 (9.1)
Western Pacific	28	6 (21.4)	2 (7.1)	7 (25.0)	5 (17.9)
Total	194	47 (24.2)	27 (13.9)	41 (21.1)	31 (16.0)

Source: WHO Global Information System on Alcohol and Health.

At the time of writing, we are aware of three jurisdictions where cancer warnings on alcohol containers have been or will be introduced: South Korea, the Republic of Ireland (pending), and Yukon (which briefly trialed a cancer warning). At least 47 WHO member countries have some kind of requirements for warning labels (WHO, 2019),although only South Korea currently requires these to mention cancer (Table 1). The U.S. warning label introduced in 1989 refers only to an increased risk of general health problems (Greenfield, 1997). Canada has no requirements for alcohol warning or ingredient labeling, in sharp contrast to both tobacco and cannabis packaging (Figure 1).

In South Korea, Ireland, and Yukon, there were, or continue to be, legal maneuvers by alcohol industry groups to prevent, delay, or water down implementation of the warning messages. The industry's legal arguments have been made using both domestic and international law, with the latter involving concerns being raised in the World Trade Organization by members such as the European Union and the United States. In the present article, we address the nature and merits of the industry's arguments raised and the impact they have had on government labeling policies.

Case study: Yukon alcohol labeling study

In December 2018, the Yukon government in Canada yielded to alcohol industry pressure to halt a Health Canada–funded study of cancer warning labels placed on alcohol con-

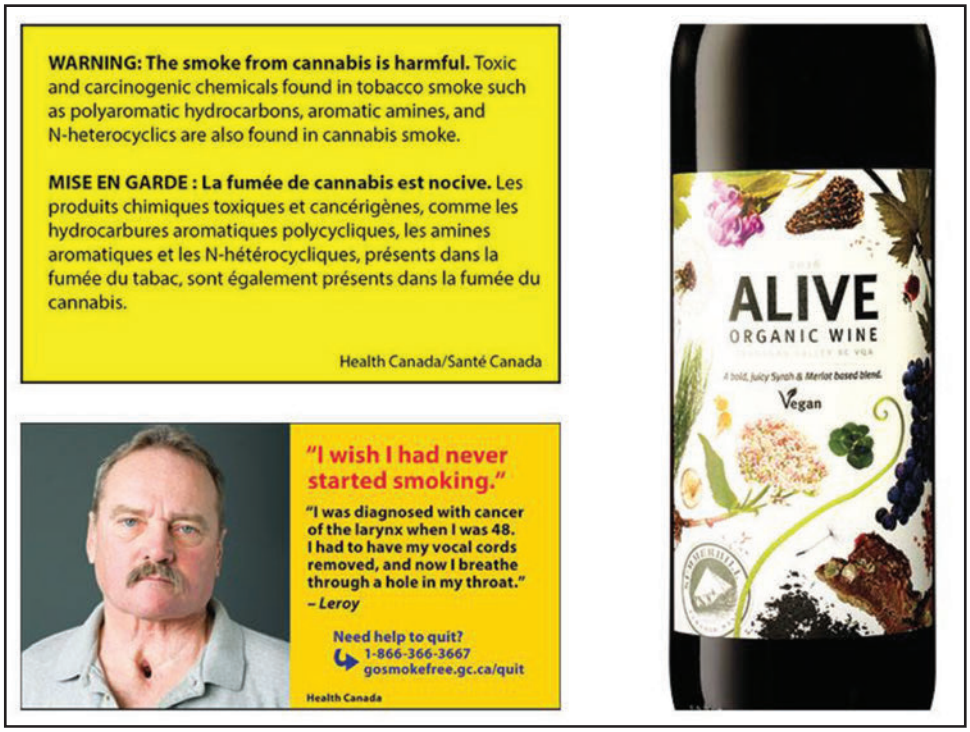

FIGURE 1. A comparison of Canadian labels for tobacco, cannabis, and alcohol products

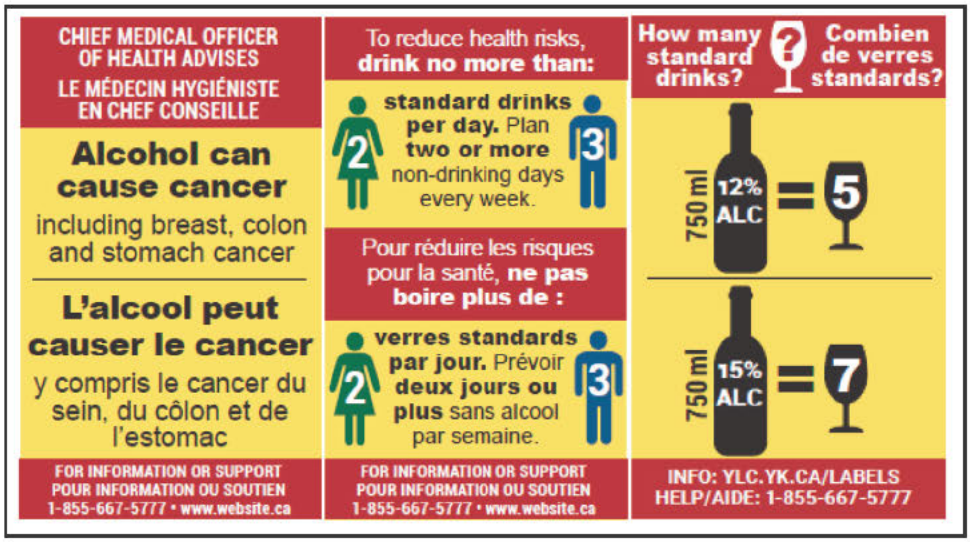

FIGURE 2. Warning labels trialed in Whitehorse, Yukon (5.0 cm × 3.2 cm)

tainers sold in the territory's capital, Whitehorse (*Whitehorse Star,* 2018). *The Globe and Mail* decried the industry action as "Shameful" (Picard, 2018). The study involved an 8-month intervention introducing three types of messages (Figure 2): (a) a warning that alcohol can cause cancer, with specific mention of two prevalent and often fatal cancers in Canada (breast and colon); (b) Canada's national low-risk drinking guidelines (Stockwell et al., 2012); and (c) information about standard drink contents of beverages to support consumers following the national guidelines. The evidence-informed labels were designed according to best practices for effective product warnings, including messages developed after testing prototypes on a panel of 2,000 Canadians (Hobin et al., 2018) and also focus groups of Yukon residents and stakeholders (Vallance et al., 2018). Approximately 47,000 containers were labeled with cancer warnings and 53,000 with national drinking guidelines between November 20, 2017, until the study was quietly halted on December 19, 2017. The three messages were to have been evaluated through analysis of alcohol sales data and surveys of liquor store customers in Whitehorse (intervention site) and Yellowknife, Northwest Territories (comparison site) (Vallance et al., 2020a). Both Yukon and Northwest Territories have placed post-manufacturer warning labels on containers regarding pregnancy risks. The Northwest Territories' labels included additional messages cautioning about impaired driving and general health problems. The labels have been required under a local directive since 1991 with no legal challenges to date (Figure 3). These territories also have the highest per capita alcohol consumption in Canada (Statistics Canada, 2018).

Subsequent to the industry intervention, the Yukon Minister responsible for Liquor publicly announced in February 2018 that the study could proceed provided that the cancer warning label was dropped (*Whitehorse Star,* 2018). He stated that although the evidence for the causal link between drinking and cancer was not in dispute, his government had limited resources and he was concerned about potential legal action by the Canadian alcohol producers. He undertook to raise the matter with Canada's federal health minister and subsequently wrote accordingly. The study restarted without the cancer labels and for a reduced overall intervention period of 4 instead of 8 months (Vallance et al., 2020a). However, even this abbreviated labeling intervention was associated with a significant increase in awareness of alcohol's cancer risk among surveyed liquor store patrons, with increased intentions to reduce consumption, greater support for pricing policies to reduce alcohol harm, and reduced alcohol sales (Hobin et al., 2020).

The research team subsequently received copies of email correspondence between Canadian alcohol industry lobbyists and the Yukon Liquor Corporation that led to the cessation of the cancer warnings. The email correspondence was originally obtained by the *Globe and Mail* through a Freedom of Information request. (Copies of all the original emails so obtained that were sent from alcohol industry representatives to the Yukon government can be viewed at: TK TK). These emails, along with media statements by alcohol industry representatives, a letter of complaint to the University of Victoria from a beer industry lobby group, and communications between the research team and the Yukon Liquor Corporation, revealed several industry claims about the legality of the labeling intervention. We selected three of the claims that were most prominent in our discussions with the Yukon Liquor Corporation and provide analyses below to show that these legal claims were groundless. Instead, our analysis suggests that Canadian governments that sell and/or distribute alcohol are legally obliged to inform consumers of potential health risks.

FIGURE 3. Warning labels implemented in Yukon and Northwest Territories since 1991

Claim 1: Yukon had no legislative authority to place health warnings on the alcohol products it sells

Under the 2002 *Yukon Act* (Canada), Canada's federal parliament transferred authority to the Yukon Legislative Assembly to enact laws in a broad range of fields that largely duplicate the provinces' legislative powers. Canadian provinces have ample legislative authority to undertake a warning label project or enact warning label legislation pursuant to their powers over property and civil rights, public health, and matters of a merely local or private nature ("United Kingdom, Constitution Act, 1867, (U.K.), 30 & 31 Vict., c. 3, at ss. 92(13), (7) and (16)"). Based on these powers alone, Yukon had legislative authority to implement the warning label project or indeed require all alcohol products to include detailed health and safety warnings.

Moreover, the *Yukon Act* expressly gives the Territory additional authority to enact laws regarding "intoxicants" and to control their importation (s. 18(1)(r) and (3)). It is ironic that the industry would raise this issue, considering that Yukon has broader and more direct authority over alcohol than any of Canada's 10 provinces. The industry's claim simply has no merit.

Claim 2: The warning label study violated the alcohol manufacturers' freedom of expression under Section 2(b) of the Canadian Charter of Rights and Freedoms (Charter). ("United Kingdom, Part I of the Constitution Act, 1982, being Schedule B to the Canada Act 1982 (U.K.), 1982, c. 11 [Charter].")

The *Charter* has enshrined freedom of expression and many other rights in Canadian constitutional law. The Constitution "is the supreme law of Canada" and any federal, provincial, or territorial law that is inconsistent with "the Constitution is, to the extent of the inconsistency, of no force or effect" (s. 52). Consequently, the alcohol manufacturers could challenge the warning label study if they could prove that it violated their freedom of expression. However, the rights and freedoms in the *Charter* are not absolute, but rather may be justifiably limited under Section 1 of the *Charter*.

The Territorial Liquor Authority is attaching its own labels to alcohol products that it has purchased from the alcohol manufacturers. This is not a case of compelled speech. The cancer warning is expressly attributed to the Chief Medical Officer of Health. It may be inferred that the low-risk drinking guidelines also reflect the government's views. In these circumstances, there is no infringement of the manufacturers' freedom of expression.

The legal analysis would differ if Yukon required alcohol manufacturers to attach warning labels to their products. The Supreme Court of Canada has indicated that such legislation would likely limitthe alcohol manufacturers' freedom of expression. ("RJR-MacDonald Inc. v. Canada (Attorney General)," 1995). However, the manufacturers would have no remedy under the *Charter* if the government could establish, pursuant to Section 1, that this infringement was a reasonable limit "prescribed by law as can be demonstrably justified in a free and democratic society."

Although commercial speech is protected by Section 2(b), it is not considered to be as important as political and other categories of expression. For example, the Supreme Court of Canada held that federal legislation banning almost all tobacco advertising and sponsorship, and requiring prominent health warnings and graphic images of tobacco-related diseases on all tobacco products constituted a justifiable limit on Section 2(b). Among other things, the Court stated that the commercial expression infringed was of "low value" (Klar, 2012). It is worth noting that the required rotating, full color, graphic images had to occupy at least 50% of the principal display surfaces (this was subsequently increased to 75%).

Claim 3: The Yukon government can be held liable in defamation for claiming that alcohol use can cause cancer

The common law tort action of defamation protects the reputation of individuals, corporations, and businesses from untrue and unjustifiable attacks, but it does not apply to products. Rather, such claims must be brought pursuant to a tort action in "injurious falsehood" ("slander of goods"). To succeed in injurious falsehood, the manufacturers must prove that the statement was factually untrue and that the government made the statement maliciously (i.e., knowing it to be untrue or for an improper purpose).

It is extremely unlikely that the industry could establish either element of this claim. For example, the fact that the industry does not believe that alcohol can cause cancer or believes that there are more effective ways of educating the public is irrelevant. Rather, the manufacturers must prove, on the balance of probabilities, that alcohol cannot cause cancer. Since the scientific literature has been interpreted by international cancer experts as providing definitive proof of alcohol's causal role, such a case could not be proven. There is nothing in the scientific literature suggesting that this could be proven.

The second element of the action would be equally difficult to prove. The cancer warning labels and low-risk guidelines are framed as health cautions or advisories. It is difficult to see how the manufacturers would be able to prove that the health officials responsible for these statements were knowingly lying or were secretly motivated by ill will or spite toward the industry (Klar, 2012).

Conclusions on the legality of alcohol cancer warnings in Yukon and Canada generally

Given that individuals are generally permitted to sue anyone for anything, the industry could sue the Yukon government. Although none of the industry's claims had any merit, the attempt to derail the warning label study raises a fourth legal issue that the Yukon government should seriously consider—namely, its potential civil liability for failing to adequately inform consumers of the risks posed by the alcohol products that it sells.

Canadian manufacturers and suppliers have long had a common law duty to inform consumers of the risks inherent in using their products. They must warn of risks of which they know or ought to know ("Allard v. Manahan (1974), 46 D.L.R. (3d) 614 (B.C.C.A.).," 1974; "Lambert v. Lastoplex Chemicals Co. (1971), 25 D.L.R. (3d) 121 (S.C.C.) [Lambert]," 1972; "O'Fallon v. Inecto Rapid (Canada) Ltd., [1940] 4 D.L.R. 276 (B.C.C.A.)," 1940) and of risks in both the use and foreseeable misuse of their products("Lem v. Barotto Sports Ltd. (1976), 69 D.L.R. (3d) 276 (Alta. C.A.)," 1976; "Walford v. Jacuzzi Canada Ltd. (2007), 87 O.R. (3d) 281 (C.A.)," 2007). Manufacturers are required to be experts in their field and to undertake research, or at least keep current with the existing scientific and industry literature ("Buchan v. Ortho Pharmaceutical (Can.) Ltd. (1986), 35 C.C.L.T. 1 (Ont. C.A.) [Buchan]," 1986). They cannot gloss over or otherwise obscure the risks; nor will a vague, generalized warning be sufficient("Buchan v. Ortho Pharmaceutical (Can.) Ltd. (1986), 35 C.C.L.T. 1 (Ont. C.A.) [Buchan]," 1986; "Lambert v. Lastoplex Chemicals Co. (1971), 25 D.L.R. (3d) 121 (S.C.C.) [Lambert]," 1972).

Several factors will contribute to the high standard of disclosure expected regarding alcohol. First, the Canadian courts have held that the disclosure standards are particularly onerous for products intended for human consumption ("Arendale v. Canada Bread Co, [1941] 2 D.L.R. 41 (Ont. C.A.)," 1941; "Heimler v. Calvert Caterers Ltd. (1975), 8 O.R. (2d) 1 (C.A.),"1975; "Rae and Rae v. T. Eaton Co. (Maritimes) Ltd. (1961), 28 D.L.R. (2d) 522 (N.S.S.C.)," 1961; "Zeppa v. Coca-Cola Ltd., [1955] 5 D.L.R. 187 (Ont. C.A.)," 1955). Second, the required warning or disclosure must be commensurate with the probability and severity of the risks. If either the probability or severity of the risks is high, the manufacturer and supplier will be held to a stringent standard. Third, a higher standard of disclosure is required if the specific risk is not generally known to the public and the product is mass marketed to potentially vulnerable consumers ("Buchan v. Ortho Pharmaceutical (Can.) Ltd. (1986), 35 C.C.L.T. 1 (Ont. C.A.) [Buchan]," 1986; "Lambert v. Lastoplex Chemicals Co. (1971), 25 D.L.R. (3d) 121 (S.C.C.) [Lambert]," 1972).

As a supplier of alcohol, the Yukon Liquor Corporation has a common law duty to adequately inform its customers, and the standard of disclosure is likely to be rigorous, given the probability and severity of the risks associated with binge drinking and heavy habitual consumption. The successful $15 billion Québec class-action suit against three tobacco manufacturers provides ample reason for alcohol manufacturers and suppliers to reassess their potential liability very carefully ("Létourneau c. JTI-MacDonald Corp., 2015 QCCS 2382," 2015). Although this tobacco case is currently being appealed, it is only a matter of time before similar suits are brought against alcohol manufacturers and the provincial and territorial liquor authorities that sell their products.

By challenging Yukon's relatively modest alcohol warning study, the alcohol industry has inadvertently raised legal issues that should galvanize Canada's other provinces and territories to immediately enact comprehensive alcohol warning label legislation.

International trade law, Korea, Ireland and cancer warning labels for alcohol

International trade law has also been used to place pressure on countries wanting to introduce alcohol warning

labels about cancer. In the World Trade Organization's Committee on Technical Barriers to Trade, two cancer warning label proposals have been subject to forceful opposition from major alcohol-producing nations, including the United States, the European Union, Australia, New Zealand, Mexico, Argentina, and Chile.

In 2016, South Korea proposed to enhance its container warnings cautioning about alcohol use and cancer risk. Korea already had warnings in place that stated that "Excessive consumption of alcohol may cause liver cirrhosis or liver cancer." Korea proposed three new labels, two of which mentioned cancer in sites other than the liver. One label read, ". . . Alcohol is [a] carcinogen, so excessive drinking causes liver cancer, gastric adenocarcinoma and so on . . . ." The other read, ". . .excessive drinking cause[s] cancer . . . ." (International Alliance for Responsible Drinking, 2019). The risks of cancer were mentioned in addition to other risks from alcohol, including those relating to drinking during pregnancy (International Alliance for Responsible Drinking, 2019). In 2018, the Republic of Ireland amended its Public Health (Alcohol) Bill with a proposal for alcohol labels to warn of "the direct link between alcohol and fatal cancers" (Public Health [Alcohol] Act 2018[Ireland], 2018).

Both countries have now enacted their proposals, but not before heavy argument against the warnings in the Technical Barriers to TradeCommittee. To be clear, the World Trade Organization's Technical Barriers to Trade Committee is not a formal legal forum but provides a place for robust dialogue and debate between World Trade Organization member states about policy proposals, including those relating to labeling. Member states may choose to modify or maintain their policy proposals after the Technical Barriers to TradeCommittee deliberations, but policies that are not subject to appropriate amendments face the possibility of a formal challenge through the World Trade Organization's dispute resolution system.

The legal issue being raised in the Technical Barriers to Trade Committee is that the South Korean and Irish warnings about cancer are "more trade restrictive than is necessary to fulfil a legitimate objective"(Marrakesh Agreement Establishing the World Trade Organization, 1995). The labels are said to constitute an unnecessary interference with international trade because there is no scientific evidence to support such warnings as an effective public health measure that will make a contribution to addressing alcohol-related harm. Mexico argued against South Korea that the warnings did not provide clear information to the consumer, asserting there is "no scientific evidence establishing such a causal link [between alcohol and cancer], since epidemiological studies pointed to a wide range of cancer risk factors, including family history, genetics, lifestyle and environmental factors" ("Committee on Technical Barriers to Trade. Minutes of the Meeting of 10-11 November 2016," February 17, 2017). Mexico further challenged the South Korean label on the basis that "moderate consumption of alcohol was also regarded as an important part of a healthy lifestyle" in scientific studies ("Committee on Technical Barriers to Trade. Minutes of the Meeting of 10-11 November 2016," February 17, 2017). Australia has just spent 5 years in the World Trade Organization defending its support of tobacco plain packaging, another measure that seeks to control the industry's use of the product package for marketing purposes. However, presumably in protection of its strong wine and beer sectors, Australia has expressed concern that translations of the Korean warnings suggested a "direct link" between cancer and drinking alcohol. They "suggested that the label [should] be drafted in a way that would reflect scientific consensus on the issue" ("Committee on Technical Barriers to Trade. Minutes of the Meeting of 10-11 November 2016," February 17, 2017).

No formal challenge against the South Korean cancer warning labels was initiated. Although the actual wording of the labels did not change, there were several aspects to the initiative that might have been designed to appease alcohol-producing states and their industries. First, South Korea only required producers to use one of the three new warnings on their products and allowed producers to choose the one they preferred. One of the warnings does not mention cancer at all. Presumably, the industry would choose the label that it considers least influential on consumers' drinking behaviors ("Committee on Technical Barriers to Trade. Minutes of the Meeting of 29–30 March 2017," June 2, 2017). Second, South Korea provided a significant transition period. No product that was in the country by February 2018 need bear the new warnings ("Committee on Technical Barriers to Trade. Minutes of the Meeting of 21–22 March 2018," May 22, 2018). Third, South Korea has not included graphics or images with its cancer warnings and has set no presentation or rotation requirements for the warnings. This may have placated the industry (O'Brien, 2018), because, in the absence of such rules, the industry is free to bury the warnings among other label information as is the case with the mandatory U.S. warning label. But it should be noted that South Korea has recently announced graphic tobacco-style warning labels about the risks of drinking and driving (Yonhap, 2018). This may be a first step toward graphics accompanying all of its alcohol warnings.

There is more chance of a World Trade Organization challenge to Ireland's measures. Although the exact content and design of its cancer warnings are still to be determined, there is a requirement for a warning "to inform the public of the direct link between alcohol and fatal cancers." The responsible Minister has the power to prescribe the form of the warnings, including their size, color, and font (Public Health [Alcohol] Act 2018 [Ireland], 2018). The Food Safety Authority of Ireland recently conducted a public consultation in which it called for evidence about the effectiveness of putting cancer warnings on alcoholic beverage containers(Food

Safety Authority of Ireland, 2019). There is so far no report from the public consultation. If industry is unhappy with the features prescribed by the Minister for the cancer labels, a challenge is not unlikely, either through the World Trade Organization or at the EU level as happened with Scotland's alcohol minimum unit price law (MacCulloch, 2017). At the last minute, Ireland ditched a proposal requiring that the warning labels constitute one third of the label space (European Commission, 2018). To protect its cancer labeling regime from formal legal challenge, it will be important that Ireland draw on the evidence about effective warning label design and implementation when establishing its alcohol labeling rules.

Discussion

Initially, it may seem surprising that, 30 years after the world's leading authority on cancer declared ethanol to be a Class 1 carcinogen, so few governments have acted to ensure that consumers are aware of this important fact. In this essay, we have provided some concrete examples of the ways in which powerful alcohol industry groups work hard at the regional, national, and international level to keep their customers in the dark about the cancer risk from alcohol. In Yukon, Canada, a government-funded scientific study to evaluate the potential impact of cancer and other warning labels was shut down following industry complaints and implied legal action. Analyses presented here show that not only did industry's complaints have no legal merit, but that Canadian governments actually expose themselves to potential civil liability by failing to inform consumers of such serious health risks. This is likely to be an issue in any jurisdiction where the government is involved in the sale and/or distribution of alcohol. On the international stage, only South Korea has successfully implemented some form of cancer warning on alcohol containers. However, industry complaints supported by sympathetic World Trade Organization governments appear to have watered these down by allowing producers to choose which of three labels to post. The Republic of Ireland has plans to introduce the most comprehensive and effective set of health messages, including cancer warnings, but faces continuing legal opposition again from industry groups supported by the governments of alcohol-producing countries.

There are clear and obvious reasons why commercial groups with a vested interest in maintaining high levels of alcohol consumption should strive to prevent consumers from being fully aware of serious health risks from their product. Visible, impactful, and evidence-informed health labels designed according to best practices for effective product warnings can be seen as a pivotal public health intervention when it comes to reducing the considerable harms from alcohol consumption. Although evidence for the direct effectiveness of warning labels in reducing consumption has, until recently, been underwhelming (Stockwell, 2006), there are multiple reasons to reevaluate their potential importance. First, until recently, the most studied real-world policy experiment was that of the U.S. warning labels, which can be faulted on multiple grounds: These labels have not been changed in 30 years, they are text only and in small font, the wording is stilted and technical, and they do not have to be prominently placed on containers (Alcoholic Beverage Health Warning Statement, 2008). Second, even if labels alone have no direct impact on consumption, there is new evidence that media awareness campaigns on alcohol's cancer risk can contribute to increased public support for more directly effective policies such as raising prices and limiting availability (Buykx et al., 2016). Third, the emerging evidence from the Yukon study is that even though placing cancer warnings on alcohol containers had to be stopped, after just 47,000 containers were labeled over 30 days, both the survey and sales data indicate significant reductions in alcohol consumption during the intervention relative to comparison sites (Hobin et al., 2020; Zhao et al., 2020). Furthermore, there was evidence that consumers whose awareness of the cancer risk was raised by the intervention were then almost twice as likely to support minimum unit alcohol pricing (Weerasinghe, 2020). These positive outcomes point to the importance of effective label design in terms of visibility, impact, and message salience, all of which were superior to the present U.S. warning labels. All of this said, the consumer's right to know about the content of the products they are consuming does not depend on the evidence of the effectiveness of the label on behavior or intermediary variables.

There is clearly much at stake for the alcohol industry, which motivates them to oppose placing accurate health warning information on their products. To date the industry has clearly been effective in persuading governments to protect its commercial interests over the interests of health and safety. This is especially true in North America, where it was recently reported that, contrary to other cancer societies, only the American and Canadian Cancer Societies fail to state on their websites that alcohol is a Class 1 carcinogen (Amin et al., 2018).

Petticrew et al. (2018) and Pettigrew et al. (2018) have recently documented how the alcohol industry has adopted many of the same tactics that the tobacco industry used a generation ago to deny and distort the evidence of cancer risk associated with its products. Specifically, the following general types of industry tactics were identified, the first two of which were clearly used in the Yukon case: (a) denial/omission: denying, omitting or disputing the evidence that alcohol consumption increases cancer risk; (b) distortion: mentioning cancer, but misrepresenting the risk; and (c) distraction: focusing discussion away from the independent effects of alcohol on common cancers. Each of these tactics was also used throughout the media coverage of the cancer warning issue in both Yukon and Ireland (Vallance et al., 2020c). One consequence of a further 30 years of inaction

could be the prospect of similar multibillion-dollar lawsuits brought against not only alcohol producers but also governments that have been involved in the distribution and retail sale of alcohol.

The evidence on alcohol warning labels clearly needs to be strengthened by conducting more real-world alcohol policy experiments. Ireland in particular has the opportunity to lead the way with evaluations of mandated health warnings that provide clear and impactful information to consumers. Combined with strengthening causal associations between alcohol use and a growing number of cancers, such evidence may be used by public health advocates nationally and internationally to persuade both regional and national governments to better serve their citizens by providing them with essential information to protect their health.

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News Media and the Influence of the Alcohol Industry: An Analysis of Media Coverage of Alcohol Warning Labels With a Cancer Message in Canada and Ireland

KATE VALLANCE, M.A.,[a,*] ALEXANDRIA VINCENT, R.N.,[b] NOUR SCHOUERI-MYCHASIW, PH.D.,[c] TIM STOCKWELL, PH.D.,[a] DAVID HAMMOND, PH.D.,[d] THOMAS K. GREENFIELD, PH.D.,[e] JONATHAN MCGAVOCK, PH.D.,[f] & ERIN HOBIN, PH.D.[c,g]

[a]*Canadian Institute for Substance Use Research, University of Victoria, Victoria, British Columbia, Canada*
[b]*University of Guelph, Guelph, Ontario, Canada*
[c]*Health Promotion, Chronic Disease and Injury Prevention, Public Health Ontario, Toronto, Ontario, Canada*
[d]*School of Public Health & Health Systems, University of Waterloo, Waterloo, Ontario, Canada*
[e]*Alcohol Research Group, Public Health Institute, Emeryville, California*
[f]*Department of Pediatrics and Child Health, Faculty of Health Sciences, University of Manitoba, Manitoba, Canada*
[g]*Dalla Lana School of Public Health, University of Toronto, Ontario, Canada*

ABSTRACT. Objective: Media coverage of alcohol-related policy measures can influence public debate and is often more aligned with interests of the alcohol industry than public health. The purpose of this study was to examine the framing of news coverage of alcohol warning label (AWL) initiatives that included a cancer message on alcohol containers in two different countries. Policy contexts and industry perspectives were also evaluated. **Method:** We identified and systematically reviewed news articles published between 2017–2019 covering an AWL academic study in Yukon, Canada, and labeling provisions in a Public Health (Alcohol) Bill in Ireland. Both included a cancer message. News stories were coded for media type and topic slant; inclusion of alcohol industry perspectives was examined using content analysis. **Results:** Overall, 68.4% of media articles covering the Yukon Study ($n = 38$) and 18.9% covering the Ireland Bill ($n = 37$) were supportive of AWLs with a cancer message. The majority of articles in both sites presented alcohol industry perspectives (Yukon, 65.8%; Ireland, 86.5%), and industry arguments opposing AWLs were similar across both contexts. In articles with statements from industry representatives, the label message was frequently disputed by distorting or denying the evidence that alcohol causes cancer ($n = 33/43$). **Conclusions:** News coverage of AWLs with a cancer message was more supportive in Canada than Ireland, where alcohol industry perspectives were consistently foregrounded. Industry arguments opposing the cancer label bore similarities across contexts, often distorting or denying the evidence. Increasing awareness of industry messaging strategies may generate more critical coverage of industry lobbying activities and increase public support for alcohol policies. (*J. Stud. Alcohol Drugs, 81,* 000–000, 2020)

ALCOHOL CAUSES 3.3 MILLION DEATHS globally each year, with a substantial proportion attributable to cancer, producing significant societal harms and costs to governments and health systems worldwide (Baan et al., 2007; Bagnardi et al., 2015; Burton & Sheron, 2018; International Agency for Research on Cancer, 2010; Klein et al., 2019; Praud et al., 2016; World Health Organization, 2018). Recent projections show an increase in alcohol consumption internationally of up to 17% over the next decade, which will not only affect people consuming alcohol but also increase the exposure to harm of those around them (Karriker-Jaffe et al., 2018; Manthey et al., 2019). There are several population-level control measures (also known as "best buys"; e.g., increased alcohol pricing and taxation, reductions in physical availability, restrictions on marketing and advertising, and impaired driving countermeasures) that can be used as a response, are cost-effective, and have the strongest evidence for reducing alcohol-related harms, including cancer (Alattas et al., 2020; Chisholm et al., 2018; Foster et al., 2019; World Health Organization, 2013).

Governments often face political barriers to introducing alcohol control policies because of public pushback and opposition from powerful alcohol industry lobby groups (Hope, 2006; Li et al., 2017; Moskalewicz et al., 2013; Pechey et al., 2014). Lobbying from industry groups highlights an inherent conflict as a substantial portion of their sector's profits rely on harmful patterns of consumption and low consumer knowledge of cancer risk linked to alcohol (Bhattacharya et al., 2018; Casswell et al., 2016; Connor, 2017). Importantly, increasing public awareness of alcohol-related health risks such as cancer has been shown to improve public support for more restrictive policies (Bates et al., 2018; Buykx et al., 2015; Martin et al., 2018; Weerasinghe et al., 2020). Alcohol warning labels (AWLs) offer one avenue for providing this

Received: November 7, 2019. Revision: January 11, 2020.

This research was supported by Health Canada–Substance Use and Addictions Program #1718-HQ-000003. The views expressed herein do not necessarily represent the views of Health Canada. Thomas K. Greenfield was supported by National Institute on Alcohol Abuse and Alcoholism Grant No. P50 AA005595. International Registered Report Identifier (IRRID): RR2-10.2196/16320.

*Correspondence may be sent to Kate Vallance at the Canadian Institute for Substance Use Research, University of Victoria, P.O. Box 1700 STN CSC, Victoria, BC, Canada V8P 2Y2, or via email at: vallance@uvic.ca.

type of information directly to alcohol consumers—particularly higher volume consumers (Greenfield, 1997). Furthermore, AWLs, including those with a cancer warning, have evidence of public support (Hobin et al., 2018; Maynard et al., 2018; Miller et al., 2016; Pettigrew et al., 2014; Vallance et al., 2018).

News media is a strong influencer of public debate and can often shape public opinion and affect policymaking (Macnamara, 2005; McCombs & Shaw, 1972, 1993). This is especially true in relation to government efforts to introduce control measures designed to improve public health. There is a long history of the tobacco industry (Durrant et al., 2003; Miller et al., 2018)—and, more recently, the alcohol and sugar-sweetened beverage industries (Hilton et al., 2019)—using the media as a platform to promote their vested interests at the expense of public health interventions. The unhealthy commodity industries more generally have shown great adeptness at having their perspectives regularly included in news media coverage, often with the effect of slanting articles in their favor (Azar at al., 2014; Katikireddi & Hilton, 2015; Mercille, 2017). Researchers have identified a "playbook" of scripts and messaging strategies circulated by the unhealthy commodity industries through a variety of media channels—including industry trade magazines and public-facing industry-funded social aspects public relations organizations—designed to influence public opinion, manipulate the news agenda, and influence policymaking (Hilton et al., 2019; Lim et al., 2019; Maani Hessari et al., 2019; McCambridge et al., 2018; Mercille, 2017; Petticrew et al., 2017, 2018a, 2018b; Pettigrew et al., 2018).

The unhealthy commodity industries messaging strategies used by the alcohol industry via these different platforms have been shown to disseminate selective or false evidence and information designed to confuse or misdirect public understanding of health issues or minimize the perceived risk of their product (Lim et al., 2019; Maani Hessari et al., 2019; Petticrew et al., 2017, 2018a, 2018b; Pettigrew et al., 2018). A prime example is the alcohol industry's consistent misrepresentation of the established scientific evidence linking alcohol consumption with an increased risk of cancer. This misrepresentation often takes the form of disputing or denying the link; claiming the cancer risk is related only to heavier consumption; stating the evidence is too complex, insufficient, or debatable; and confusing the issue by claiming alcohol's protective effects (Hilton et al., 2019; Petticrew et al., 2017, 2018a, 2018b).

Alcohol industry messaging strategies specific to news media coverage—many of which were noted during the introduction of minimum unit pricing in Scotland—include questioning the legality of or overemphasizing the economic harms resulting from implementation of proposed control policies and making unsupported claims that the measures are ineffective or are not based on sound evidence (Hilton et al., 2014; Katikireddi & Hilton, 2015; Mercille, 2017). Further, industry media statements will often protest their exclusion from the design of public health interventions and highlight their involvement in voluntary initiatives and corporate social responsibility activities, such as campaigns with vague "responsible drinking" messages. Many will also offer suggestions of other "more appropriate" measures, most of which are industry friendly and/or shown to have little or no impact on alcohol consumption and harms (Babor et al., 2018; Fogarty & Chapman, 2012; Hilton et al., 2014; Katikireddi & Hilton, 2015; Mercille, 2017; Savell et al., 2016).

Although there is a growing body of research identifying tactics commonly used across the unhealthy commodity industries and in response to specific alcohol control measures such as alcohol pricing and marketing and advertising restrictions, to our knowledge there have been limited investigations of news media coverage of AWL policy initiatives (Lemmens et al., 1999) and none specific to AWLs with a cancer message. The purpose of this study was to examine news media coverage of alcohol labeling initiatives that included a cancer warning in Canada and Ireland and analyze the perspectives of the alcohol industry that were included in the articles. Specifically, objectives were to (a) compare the topic slant of mass media news coverage of alcohol industry interference with a cancer warning label that formed part of an academic study in Yukon, Canada ("the Yukon Study"), with coverage of cancer warning label provisions included in Ireland's Public Health (Alcohol) Bill ("the Ireland Bill") and (b) identify similarities and/or differences in the inclusion and content of the alcohol industry's response to AWLs with a cancer message within media coverage across both contexts.

Method

Context

Academic Study in Yukon, Canada ("the Yukon Study"). The authors of this article implemented a study funded by the federal health institution in Canada designed to test the effectiveness of three new evidence-informed AWLs that featured (a) a health message stating alcohol can cause cancer, including breast and colon cancers, (b) national low-risk drinking guidelines, and (c) standard drink information. The new labels formed part of a quasi-experimental study in Whitehorse, Yukon (intervention site) and Yellowknife, Northwest Territories (comparison site), both located in northern Canada (see Vallance et al., 2020, for full study protocol). Both sites had already been applying post-manufacturer text-based AWLs by local directive since 1991 cautioning about the risks of drinking during pregnancy; the Northwest Territories label carries an additional warning similar to that of the mandatory US label (Alcoholic Beverage Health Warning Statement, 2008) about impaired driving

and general health risks. The three new rotating labels were to be applied to alcohol containers in the only government-run liquor store in the intervention site for an 8-month period, whereas the two liquor stores in the comparison site continued usual labeling practices. (Images of all labels can be viewed at alcohollabels.cisur.ca.) The new labels were launched on November 20, 2017, but halted on December 19, 2017, because of alcohol industry interference (Wilt, 2018). The territorial government agreed to resume the study in February 2018 on the condition that the cancer warning label be permanently removed from rotation to avoid potential litigation by the alcohol industry (Joannou, 2018).

Public Health (Alcohol) Bill in Ireland ("the Ireland Bill")

The Public Health (Alcohol) Bill was first introduced into Irish parliament in 2015 as a public health measure to address high rates of alcohol consumption and related harm in the country. The Ireland Bill contained a number of alcohol control provisions, including minimum pricing; structural separation of alcohol from other products in stores; bans on alcohol sponsorship; restrictions on marketing and advertising; and mandatory health messaging on alcohol containers, including a cancer warning (Murray, 2017). The Ireland Bill's progress through parliament was delayed by 2 years as a result of intense lobbying from the alcohol industry. A revised version of the Ireland Bill was passed through the second stage in the lower house of parliament in 2017, dropping the provisions around sponsorship and amending some of the marketing and advertising restrictions (Mercille, 2017). The Ireland Bill passed through the committee stage in the upper house of parliament in March 2018 and amendments were proposed in June 2018, including the removal of the labeling provisions, and discussed in the upper house assembly in September of that year. The Ireland Bill reached the final stage of parliament and was passed into law in October 2018. A commencement order for some of the provisions (not including labeling) was signed on November 1, 2018.

Search parameters and record selection

The search period for news coverage of AWLs related to the Yukon Study was September 1, 2017, to August 15, 2018, covering 3 months before the media release announcing the launch of the new AWLs and 6 months after the media release announcing the study's resumption in February 2018. The search period for news coverage of AWLs related to the Ireland Bill was April 16, 2018, to April 30, 2019, covering the 6 months before and after the Ireland Bill was signed into law in October 2018. These timeframes were selected in accordance with the main media events connected to both contexts; each site had an approximately 1-year search period to ensure feasibility of the study parameters.

Six sets of search strings were developed to identify relevant media coverage of both the Yukon Study and the Ireland Bill (see search strings in Appendix A). (The appendices appear as online-only addenda to this article on the journal's website.) Separate searches for each string were run in Factiva, an electronic media database with comprehensive full-text coverage of both Canadian and European Union sources. Equivalent search strings were run in the web-based search engines Google and Google News, capturing the first 100 hits for each string; no date limits were set because web-based search engines can indicate date only in year segments (e.g., in the past year). A systematic strategy was used to manually determine eligible database and web-based records for inclusion based on PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines (Moher et al., 2009) (Figure 1). All remaining records were then screened for relevance based on title and subsequently assessed for eligibility with a full-text review. The following records were excluded: duplicates by story, articles that did not qualify as mass media or text-based news sources (as determined by the research team), articles that did not/only briefly mentioned the Yukon Study or the labeling provisions of the Ireland Bill, and articles with broken or missing hyperlinks or with registration or paywall barriers.

Coding and analysis

The coding structure to identify media type and topic slant for this analysis was developed based on previous studies (Azar et al., 2014; Mercille, 2017; Miller et al., 2018). Media type was coded by article publication source and included the following categories: (a) hard news, (b) web story, (c) commentary, and (d) blog (see Table 1 for media type definitions). Two of the authors (KV and AV) coded and discussed an initial subsample of articles by media type and subsequently independently coded the full sample with no divergences between coders. Topic slant was coded based on whether the stories' viewpoints were predominantly neutral, supportive, or opposed—or a mix of both supportive and opposed—toward AWLs with a cancer message included in the Yukon Study and the Ireland Bill (see Table 1 for code definitions). The same two authors coded an initial subsample of articles for topic slant ($n = 8$), resulting in a Cohen's κ score of .79, indicative of substantial agreement among coders (McHugh, 2012). Divergences were discussed with the team to achieve consensus, and the codebook was refined before final coding. Using the refined codebook, two of the authors (K.V. and N.S.M.) independently coded the full sample ($n = 75$), resulting in a Cohen's κ score of .90, representing near perfect agreement between coders (McHugh, 2012).

The number of articles was calculated by media type and topic slant, and the coded articles were grouped by calendar month for each of the two sites. The number of articles containing alcohol industry perspectives was then calculated,

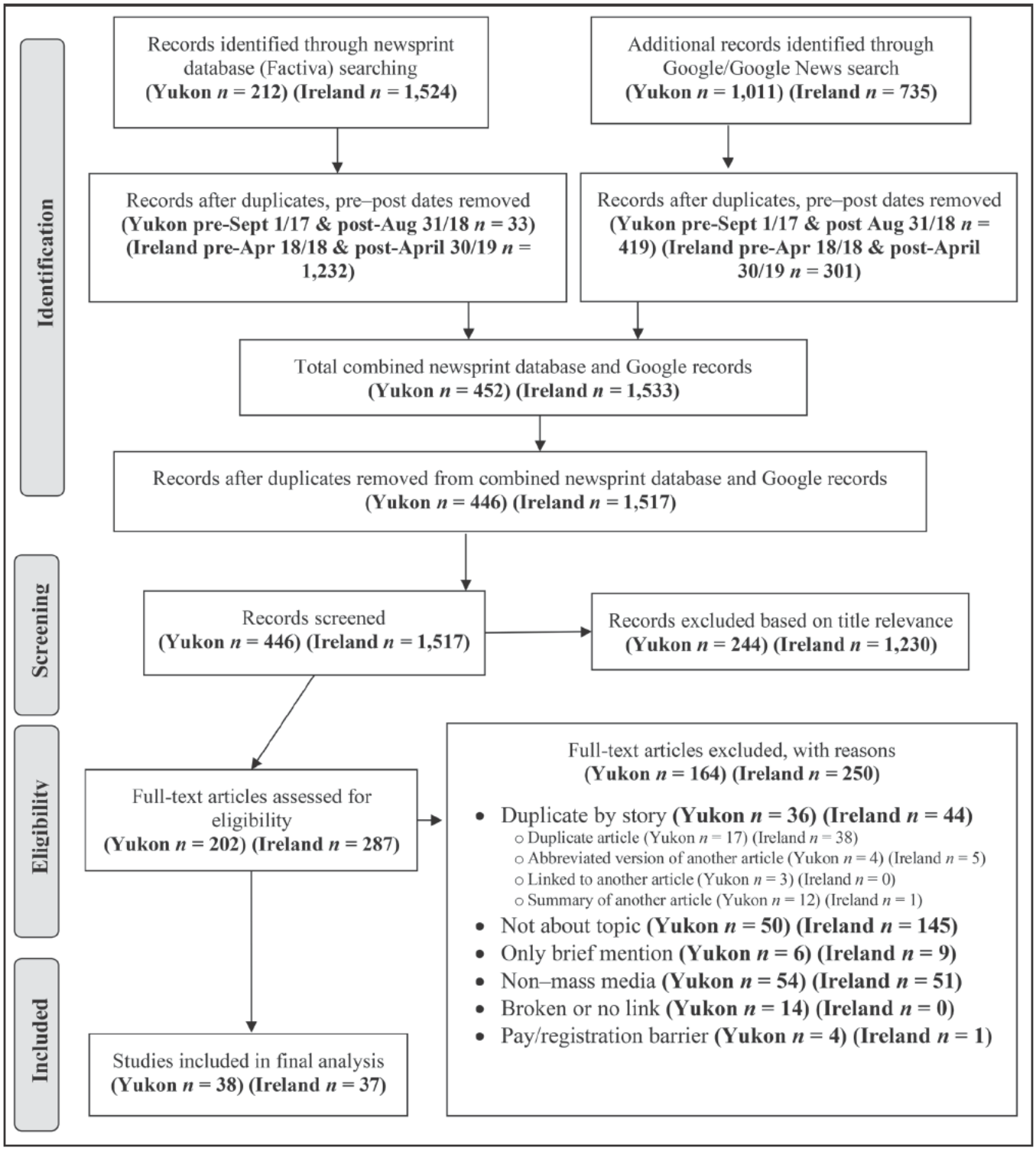

FIGURE 1. PRISMA article eligibility screening flow diagram—Yukon Study & Ireland Bill

Table 1. Definitions of media type and topic slant codes

Media type	Definition
Hard news	Factual articles not written as a comment, opinion, editorial, or letter and published in print or online by either a media group that offers a printed news publication or a wire service
Web story	Articles not written as a commentary and published online by a media group that offers neither a wire service nor a printed news publication
Commentary	Articles written as an editorial, opinion, or letter published in a hard news or web story platform
Blog	Articles published online through a platform such as a personal, organizational, or corporate website that is not primarily a mass media news platform
Code type	**Definition**
Supportive	• Contains a prominent public health perspective that includes information, evidence, or statistics about alcohol-related harms such as increased cancer risk and quotes or statements from health researchers, public health practitioners, or advocates that is mostly supportive toward the cancer label/Yukon Study/Ireland Bill • Contains minimal or no alcohol industry perspectives and any industry content is balanced with public health content
Opposed	• Contains a prominent alcohol industry perspective including quotes or statements from industry representatives or spokespeople that is mostly opposed toward the cancer label/Yukon Study/Ireland Bill • Contains minimal or no public health perspectives and industry content is not balanced by public health content
Mixed	• Contains both public health and alcohol industry perspectives but is not clearly supportive nor opposed toward the cancer label/Yukon Study/Ireland Bill
Neutral	• Contains largely factual information that is neither supportive nor opposed toward the cancer label/Yukon Study/Ireland Bill

and content analysis (Elo & Kyngäs, 2008) was conducted to inductively identify, group, and enumerate the most prominent alcohol industry arguments included in the news coverage. Industry *arguments* were defined as statements or quotes related to the AWLs attributed to specific alcohol industry representatives and spokespeople or related viewpoints attributed to the alcohol industry more broadly. In some cases, articles included multiple distinct industry statements or viewpoints that each contained multiple distinct arguments within; each of these arguments was recorded individually. The number of articles containing *direct* statements or quotes from industry representatives or spokespeople was also calculated, and the proportion of those disputing the evidence linking alcohol and cancer was identified.

Results

Type and overall topic slant of media articles

We identified 38 articles eligible for inclusion related to the Yukon Study (see Appendix B for full list of articles) during the set timeframe. Of those, two thirds (n = 25) were supportive of the Yukon Study and the cancer warning; more than half (n = 21) were published in hard news sources (Appendix C). The publication dates of articles related to the Yukon Study ranged from November 22, 2017, to June 21, 2018, with the majority published in January 2018 following the announcement that application of the study intervention labels at the liquor store had been halted as a result of alcohol industry pressure (Figure 2).

There were 37 eligible articles related to the Ireland Bill during the set timeframe (Appendix B). Of those, less than a quarter (n = 8) were supportive of the labeling provisions in the Bill and the cancer warning; more than half (n = 23) were published in hard news sources (Appendix C). The publication dates of the Ireland Bill articles ranged from April 19, 2018, to January 18, 2019, with nearly half (n = 17) published between August and September 2018 leading up to the proposed labeling amendments (including dropping the labeling provision) being debated in the parliamentary assembly (Figure 3).

Inclusion of alcohol industry perspectives in media articles

Two thirds (n = 25) of the Yukon Study media coverage and more than three quarters (n = 32) of the articles covering the Ireland Bill included the perspectives of the alcohol industry. The main industry actors represented in the Yukon Study coverage were the heads of Canada's three main national alcohol industry trade lobby associations: Beer Canada, Spirits Canada, and the Canadian Vintner's Association. The industry actors represented in the Ireland Bill media coverage were predominantly representatives from lobby groups, including the Alcohol Beverage Foundation of Ireland (ABFI) and the Irish Whiskey Association, as well as a variety of spokespeople from independent breweries and distilleries. Just over one third (n = 14) of the Yukon Study media articles and three quarters (n = 29) of the Ireland Bill articles contained *direct* statements or quotes from alcohol industry representatives or spokespeople.

Main industry arguments opposing AWLs: Distorting the evidence and cancer denialism

The most frequent alcohol industry argument opposing AWL common to the news coverage of both the Yukon Study

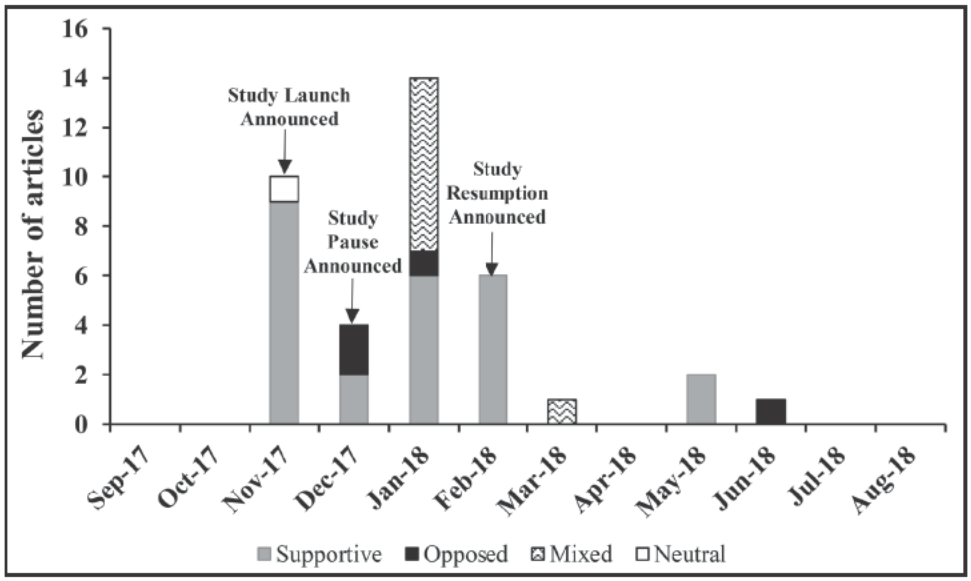

FIGURE 2. Topic slant of media articles 2017–2018, Yukon Study (n = 38)

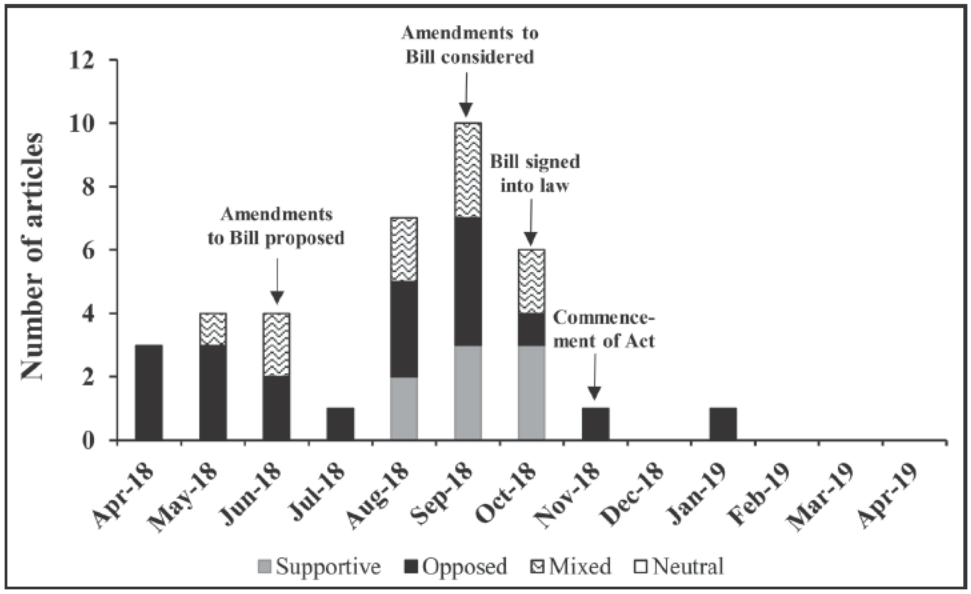

FIGURE 3. Topic slant of media articles 2018–2019, Ireland Bill (n = 37)

and the Ireland Bill was to attack the content and validity of the cancer label message itself (Table 2). Media articles consistently contained industry perspectives that distorted, downplayed, and otherwise obfuscated the evidence linking alcohol and cancer. In many instances, industry arguments claimed the cancer warning was inaccurate, unproven, and based on false or unsound evidence. Arguments also frequently highlighted risk factors for cancer aside from alcohol, stated that the alcohol–cancer evidence was "too complex for a single label," and alluded to alcohol's health benefits. A number of these arguments were often contained within a single statement or quote.

Of the 43 articles that contained *direct* statements or quotes attributed to alcohol industry representatives or spokespeople, nearly half distorted (n = 19/43) and one third denied (n = 14/43) the scientific evidence behind the cancer warning label. Denialism of the alcohol–cancer evidence is highlighted by comments from the president of Beer Canada who stated that: ". . . the (cancer) label they chose to use is inaccurate and misleading" and ". . . to claim that alcohol causes cancer, or can cause cancer, is not accurate . . ." (*National Post,* January 2, 2018). The president of Spirits Canada also indicated that "the content of the label that reads 'alcohol can cause cancer, including breast and colon

Table 2. Industry arguments opposing alcohol warning labels (AWLs) and the cancer warning mentioned in news articles

	Number of mentions	
Industry arguments	**Yukon Study**	**Ireland Bill**
Stating alcohol can cause cancer is inaccurate/misleading/unproven/ incomplete/overreach	18	25
Alcohol and cancer link is too complex for a single label	5	7
AWLs are not effective/there are better/less anti-trade alternative measures that industry supports	7	23
Alcohol has health benefits and AWLs should not just mention risk	5	11
Cancer labels will hurt or disadvantage alcohol industry (and small/craft breweries/distilleries) and will cause stigma/reputational damage	2	38
No legislative authority for applying AWLs and represents trademark infringement	28	3
Industry is being unfairly singled out with AWLs and cancer warning	2	7
Alcohol is not the same as tobacco	4	2
Industry not consulted about AWLs and should have input	4	1
Cancer labels will cause export/trade barriers and impede growth	0	31
Cancer labels are a disproportionate response not required in other countries	0	23
AWLs will be expensive/logistically difficult to implement	0	18
Defamation and damages resulting from applying label stating alcohol can cause cancer	12	0
National drinking guidelines label may increase consumption or encourage impaired driving	7	0
Academic study conducting biased/flawed research	7	0

cancers' is scientifically debatable . . ." and that "we're not very happy with the presentation that drinking alcohol in moderate or light amounts causes cancer. There's really no evidence of causality; there's some correlation evidence" (*Whitehorse Star,* January 5, 2018).

Further distortion and denialism of the evidence is illustrated by ABFI's chief who was quoted as saying: ". . . We are not in support of providing consumers with inaccurate and misleading information that causes confusion and damages business. The association between alcohol and cancer is complex and cannot be adequately explained in a single warning label. One drink does not give you cancer, so it is inaccurate to place a blunt warning on alcohol products to say that alcohol causes cancer . . ." (*Irish Sun,* June 19, 2018). The Irish industry lobby group's chief later stated that "The scientific evidence certainly doesn't warrant the direct link between alcohol and cancer . . . on the contrary low consumption was beneficial to health" (*Euractiv,* October 11, 2018).

Offering "better" alternatives to AWL initiatives

Industry arguments opposing the AWLs in the media coverage of both the Yukon Study and the Ireland Bill also frequently mentioned that there were other more effective and less anti-trade control measures that could be implemented or that industry had already voluntarily initiated (Table 2). The president of Spirits Canada stated that his group: ". . . supported the creation of low-risk drinking guidelines and there are better ways to communicate the risks associated with heavy drinking, including through advertising campaigns and alcohol sellers having conversations with their customers" (*Canadian Press,* January 3, 2018). Similarly, the head of the Irish Whiskey Association suggested that "alternative measures that are less harmful to trade, such as public information campaigns, education initiatives and specific targeted interventions, should be used to help tackle misuse" (*Drinks Industry Ireland,* September 4, 2018). ABFI's Chief further argued: "While we as an industry support the objectives of the Alcohol Bill to tackle harmful and underage drinking in Ireland, we are opposed to cancer warning labels and believe that the objectives of the Alcohol Bill could be achieved through more effective and less trade-restrictive means" (*The Irish Times,* August 2, 2018).

Questioning the legality of the AWLs and the design of the Yukon Study

By far, the most frequent industry arguments specific to the Yukon Study news coverage focused on alcohol industry concerns around the territory's legislative authority for placing "nonauthorized" AWLs on containers, potential trademark infringement resulting from AWLs, and defamation and damages related to the cancer label message. Other arguments centered on assertions that the Yukon Study team was conducting biased and "fatally flawed" research and on the industry's objection to not being consulted about the study or the AWL content and design (Table 2). The industry's expectation to have input was highlighted by comments from the president of the Canadian Vintner's Association

president who indicated, "There isn't opposition to labelling *per say* [sic], but the way that the labels were selected without consultation with industry and without consultation with the National Alcohol Strategy Advisory Committee that has expertise to ensure that the labels are accurate, and beneficial" (*Whitehorse Star,* January 5, 2018).

Putting economic interests and the Irish alcohol industry's reputation first

In Ireland, the industry's arguments against the cancer warning label focused heavily on a wide range of serious economic trade barriers they felt the cancer labels would create within the European Commission and across international markets. Additional arguments claimed that introducing a cancer warning label would severely hurt or disadvantage the Irish alcohol industry, would make Ireland a "global pariah," and was a disproportionate response "required nowhere else in the world" (Table 2). As the head of the Irish Whiskey Association commented in one article, "cancer warnings on alcohol products . . . will cause serious harm to the reputation of the Irish drinks industry . . . yet is unlikely to do anything to combat alcohol misuse or harmful drinking" (*Drinks Industry Ireland,* September 4, 2018). He later stated that the cancer label "imposes an internationally unprecedented stigma on Irish whiskey . . . which our competitors, the Scotch and Bourbon whiskey tourism industry, don't face" (*Irish Examiner,* January 14, 2019).

Discussion

This article explored media coverage of two AWL initiatives that included a cancer message and examined the alcohol industry perspectives presented within the news articles published across two geographical contexts. To our knowledge, very few studies have analyzed news coverage of AWLs, with this being the first specific to cancer warning labels. Media coverage of the Yukon Study in Canada and subsequent alcohol industry interference was largely supportive of the AWL study that included a cancer label. In contrast, news coverage of the cancer labeling provisions proposed in Ireland's Public Health (Alcohol) Bill was primarily negative and consistently foregrounded alcohol industry perspectives. There was only one article across both sites without a topic slant that was opposed, supportive, or a combination of both, suggesting that cancer labels represent a contentious policy measure that has the potential to elicit a strong and targeted media response from the alcohol industry across different geographical and policy contexts.

Perhaps the most important finding in this study is that alcohol industry arguments opposing the cancer warning label across news articles in both countries consistently attempted to undermine and obfuscate the well-established scientific evidence causally linking alcohol consumption to increased cancer risk. This finding is consistent with previous investigations of industry messaging shown to misrepresent the evidence around alcohol and cancer (Maani Hessari & Petticrew, 2018; Maani Hessari et al., 2019; Petticrew et al., 2018a, 2018b; Pettigrew et al., 2018) and use the complexity argument as a strategy to influence public perception and oppose policy measures (Hilton et al., 2019; Pettigrew et al., 2017). The blatant cancer denialism and distortion of the evidence are particularly striking given the breadth of the industry voices included in mainstream media and the documented dissemination of false and misleading information to the public by industry-funded social aspects public relations organizations in Canada and Ireland (Lim et al., 2019; Petticrew et al., 2018a).

Overall, the structure, format, and content of the arguments used by the alcohol industry to oppose AWLs and the cancer label in media coverage of the Yukon Study and the Ireland Bill was consistent with previously identified scripts that form part of the cross-industry playbook of messaging strategies (Hilton et al., 2019; Petticrew et al., 2017). Arguments often incorporated many rationales into a single statement and were repeated consistently, regardless of their veracity, which is a tactic of persuasion identified in media coverage of other alcohol control measures such as minimum unit pricing and marketing and advertising restrictions (Hilton et al., 2014; Katikireddi & Hilton, 2015; Mercille, 2017). Statements by industry representatives that attempted to redirect media messaging away from the AWL measures by claiming they were already making efforts to address harmful alcohol use and suggesting policy alternatives and responses deemed more effective and appropriate were also consistent with previous studies (Babor et al., 2018; Hilton et al., 2014, 2019; Katikireddi & Hilton, 2015; Mercille, 2017; Petticrew et al., 2017; Savell et al., 2016).

In Canada, the partial government monopoly controlling alcohol distribution and sale across most jurisdictions may be impeding development of the powerful industry lobby seen in Ireland (Thomas, 2012). Nevertheless, the national trade associations and industry-funded alcohol education organizations in Canada have historically been included in public health-related policymaking bodies such as the National Alcohol Strategy Advisory Committee (Paradis, 2016), which suggests they do hold measurable political sway. The lack of advance warning given to the Canadian alcohol industry about the academic study testing AWLs, and specifically the cancer label, may have limited their ability to initiate greater inclusion of their perspectives in the news coverage, especially at the time that the new labels were launched. The industry's repeated questioning of the legality of the AWLs is a strategy that has frequently been used to oppose other alcohol control measures (Hilton et al., 2014, 2019), but their implied threats of litigation against the Yukon government, which served to halt the labeling intervention, did not ultimately play to their favor in the news media.

This particular argument may have held less weight given no previous legal challenges had been directed at the Yukon (or neighboring Northwest Territories) government in their nearly 30-year history of applying after-market pregnancy warning labels to alcohol containers (Austen, 2018).

The pronounced inclusion of alcohol industry perspectives in the news coverage of the Ireland Bill is consistent with the broader political environment in which the Irish government's "social partnership model" has given the alcohol industry a powerful voice in opposing public health measures (Hope, 2006; Mercille, 2016). Similar to the current findings, an earlier examination of media articles published when the Ireland Bill was first introduced in 2015 showed that coverage focused substantially on economic rather than public health considerations (Mercille, 2017); economic arguments were also frequently used to oppose minimum pricing measures in Scotland (Hilton et al., 2014). The fairly industry-friendly news coverage of the bill may also point to the relatively recent emergence of a cohesive public health lobby in Ireland (Hope, 2006). The country's Minister for Health, however, has shown increasing evidence of the strength of this public health lobby, successfully shepherding the controversial Ireland Bill through parliament and most recently requesting that media outlets not include information provided by industry-funded social aspects public relations organizations in news stories related to alcohol (Baker, 2019).

In light of these findings, researchers and public health advocates engaging with the media may want to consider pairing the presentation of scientific evidence alongside likely tactics used in industry responses, such as those highlighted in this article, in anticipation of industry efforts to reframe public discourse and derail implementation of effective alcohol control measures (Fogarty & Chapman, 2012). This practice may also serve as an opportunity to increase awareness of the playbook of industry messaging strategies among journalists who are not as familiar with the alcohol policy arena and contribute to a shift toward more evidence-based public discourse and a more public health–friendly media environment.

Limitations

This study has several limitations. Despite some similarities, it is important to acknowledge that the contexts surrounding the two cancer warning label initiatives are quite different, with one forming part of a jurisdiction-specific academic research study and the other forming part of nationally proposed health legislation. The number of articles included in this analysis was relatively small (less than 40 articles per site) and also represents a specific time period; thus, the analysis was not able to capture the full breadth and depth of the media coverage of the Yukon Study and the Ireland Bill. Specific media platforms and search databases were used, and other sources may have yielded additional or alternative perspectives that were not identified here. Last, nuances specific to the Ireland Bill context may have been missed because the authors had more familiarity with the events surrounding the Yukon Study. Future investigations could build on the analysis of alcohol industry arguments in media coverage of AWLs by examining the public health perspectives not analyzed in the current article. In addition, detailed explorations comparing the depiction of two studies by the trade press could provide useful insight. Comparisons with media coverage of Australia's recently mandated pregnancy warning labels are also warranted.

Conclusions

Media coverage of the Yukon Study in Canada was largely supportive of AWLs with a cancer message, whereas coverage of the Ireland Bill was mainly opposed to the cancer labels and consistently foregrounded alcohol industry perspectives. Representatives of the alcohol industry in Canada and Ireland frequently made statements that distorted or unequivocally denied the validity of the labels' evidence-based cancer message. Across all news coverage, industry arguments opposing the cancer label were largely consistent with the cross-industry playbook known to be used to undermine effective public health policies. Engaging with news and other media to increase awareness of the alcohol industry's playbook of messaging strategies may enable public health researchers and advocates to generate more critical coverage of industry lobbying activities and increase public support for alcohol control measures.

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Baseline Assessment of Alcohol-Related Knowledge of and Support for Alcohol Warning Labels Among Alcohol Consumers in Northern Canada and Associations With Key Sociodemographic Characteristics

KATE VALLANCE, M.A.,[a,*] TIM STOCKWELL, PH.D.,[a] JINHUI ZHAO, PH.D.,[a] SIMRAN SHOKAR, M.P.H.,[b] NOUR SCHOUERI-MYCHASIW, PH.D.,[c] DAVID HAMMOND, PH.D.,[d] THOMAS K. GREENFIELD, PH.D.,[e] JONATHAN MCGAVOCK, PH.D.,[f] ASHINI WEERASINGHE, M.P.H.[c] & ERIN HOBIN, PH.D.[c,g]

[a]*Canadian Institute for Substance Use Research, University of Victoria, Victoria, British Columbia, Canada*
[b]*Canadian Agency for Drugs and Technologies in Health, Toronto, Ontario, Canada*
[c]*Health Promotion, Chronic Disease and Injury Prevention, Public Health Ontario, Toronto, Ontario, Canada*
[d]*School of Public Health & Health Systems, University of Waterloo, Waterloo, Ontario, Canada*
[e]*Alcohol Research Group, Public Health Institute, Emeryville, California, United States*
[f]*Department of Pediatrics and Child Health, Faculty of Health Sciences, University of Manitoba, Winnipeg, Manitoba, Canada*
[g]*Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada*

ABSTRACT. Objective: Evidence-informed alcohol warning labels (AWLs) are a promising, well-targeted strategy to increase consumer awareness of health risks. We assessed consumers' baseline knowledge of alcohol-related cancer risk, standard drinks, and low-risk drinking guidelines as well as levels of support for AWLs. We further assessed associations with sociodemographic factors. **Method:** Forming part of a larger study testing new evidence-informed AWLs in a northern Canadian territory compared with a neighboring territory, baseline surveys were completed among liquor store patrons systematically selected in both sites. Chi-square and multivariable logistic regression analyses were performed to assess outcomes. **Results:** In total, 836 liquor store patrons (47.8% female) completed baseline surveys across both sites. Overall, there was low knowledge of alcohol-related cancer risk (24.4%), limited ability to calculate a standard drink (28.9%), and low knowledge of daily (48.9%) and weekly (47.6%) low-risk drinking guideline limits. There was moderate support for AWLs with a health warning (55.4%) and standard drink information (51.0%), and lower support for low-risk drinking guideline labels (38.3%). No sociodemographic characteristics were associated with cancer knowledge. Identifying as female and having adequate health literacy were associated with support for all three AWLs; high alcohol use was associated with not supporting standard drink (adjusted odds ratio = 0.60, 95% CI [0.40, 0.88]) and low-risk drinking guideline (adjusted odds ratio = 0.57, 95% CI [0.38, 0.87]) labels. **Conclusions:** Few consumers in this study had key alcohol-related health knowledge; however, there was moderate support for AWLs as a tool to raise awareness. Implementation of information-based interventions such as evidence-informed AWLs with health messages including alcohol-related cancer risk, standard drink information, and national drinking guidelines is warranted. (*J. Stud. Alcohol Drugs, 81,* 000–000, 2020)

ALCOHOL IS CONSUMED BY more than two billion people worldwide, with global estimates anticipating up to a 17% increase in consumption over the next decade (Manthey et al., 2019). The harms associated with its use are significant, and, in 2016, alcohol contributed to an estimated 3.3 million deaths globally (World Health Organization, 2018), accounting for approximately 4% of all cancer deaths (Global Burden of Disease 2016 Alcohol Collaborators, 2018). In Canada, 78% (22 million) of individuals age 15 years and older reported consuming alcohol in the previous year (Statistics Canada, 2018), and an estimated 15,000 people died of alcohol-attributable causes, one third related to cancer (Zhao et al., 2015). Despite these serious and significant harms, there is low knowledge of alcohol-related health harms, such as increased cancer risk, both internationally and in Canada. Alcohol is often perceived by the public to be less harmful than other controlled substances such as tobacco unless consumed in very high amounts (Buykx et al., 2015; Canadian Cancer Society, 2015; Pettigrew et al., 2016; Rehm et al., 2014; Rundle-Thiele at al., 2013; Wiseman & Klein, 2019), when in fact cancer risk increases even at low levels of alcohol consumption, particularly for breast cancer (Shield et al., 2016). This perception is of even greater consequence when considered in light of Canadian data where 69% of respondents indicated they would decrease their consumption levels if they knew that alcohol increased cancer risk (Canadian Cancer Society, 2015). International studies have found that greater knowledge of alcohol-related

Received: November 22, 2019. Revision: March 5, 2020.

This research was funded by Health Canada–Substance Use and Addictions Program #1718-HQ-000003. The views expressed herein do not necessarily represent the views of Health Canada. Thomas K. Greenfield was supported by National Institute on Alcohol Abuse and Alcohol Grant No. P50 AA005595. International Registered Report Identifier (IRRID): RR2-10.2196/16320.

*Correspondence may be sent to Kate Vallance at the Canadian Institute for Substance Use Research, University of Victoria, P.O. Box 1700 STN CSC, Victoria, BC, Canada, V8P 2Y2, or via email at: vallance@uvic.ca.

harms, particularly cancer risk, is associated with being female, older age, higher socioeconomic status, and *health literacy*—defined as the ability to obtain and understand basic health information to make appropriate health decisions—as well as with lower levels of alcohol use (Buykx et al., 2015, 2016; Macdonald et al., 2011; Robb et al., 2009; Rundle-Thiele et al., 2013; Weiss, 2005).

Tools designed to inform alcohol consumers about minimizing alcohol-related health risks implemented in Canada and elsewhere include low-risk drinking guidelines (LRDG), which recommend daily and weekly consumption limits that are communicated using standard drink measurements (Butt et al., 2011; Kalinowski & Humphreys, 2016). However, to be effective, consumers must not only be aware of national drinking guidelines and the guidelines' recommended limits but also understand how to apply them in relation to their own alcohol consumption, which is not often the case (Bowden et al., 2014; Bowring et al., 2012; De Visser & Birch, 2012; Livingston, 2012; McNally et al., 2019; Rosenberg et al., 2018). Similar to other countries with national drinking guidelines, only approximately one quarter of Canadian adults are aware that the LRDG exist, and more than 39% regularly drink in excess of the weekly and 27% in excess of the daily limits, after adjusting for underreporting (McNally et al., 2019; Statistics Canada, 2012; Zhao et al., 2015). Alcohol containers sold in Canada are mandated to list only percentage alcohol-by-volume information. Thus, the number of standard drinks (in Canada, one standard drink equals 13.45 g of pure alcohol), which is the unit of measurement used to convey Canada's LRDG limits, is not provided on the alcohol container. The disconnect between the LRDG and the information currently listed on alcohol containers is likely one reason Canadian consumers are not aware of the LRDG and are unable to accurately monitor their alcohol consumption and comply with the recommended limits in the guidelines.

Presenting health messages on alcohol warning labels (AWLs) offers one relatively low-cost strategy to provide consumption information and to increase knowledge of alcohol-related risks, because heavier consumers are exposed to AWLs most often (Greenfield, 1997; World Health Organization, 2018). Previous experimental and laboratory-based studies have indicated that not only did AWLs displaying standard drink information and LRDG limits improve consumers' ability to estimate recommended consumption limits (Hobin et al., 2017; Osiowy et al., 2015), but adding labels with cancer warnings also decreased consumers' motivation to drink (Blackwell et al., 2018). Recent real-world evidence using data from subsequent waves of the current study further showed that exposure to such labels increased knowledge of alcohol–cancer risk and daily and weekly LRDG limits, and reduced overall alcohol consumption over time (Hobin et al., 2020; Schoueri-Mychasiw et al., 2020; Weerasinghe et al., 2020; Zhao et al., 2020). Importantly, as knowledge of alcohol-related harms increases, so too does support for AWLs and other effective alcohol control measures shown to reduce alcohol harm, such as increasing minimum pricing and restricting alcohol availability and marketing; women, those who are older, and those who consume less alcohol are more likely to support such policies (Bates et al., 2018; Buykx et al., 2016; Li et al., 2017; Macdonald et al., 2011; Moskalewicz et al., 2013; Pechey et al., 2014; Weerasinghe et al., 2020). Unfortunately, the majority of labels implemented on alcohol containers globally to date do not communicate these types of messages, nor do they follow best practices for effective product label design, such as being larger, being prominently displayed on the container, having full-color graphics or images, and including personally relevant and direct messages that are regularly rotated to prevent wear-out effects (Ferrence et al., 2007; Fong, 2001; Hammond, 2011; Hobin et al., 2018; Vallance et al., 2018).

The current analysis forms part of a larger quasi-experimental study designed to test the real-world effectiveness of new evidence-informed AWLs presenting a cancer warning, national drinking guidelines, and standard drink information in two cities located in the northern Canadian territories, Whitehorse, Yukon, and Yellowknife, Northwest Territories. The aim of this article is to assess baseline levels of alcohol-related knowledge and of support for AWLs among consumers in the experimental sites, as well as associations with key sociodemographic and alcohol drinking factors. Specifically, this article investigates the degree to which participants know that alcohol can cause cancer, the number of standard drinks in an alcohol container, and the sex-specific daily and weekly standard drink limits recommended in Canada's LRDG. The degree of support for labels on alcohol containers with a health warning, standard drink information, and Canada's LRDG is also examined.

Method

Study design

Yukon and Northwest Territories are two northern Canadian territories with similar alcohol distribution systems, population size and demographics, and patterns of alcohol consumption and related harm (higher than the rest of Canada) (Canadian Institute for Health Information, 2017; Canadian Substance Use Costs and Harms Scientific Working Group, 2018; Statistics Canada, 2011a, 2011b, 2018). Further, these two territories are the only jurisdictions in Canada to apply after-market alcohol warning labels by local directive since 1991 (Figures 1a–b) and have well-established labeling procedures (Canadian Institute for Health Information, 2017; Canadian Substance Use Costs and Harms Scientific Working Group, 2018; Statistics Canada, 2011a, 2011b, 2018). A baseline survey was conducted with

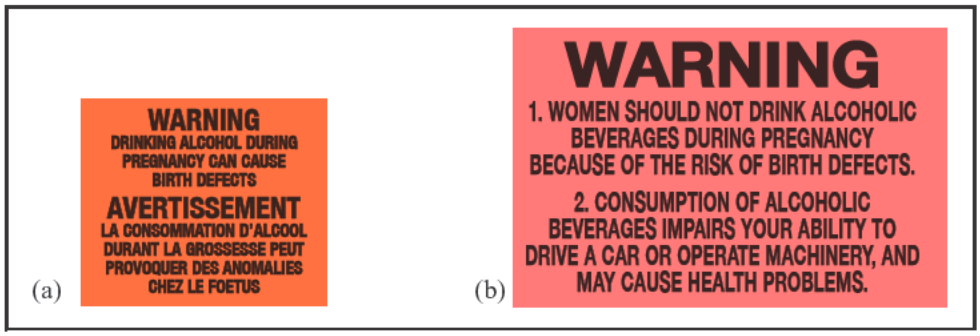

FIGURE 1. Alcohol warning labels on alcohol containers in (a) Yukon (2.3 cm × 2.8 cm) and (b) Northwest Territories (3.0 cm × 5.0 cm) since 1991

systematically selected liquor store patrons in the single government-run liquor store in the capital city of Whitehorse, Yukon (intervention site), and the two government-run stores in Yellowknife, Northwest Territories (comparison site), over a 6-week period in May and June 2017. The surveys formed part of a larger pre–post quasi-experimental study (see Vallance et al., 2020a, for full study protocol) testing the effectiveness of new enhanced evidence-informed AWLs with a cancer warning, national drinking guidelines, and standard drink information. The study was planned for an 8-month intervention in the one government-operated liquor store in the intervention site while usual labeling practices continued in the two government-operated liquor stores in the comparison site (Figures 2a–c).

Baseline survey participants were systematically recruited by trained research assistants (RAs) as they exited the liquor stores in the intervention and comparison sites, using a standard intercept technique of approaching every patron who passed a designated landmark. Surveys were administered on tablets in English and completed by participants independently without RA assistance. Up to two RAs recruited participants from Monday to Saturday (all stores are closed Sundays) between 10 A.M. and 6 P.M. in the intervention site and from 12 P.M. to 8 P.M. in the comparison site, covering comparable peak hours at both sites. Participants were screened for eligibility and had to be 19 years and older (legal drinking age in the two territories), had consumed alcohol in the previous month, had purchased alcohol at the liquor store the day of the initial recruitment, and did not self-report currently being pregnant or breastfeeding. Participants were offered a gift card in recognition of their time. The survey took an average of 18 minutes to complete, and participants were asked for email contact information to allow for email recruitment in subsequent waves of the study over the following year. Participants were recruited from the primary off-sale liquor stores in each city center in order to capture a broadly representative sample of adults purchasing alcohol in each site.

A total of 836 eligible participants were recruited and surveyed at baseline in the intervention (n = 505) and comparison sites (n = 331), with an overall response rate of 9.7% (American Association for Public Opinion Research, 2011). This response rate is consistent with other studies using a similar intercept technique (Hobin et al., 2017; Schneider, 2013; Wiggers et al., 2018). All recruitment and survey measures were consistent across the two sites. This study received ethics approval from the Research Ethics Board at Public Health Ontario (ID 2017-010.04) and the Human Research Ethics Board at the University of Victoria (Protocol 17-161), as well as the relevant research licenses required in Yukon and Northwest Territories.

Measures

Survey measures were adapted from items used in evaluations of the AWL in the United States, in Canadian nutritional labeling practices, and in studies of tobacco warning labels (Greenfield & Kaskutas, 1998; Greenfield et al, 1999; Hammond, 2011; Hobin et al., 2018; Laughery et al., 1993; Pettigrew et al., 2016; Thomas, 2012).

Knowledge that alcohol can cause cancer

To assess knowledge that alcohol can cause cancer, participants were asked, "Based on what you know or believe, can drinking alcohol cause breast cancer/liver disease/the flu/harm to a fetus? Yes/no/don't know"; only responses to the cancer item are reported here. Responses were dichotomized as 0 = *no/don't know* and 1 = *yes;* 5 (0.6%) participants answered "prefer not to say"/missing and were excluded from this analysis.

Knowledge of standard drinks in preferred beverage type

To assess knowledge of standard drink information, participants were asked to report the number of standard drinks in a container of their preferred beverage type. An image of a container of their preferred drink was shown on-screen, and the container label listed the volume in milliliters and the percentage alcohol by volume. The range of

FIGURE 2. Intervention alcohol warning labels: (a) cancer warning, (b) low-risk drinking guidelines, and (c) standard drink information (5.0 cm × 3.0 cm)

correct responses for the number of standard drinks was between 1.26 and 1.54 for beer, 4 and 6 for wine, 16 and 20 for distilled spirits, and 0.9 and 1.1 for ciders, which is 10% above and below the accurate number of standard drinks for each beverage type. Answers were dichotomized to 0 = *incorrect* and 1 = *correct;* 16 (1.9%) participants responded "prefer not to say"/missing and were excluded from this analysis.

Knowledge of sex-specific daily and weekly low-risk drinking guideline limits

To assess knowledge of sex-specific daily and weekly recommended drink limits in Canada's LRDG, participants were asked, "What is the daily (or weekly) limit of 'standard drinks' recommended for males/females (depending on identified sex) in Canada's Low-Risk Drinking Guidelines?" The number of daily or weekly standard drinks was entered as an open-ended item. The range of correct responses for women was two standard drinks or less (0–2) per day and 10 standard drinks or less (0–10) per week, and for men it was three standard drinks or less (0–3) per day and 15 standard drinks or less (0–15) per week. Responses were dichotomized as 0 = *incorrect* and 1 = *correct;* 10 (1.2%) participants responded "prefer not to say"/missing and were excluded from these analyses.

Support for alcohol warning labels with a health message, standard drink information, and low-risk drinking guideline limits

To assess support for AWLs on alcohol containers, participants were asked the degree to which they agree or disagree with the following: "Cans and bottles of alcoholic beverages should be labeled with warnings describing the link between alcohol and diseases, such as cancer"; "Cans and bottles of alcoholic beverages should be labeled with the number of standard drinks per container"; "Cans and bottles of alcoholic beverages should be labeled with low-risk drinking guidelines." Responses for the three support measures included a 5-point Likert scale, which was dichotomized as 0 = *neutral/disagree/strongly disagree/don't know* and 1 = *agree/strongly agree.* Eight participants (0.9%) for health messages and standard drink information and 10 participants (1.2%) for LRDG responded "prefer not to say"/missing and were excluded from these analyses.

Sociodemographic and alcohol drinking characteristics

Sociodemographic measures included age, sex, ethnicity (White, Aboriginal/other, and unknown), highest level of education attained (completed high school or less, and more than high school, and unknown), and annual household income (<CAD$60,000, ≥CAD$60,000, and unknown). (All amounts are in Canadian dollars.) Health literacy was measured using the Newest Vital Sign assessment tool (≤1–3, 4–6, and unknown); ≤1–3 correct responses represents limited/possibility of limited literacy, and 4–6 correct responses represents adequate literacy (Weiss et al., 2005). Pattern of alcohol consumption was measured using the quantity/frequency method (Heeb & Gmel, 2005). Participants were asked to indicate how often they drank alcoholic beverages in the past 6 months and how many drinks they usually drank per occasion. Responses were combined to provide a mean number of drinks per week and were categorized using Canada's LRDG weekly limits (≤10/15 female/male per week, >10/15 female/male per week, and unknown) (Butt et al., 2011).

Statistical analyses

Chi-square analyses (Cody & Smith, 1997) were conducted to assess differences in sociodemographic characteristics by site. To estimate predictors of knowledge that alcohol

Table 1. Sample characteristics of intervention (Yukon) and comparison (Northwest Territories) sites

	Total (n = 836)		Intervention (n = 505)		Comparison (n = 331)		
Variable	n	%	n	%	n	%	χ^2 (p)
Sex							
Male	436	52.15	255	50.50	181	54.68	1.40
Female	400	47.85	250	49.50	150	45.32	(.2359)
Age, in years							
19–44	376	44.98	192	38.02	184	55.59	24.93
≥45	460	55.02	313	61.98	147	44.41	(**.0001**)
Ethnicity							
Other	216	25.84	109	21.58	107	32.33	15.13
White	548	69.86	368	72.87	216	65.26	(**.0005**)
Unknown	36	4.31	28	5.54	8	2.42	
Education							
Completed high school or less	192	22.97	109	21.58	83	25.08	1.37
Above completed high school	623	74.52	382	75.64	241	72.81	(.4447)
Unknown	21	2.51	14	2.77	7	2.11	
Income[a]							
<$60,000	290	34.69	187	37.03	103	31.12	5.90
≥$60,000	465	55.62	264	52.28	201	60.73	(.0522)
Unknown	27	9.69	54	10.69	27	8.16	
Literacy							
≤3 correct responses	478	57.18	280	55.45	198	59.82	2.45
4–6 correct responses	322	38.52	205	40.59	117	35.35	(.2935)
Unknown	36	4.31	20	3.96	16	4.83	
Alcohol use							
≤10/15 for female/male per week	609	72.85	371	73.47	238	71.90	6.48
>10/15 per week	146	17.46	95	18.81	51	15.41	(**.0391**)
Unknown	81	9.69	39	7.72	42	12.69	
Total	836	100.00	505	100.00	331	100.00	

Notes: **Bold** indicates $p < .05$. [a]In Canadian dollars.

can cause cancer, of the correct number of standard drinks in a container, and of the correct daily/weekly LRDG limits, four separate multivariable logistic regression models were conducted. To estimate support for AWLs with a health message, standard drink information, and LRDG, three separate multivariable logistic regression models were conducted. Site as well as sociodemographic and alcohol drinking characteristics were entered as independent variables in all models. Adjusted odds ratios (AORs) and corresponding 95% confidence intervals (CIs) were estimated to quantify associations. Sociodemographic and alcohol drinking variables with "don't know"/"prefer not to say"/missing responses were treated as a separate "unknown" category in the analyses, and AORs and CIs are not presented for this category. As per agreement with the local territorial government partners, ethnicity is included in the sample description and is controlled for in the analyses but is not reported in the results. All analyses were performed using SAS 9.3 (SAS Institute Inc., 2011).

Results

In total, 836 participants completed the baseline survey, with 505 (60.4%) in the intervention site and 331 (39.6%) in the comparison site (Table 1). A higher proportion of participants 45 years and older were in the intervention site compared with the comparison site (62.0% vs. 44.4%, p = .0001). There was a significant difference in ethnicity, with a higher proportion of participants in the intervention than in the comparison site identifying as White (72.9% vs. 65.3%, p = .0005). A higher proportion of participants in the intervention site compared with the comparison site reported alcohol consumption above the recommended weekly LRDG limits (18.8% vs. 15.4%, p = .0391). There were no other significant differences between the two sites by key sociodemographic characteristics. Overall, 400 (47.9%) participants identified as female, 623 (74.5%) had higher than a high school education, 465 (55.6%) reported an annual household income of $60,000 or greater, and 322 (38.5%) participants had adequate health literacy.

Knowledge that alcohol can cause cancer

Overall, 204 (24.4%) participants knew that drinking alcohol can cause cancer, with no significant differences between intervention and comparison sites (Table 2). Of those that knew alcohol causes cancer, 100 (23.2%) were male and 104 (26.1%) were female; there was no significant difference between men and women for this outcome (AOR = 1.18, 95% CI [0.86, 1.63]). Results of the multivariable logistic regression model indicated no significant differences in cancer knowledge across sociodemographic factors.

Table 2. Baseline estimates of adjusted odds ratio (AOR) and corresponding 95% confidence interval (CI) of key knowledge outcomes

	A Know/believe that alcohol causes breast cancer		B Correctly identify no. of SD per container of preferred drink		C Correctly report daily LRDG limits		D Correctly report weekly LRDG limits	
Variables	*n* (%)	AOR [95% CI][a]	*n* (%)	AOR [95% CI][a]	*n* (%)	AOR [95% CI][a]	*n* (%)	AOR [95% CI][a]
Site								
Intervention	128 (25.50)	1.00	161 (32.46)	1.00	262 (52.51)	1.00	244 (48.61)	1.00
Comparison	76 (22.96)	0.89 [0.63, 1.24]	81 (25.00)	0.81 [0.56, 1.15]	147 (44.95)	0.76 [0.56, 1.04]	154 (47.53)	0.91 [0.68, 1.23]
Sex								
Male	100 (23.15)	1.00	78 (18.31)	1.00	219 (50.93)	1.00	206 (47.91)	1.00
Female	104 (26.07)	1.18 [0.86, 1.63]	164 (41.62)	**3.55 [2.55, 4.99]*** **	190 (47.98)	0.87 [0.65, 1.17]	192 (48.48)	1.02 [0.76, 1.35]
Age, in years								
19–44	92 (24.60)	1.00	84 (22.83)	1.00	180 (48.65)	1.00	187 (50.82)	1.00
≥45	112 (24.51)	1.00 [0.71, 1.39]	158 (34.96)	**1.79 [1.26, 2.56]** **	229 (50.22)	0.86 [0.63, 1.17]	211 (46.07)	**0.73 [0.54, 0.98]***
Education								
≤Completed high school	41 (21.35)	1.00	39 (20.86)	1.00	54 (29.35)	1.00	63 (34.05)	1.00
>Completed high school	157 (25.20)	1.19 [0.76, 1.81]	201 (32.42)	1.03 [0.66, 1.63]	353 (56.84)	**2.17 [1.48, 3.19]*** **	332 (53.46)	**1.78 [1.23, 2.58]** **
Unknown	6 (28.57)		2 (15.38)		2 (9.52)		3 (15.00)	
Income[b]								
<$60,000	72 (24.83)	1.00	55 (19.16)	1.00	120 (42.11)	1.00	127 (43.72)	1.00
≥$60,000	116 (24.95)	0.98 [0.68, 1.43]	171 (36.85)	**1.78 [1.19, 2.67]** **	266 (57.20)	1.27 [0.90, 1.78]	250 (53.88)	1.16 [0.83, 1.62]
Unknown	16 (19.75)		16 (23.19)		23 (30.26)		21 (26.92)	
Health literacy								
≤3 correct responses	118 (23.18)	1.00	92 (19.62)	1.00	196 (41.61)	1.00	205 (43.62)	1.00
4–6 correct responses	86 (26.71)	1.17 [0.83, 1.68]	140 (43.48)	**2.49 [1.74, 3.57]*** **	205 (63.66)	**1.65 [1.20, 2.28]** **	182 (56.52)	1.23 [0.90, 1.68]
Unknown	7 (19.44)		10 (34.48)		8 (24.24)		11 (32.35)	
Alcohol use								
≤10/15 female/male/week	148 (24.30)	1.00	203 (33.50)	1.00	335 (55.19)	1.00	321 (52.97)	1.00
>10/15 female/male/week	39 (26.71)	1.18 [0.77, 1.81]	32 (22.22)	0.87 [0.55, 1.40]	61 (42.66)	0.77 [0.51, 1.14]	60 (41.38)	0.71 [0.48, 1.05]
Unknown	17 (20.99)		7 (10.00)		13 (17.11)		17 (22.67)	

Notes: Canada's low-risk drinking guidelines recommend no more than 2 standard drinks (SDs) for women/3 for men (daily) and no more than 10 for women/15 for men (weekly). There were 5 participants in Analysis A, 16 in Analysis B, and 10 in Analyses C and D who answered "prefer not to say" or no response and who were excluded from the analyses. The correct SD category ranges were as follows: 1.26–1.54 standard drinks for beers, 4–6 for wine, 16–20 for distilled spirits, and 0.9–1.1 for ciders. Values 10% above and below the accurate number of SDs for wine were used as the "correct" category. **Bold** indicates statistical significance. [a]Estimates adjusted for one another; [b]in Canadian dollars.
*$p < .05$; **$p < .01$; ***$p < .001$.

Knowledge of standard drinks in preferred beverage type

A total of 242 (28.9%) participants correctly reported the number of standard drinks in a container of their preferred beverage type, with no significant differences between sites (Table 2). Regression results indicate that women (AOR = 3.55, 95% CI [2.55, 4.99]), those 45 years and older (AOR = 1.79, 95% CI [1.26, 2.56]), those with an annual household income of $60,000 or greater (AOR = 1.78, 95% CI [1.19, 2.67]), and those with adequate health literacy (AOR = 2.49, 95% CI [1.74, 3.57]) had greater odds, compared with the referent group, of correctly reporting the number of standard drinks in a container of their preferred beverage type.

Knowledge of sex-specific daily and weekly LRDG limits

Overall, 409 (48.9%) participants were able to correctly report the sex-specific daily LRDG limits, and 398 (47.6%) were able to report the sex-specific weekly LRDG limits (Table 2); there were no significant differences between sites. Regression results indicate that participants who reported having more than a high school education (AOR = 2.17, 95% CI [1.48, 3.19]) and with adequate health literacy (AOR = 1.65, 95% CI [1.20, 2.28]) had greater odds, compared with the referent group, of correctly reporting the daily LRDG limits. Participants 45 years and older (AOR = 0.73, 95% CI [0.54, 0.98]) had lower odds, compared with the referent group, of correctly reporting the weekly LRDG limits, and those with more than a high school education (AOR = 1.78, 95% CI [1.23, 2.58]) had greater odds, compared with the referent group, of correctly reporting the weekly LRDG limits.

Support for alcohol warning labels with health message, standard drink information, and low-risk drinking guideline limits

In total, 463 (55.4%) participants agreed or strongly agreed that alcohol containers should be labeled with AWLs including a health warning, 426 (51.0%) participants agreed or strongly agreed containers should be labeled with standard drink information, and 320 (38.3%) participants agreed or strongly agreed containers should be labeled with LRDG limits; there were no significant differences between intervention and comparison sites. Regression results indicate that participants who identified as female (AOR = 1.45,

Table 3. Baseline estimates of adjusted odds ratio (AOR) and corresponding 95% confidence interval (CI) of key support outcomes

	A Agree/strongly agree alcohol containers should be labeled with health warning		B Agree/strongly agree alcohol containers should be labeled with SD information		C Agree/strongly agree alcohol containers should be labeled with LRDG limits	
Variables	*n* (%)	AOR [95% CI][a]	*n* (%)	AOR [95% CI][a]	*n* (%)	AOR [95% CI][a]
Site						
Intervention	286 (57.43)	1.00	261 (52.30)	1.00	208 (41.77)	1.00
Comparison	177 (53.64)	0.93 [0.69, 1.27]	165 (50.15)	1.01 [0.75, 1.38]	112 (34.15)	0.80 [0.59, 1.09]
Sex						
Male	221 (51.16)	1.00	193 (44.78)	1.00	142 (33.10)	1.00
Female	242 (61.11)	**1.45 [1.09, 1.92]***	233 (58.69)	**1.70 [1.27, 2.27]*****	178 (44.84)	**1.55 [1.15, 2.07]****
Age, in years						
19–44	195 (52.42)	1.00	182 (48.40)	1.00	127 (34.42)	1.00
≥45	268 (58.77)	1.34 [0.99, 1.79]	244 (53.04)	1.21 [0.90, 1.64]	193 (42.23)	**1.49 [1.09, 2.02]***
Education						
Completed high school or less	104 (54.17)	1.00	78 (40.84)	1.00	57 (30.00)	1.00
Above completed high school	356 (57.33)	0.96 [0.67, 1.38]	346 (55.63)	**1.44 [1.00, 2.03]***	260 (41.80)	**1.75 [1.18, 2.58]****
Unknown	3 (20.00)		2 (13.33)		3 (21.43)	
Income[b]						
<$60,000	154 (53.29)	1.00	139 (48.26)	1.00	116 (40.28)	1.00
≥$60,000	270 (58.06)	0.96 [0.69, 1.34]	257 (55.27)	0.89 [0.63, 1.24]	176 (37.93)	**0.64 [0.45, 0.90]***
Unknown	39 (52.70)		30 (40.00)		28 (37.84)	
Health literacy						
≤3 correct responses	240 (50.31)	1.00	205 (42.89)	1.00	164 (34.45)	1.00
4–6 correct responses	208 (64.60)	**1.71 [1.25, 2.36]*****	207 (64.29)	**2.02 [1.47, 2.78]*****	146 (45.34)	**1.55 [1.12, 2.14]****
Unknown	15 (51.72)		14 (50.00)		10 (35.71)	
Alcohol use						
≤10/15 female/male per week	352 (58.09)	1.00	344 (56.77)	1.00	254 (41.91)	1.00
>10/15 per week	77 (52.74)	0.91 [0.62, 1.33]	59 (40.41)	**0.60 [0.40, 0.88]****	43 (29.66)	**0.57 [0.38, 0.87]****
Unknown	34 (44.74)		23 (30.26)		23 (30.67)	

Notes: There were 8 participants in Analysis A, 8 in Analysis B, and 8 in Analysis C who answered "prefer not to say" or no response and who were excluded from the analyses. **Bold** indicates statistical significance. [a]Estimates adjusted for one another; [b]in Canadian dollars.
*$p < .05$; **$p < .01$; ***$p < .001$.

95% CI [1.09, 1.92]) and with adequate health literacy (AOR = 1.71, 95% CI [1.25, 2.36]) had greater odds, compared with the referent group, of supporting labeling containers with a health warning (Table 3). Similarly, participants who identified as female (AOR = 1.70, 95% CI [1.27, 2.27]), those with more than a high school education (AOR = 1.44, 95% CI [1.00, 2.03]), and those with adequate health literacy (AOR = 2.02, 95% CI [1.47, 2.78]) had greater odds, compared with the referent group, of supporting labeling containers with standard drink information. Participants who reported consuming above the weekly LRDG limits (AOR = 0.60, 95% CI [0.40, 0.88]) had lower odds, compared with the referent group, of supporting labeling containers with standard drink information (Table 3). Participants who identified as female (AOR = 1.55, 95% CI [1.15, 2.07]), those 45 years and older (AOR = 1.49, 95% CI [1.09, 2.02]), those with more than a high school education (AOR = 1.75, 95% CI [1.18, 2.58]), and those with adequate health literacy (AOR = 1.55, 95% CI [1.12, 2.14]) had greater odds, compared with the referent group, of supporting labeling containers with LRDG limits. Participants with an annual household income of $60,000 or greater (AOR = 0.64, 95% CI [0.45, 0.90]) and who reported consuming above the weekly LRDG limits (AOR = 0.57, 95% CI [0.38, 0.87]) had lower odds, compared with the referent group, of supporting labeling containers with LRDG limits (Table 3).

Discussion

This study assessed baseline knowledge of alcohol-related health information and support for AWLs as well as the associations between these outcomes and key sociodemographic characteristics among liquor store patrons in two northern Canadian territories. Overall, there were no significant differences in the main outcomes between participants in Whitehorse and Yellowknife at baseline, indicating that the cities were suitably matched as intervention and comparison sites. Further, this population had relatively low levels of alcohol-related knowledge, which provides justification for the broader study testing the impact of labels with messages related to alcohol and cancer risk, national drinking guidelines, and standard drink information across jurisdictions.

Roughly a quarter of the sample knew that alcohol can cause cancer, which is comparable to the relatively low awareness levels found in previous national and international studies (Buykx et al., 2016; Canadian Cancer Society, 2015; Rundle-Thiele et al., 2013; Scheideler & Klein, 2018; Wiseman & Klein, 2019) and which is anticipated given

ongoing alcohol industry efforts to keep this information from the public (Petticrew et al., 2018a, 2018b; Vallance et al., 2020b). There were no sociodemographic factors associated with knowing that alcohol is a carcinogen, suggesting that, regardless of age, sex, socioeconomic status, or pattern of alcohol consumption, awareness of this serious alcohol-related health risk remains consistently unknown. Considering the large proportion of Canadians who have indicated that knowledge of alcohol-cancer risk would decrease their consumption (Canadian Cancer Society, 2015), this information is important for consumers to make more informed choices and could potentially contribute to a shift in drinking patterns.

Similar to the findings of previous Canadian studies (McNally et al., 2019; Osiowy et al., 2015; Hobin et al., 2018), less than a third of the overall sample was able to correctly estimate the number of standard drinks in a container of their preferred alcoholic beverage when only volume and percentage alcohol-by-volume information were presented on the label. Women and older participants, as well as those with higher income and health literacy levels, were better able to calculate standard drinks using this limited label information. This outcome further highlights that presenting only percentage alcohol-by-volume information on alcohol labels may unduly disempower more vulnerable and higher consuming groups from accurately tracking their consumption and preventing or reducing harms.

Also consistent with previous research (McNally et al., 2019; Osiowy et al., 2015; Hobin et al., 2018), a comparably low proportion of participants—less than half overall—accurately reported the sex-specific daily and weekly limits recommended in Canada's LRDG. Knowledge of both sets of drink limits was greater among those with higher education levels, and for the daily limits it was greater among those also with higher health literacy—again suggesting that there is a need for more consistent and accessible exposure to national guidelines. Taken together, these results support previous recommendations (Osiowy et al., 2015; Hobin et al., 2018; Wettlaufer, 2018) to provide both standard drink and sex-specific drink limit information on alcohol container labels to improve all consumers' ability to estimate not only their total consumption but also their consumption in relation to national drinking guidelines. Providing this combination in an accessible format on alcohol containers would expose a broader range of alcohol consumers—including high-volume drinkers (Greenfield, 1997)—to this information.

Broad support for labeling alcohol containers with a health warning such as cancer risk and standard drink and LRDG information was moderate among this population, with more than half of drinkers supporting labels with a health warning and standard drink information. These findings are in line with Canadian and international research showing that the public supports providing this type of label information—and especially cancer warnings—on alcohol containers (Bates et al., 2018; Buykx et al., 2015; Hobin et al., 2018; Miller et al., 2016; Osiowy et al., 2015; Pettigrew et al., 2014; Thomson et al., 2012; Vallance et al., 2018). Overall support for labeling alcohol containers with the three different types of messages was highest among women and those with higher health literacy levels, which are similar characteristics noted in support for most alcohol policies (Bates et al., 2018; Buykx et al., 2016; Li et al., 2017; Moskalewicz et al., 2013; Pechey et al., 2014; Rundle-Thiele, 2013). Despite the consistent acceptability of labels among this sample and across different jurisdictions and population groups, implementation of evidence-informed labels remains low internationally. This discrepancy points to other barriers to their introduction—including commercial vested interests of keeping consumers in the dark about alcohol-related harms such as cancer risk and lobbying by powerful alcohol industry groups—rather than a lack of public support (Casswell et al., 2016; Connor, 2017; Bhattacharya et al., 2018; Vallance et al., 2020b).

Reporting alcohol consumption levels above the recommended weekly LRDG limits was associated with lower levels of support for both standard drink and LRDG labels, which is consistent with previous research finding that those with higher consumption levels are less supportive of alcohol policies (Bates et al., 2018; Li et al., 2017; Macdonald et al., 2011; Moskalewicz et al., 2013; Pechey et al., 2014; Wilkinson et al., 2009). Interestingly, higher alcohol consumption was not associated with a lower likelihood of supporting labels with a health warning such as cancer risk—which may suggest that consumers would not object to these types of labels regardless of their alcohol consumption patterns. Although displaying LRDG information on labels received less support in this sample and elsewhere (Li et al., 2017), the potentially synergistic effect on consumers' ability to more accurately monitor their consumption when combined with standard drink measurements warrants their inclusion (Bates et al., 2018).

Limitations

Study limitations include a low response rate common to this type of intercept recruitment technique (Hobin et al., 2017; Schneider, 2013; Wiggers et al., 2018) and participant recruitment from liquor stores in the city centers using nonprobability methods. The sample was therefore not representative of site populations, which limits generalizability. However, the distributions of age, sex, and ethnicity of the sample are similar to those in the sample of drinkers in the 2014 Canadian Community Health Survey (Statistics Canada, 2014). Therefore, the sample can be considered a representative sample of people who drink alcohols in Yukon and Northwest Territories. The use of self-report surveys may also be subject to response bias. In addition, only one prompted measure specific to breast cancer was used to test

knowledge of alcohol's carcinogenicity. Future research could include both prompted and unprompted measures assessing knowledge of risk for multiple cancer types.

Conclusion

This study identified low baseline levels of knowledge of alcohol-related harm, such as cancer risk, limited ability to calculate number of standard drinks in containers using currently mandated labeling information, and low knowledge of Canada's LRDG limits. There was support for AWLs that included a health message such as cancer risk, standard drink information, and national low-risk drinking guidelines. Implementation of evidence-based AWLs is warranted and is likely to receive public support as a tool to increase awareness of alcohol related-risks and to support Canadian consumers in the North and elsewhere to make more informed and safer alcohol choices.

Acknowledgments

The authors acknowledge all of our RAs who helped with data collections, as well as the liquor control boards, health and social services, and especially the community partners in Yukon and Northwest Territories for their commitment and support in developing and executing this research. Special thanks also go to Mark Petticrew and Melanie Wakefield.

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The Effects of Alcohol Warning Labels on Population Alcohol Consumption: An Interrupted Time Series Analysis of Alcohol Sales in Yukon, Canada

JINHUI ZHAO, PH.D.,[a,*,†] TIM STOCKWELL, PH.D.,[a,†] KATE VALLANCE, M.A.,[a] & ERIN HOBIN, PH.D.[b,c]

[a]*Canadian Institute for Substance Use Research, University of Victoria, Victoria, British Columbia, Canada*
[b]*Public Health Ontario, Toronto, Ontario, Canada*
[c]*Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada*

ABSTRACT. Objective: There is limited evidence that alcohol warning labels (AWLs) affect population alcohol consumption. New evidence-informed AWLs were introduced in the sole government-run liquor store in Whitehorse, Yukon, that included a cancer warning (Ca), low-risk drinking guidelines (LRDGs) and standard drink (SD) messages. These temporarily replaced previous pregnancy warning labels. We test if the intervention was associated with reduced alcohol consumption. **Method:** An interrupted time series study was designed to evaluate the effects of the AWLs on consumption for 28 months before and 14 months after starting the intervention. Neighboring regions of Yukon and Northwest Territories served as control sites. About 300,000 labels were applied to 98% of alcohol containers sold in Whitehorse during the intervention. Multilevel regression analyses of per capita alcohol sales data for people age 15 years and older were performed to examine consumption levels in the intervention and control sites before, during, and after the AWLs were introduced. Models were adjusted for demographic and economic characteristics over time and region. **Results:** Total per capita retail alcohol sales in Whitehorse decreased by 6.31% (*t* test $p < .001$) during the intervention. Per capita sales of labeled products decreased by 6.59% (*t* test $p < .001$), whereas sales of unlabeled products increased by 6.91% (*t* test $p < .05$). There was a still larger reduction occurring after the intervention when pregnancy warning labels were reintroduced (-9.97% and 10.29%, *t* test $p < .001$). **Conclusions:** Applying new AWLs was associated with reduced population alcohol consumption. The results are consistent with an accumulating impact of the addition of varying and highly visible labels with impactful messages. (*J. Stud. Alcohol Drugs, 81,* 000–000, 2020)

VARIOUS ALCOHOL POLICIES have been developed in jurisdictions worldwide with the aim of reducing the harmful use of alcohol, alcohol attributable diseases and associated social burdens (Babor et al., 2010; World Health Organization, 2018). One such measure is the application of alcohol warning labels (AWLs) on containers of alcoholic beverages (World Health Organization, 2014, 2018) to provide consumers with information about harms related to alcohol use (e.g., birth defects when pregnant women drink, impaired driving, and general health risks).

Earlier reviews concluded there is only weak evidence that AWLs can affect population drinking behavior (Babor et al., 2010; Stockwell, 2006). Other analyses emphasize the consumer's "right to know" potential risks of such a commonly consumed product as alcohol (e.g., cancer) and the need to provide advice on reducing these risks via low-risk drinking guidelines (LRDGs; Hobin et al., 2018; Vallance et al., 2018). There is a growing literature on the characteristics of effective warning labels (Blackwell et al., 2018; Martin-Moreno et al., 2013) stressing the importance of message clarity, salience, and variation as well as appropriate use of size, color, placement, and graphic design of the labels. The present study seeks to examine whether the experimental introduction of labels designed to meet these exacting criteria would have a measurable impact on population-level alcohol consumption. The remote area of Whitehorse—the capital and main population center in Yukon, a northern Canadian territory—was selected as the intervention site where alcohol for off-premise consumption is sold almost exclusively in a single government-run liquor store. This analysis is one part of a larger project evaluating this intervention that also incorporated three waves of surveys of liquor store customers in Whitehorse and also Yellowknife, the capital and main population center in neighboring Northwest Territories (NWT; Hobin et al., 2020; Vallance et al., 2020a).

Based on a randomized controlled trial and focus group study, the present research team developed a series of AWL messages designed to be rotated for an accumulating effect (Hobin et al., 2018; Vallance et al., 2018). First, a cancer warning message was developed based on evidence that Canadians generally have very low awareness of the potential risks of different cancers from consuming alcohol (Miller et al., 2016). The warning message specifically mentioned two of the most common cancers in Canada, including Yukon,

Received: September 4, 2019. Revision: March 6, 2020.

The study was funded by Health Canada–Substance Use and Addictions Program #1718-HQ-000003. The views expressed herein do not necessarily represent the views of Health Canada. The Project Protocol has an International Registered Report Identifier (IRRID): RR2-10.2196/16320.

*Correspondence may be sent to Jinhui Zhao at the Canadian Institute for Substance Use Research, University Victoria, P.O. Box 1700 STN CSC, Victoria, BC V8Y 2E4, Canada, or via email at: zhaoj@uvic.ca. †Joint first authors. All authors made contributions to the conception and design of the study as well as data collections and requests. Jinhui Zhao and Tim Stockwell analyzed the data and drafted the manuscript. All authors reviewed the manuscript critically for intellectual content and gave final approval of the version to be submitted.

namely cancers of the breast and colon. The second message was designed to support consumers wishing to reduce their risk of serious diseases by providing information about Canada's LRDGs (Stockwell et al., 2012). The third label message provided information about how the number of standard drinks (SDs) in regular size alcohol containers varied with different alcohol strengths.

Drinking guidelines provide recommended upper limits on the number of SDs individuals drink per day or per week in order to minimize their risk of related harms; however, many individuals have trouble determining how many SDs they are consuming, making it difficult to follow the guidelines (Kerr & Stockwell, 2012). An SD is a fixed quantity or unit of alcohol, which in Canada is defined as 17.05 ml or 13.45 g of pure alcohol (Butt et al., 2011). A Canadian study conducted among liquor store customers found that less than a third had heard of Canada's LRDGs or could define an SD of their preferred beverage type (Osiowy et al., 2015). This study also showed that consumers still have less ability to identify the number of SDs in alcohol beverage containers of either unusually high or low percent alcohol content by volume. Some have suggested that LRDG and SD labels might encourage certain drinkers to increase their consumption (Jones & Gregory, 2009). Alcohol health warnings are mandated in a number of countries (International Alliance for Responsible Drinking, 2019), but there remains limited research that has specifically investigated their effectiveness.

There is no federal requirement for alcohol warning labels in Canada, but, since 1991, both Yukon and NWT have required post-manufacture labels ("Drinking alcohol during pregnancy can cause birth effects" in Yukon, plus impaired driving and general health warnings [ID] in NWT) (Stockwell et al., 2019). Two recent national studies have confirmed that the economic costs and health harms from alcohol are substantially higher in both Yukon and NWT than in the rest of the Canada (Canadian Institute for Health Information, 2019; Canadian Substance Use Costs and Harms Scientific Working Group, 2018). In November 2011, the federal, provincial, and territorial health ministers received Canada's LRDGs (Canadian Centre on Substance Abuse, 2018). These recommend that women do not exceed 10 SDs per week or 2 per day on average and that men should have no more than 15 per week or 3 per day on average (Butt et al., 2011; Stockwell et al., 2012). Studies based on national surveys conducted in 2008–2010 found substantial noncompliance with daily and weekly LRDG limits after adjustment for underreporting (Zhao et al., 2015).

The present study was designed to test the hypothesis that the introduction of the new evidence-informed AWLs would be associated with a reduction in population-level alcohol consumption in the intervention site compared with preintervention and also with two separate neighboring region control sites that retained long-standing health warnings about pregnancy and/or impaired driving.

Method

Alcohol warning labels in Yukon

Since 1991, point-of-sale AWLs with "Warning: drinking alcohol during pregnancy can cause birth defects" in English and French (Canada's two official languages) have been put on alcohol containers in Yukon (actual size: 3.0 cm × 2.0 cm) and AWLs with "Warning: 1. Women should not drink alcoholic beverages during pregnancy because of the risk of birth defects (BD) and 2. Consumption of alcoholic beverages impairs your ability to drive a car or operate machinery, and may cause health problems" in NWT (actual size: 3.0 cm × 5.0 cm). The Yukon BD label was replaced by the newly designed AWLs in the Whitehorse liquor store from November 20, 2017, to July 31, 2018. The AWLs affixed on alcohol containers were large (actual size: 5.0 cm × 3.2 cm), were full color (as shown in Chart 1), and displayed (a) a health message linking alcohol and cancer (Ca), (b) Canada's LRDGs, and (c) SD information. Either the Ca warning "Alcohol can cause cancer including breast and colon cancers" or the LRDG messages were put on all containers from November 20 to December 19, 2017. The labeling of these messages ceased thereafter as a result of complaints made by Canadian alcohol industry bodies that the labels were "defaming" their products. The Ca label was never reintroduced, but from April 11 until July 31, 2018, the LRDG labels were reintroduced as well as the SD labels from May 28 until July 31, 2018.The types of products to which labels were applied and the timing of their application is summarized in Box 1. The BD labels were applied consistently in both the other areas of Yukon and in NWT (along with an ID message and general health concerns message) during the entire period. The BD labels were also reintroduced in Whitehorse starting in August 2018.

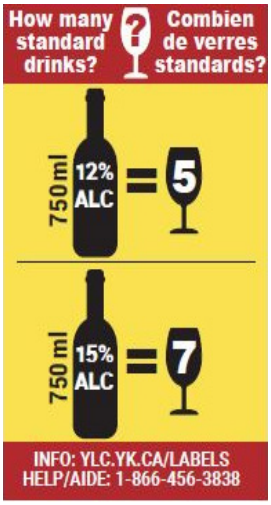
Design

An interrupted time series study (McDowall et al., 1976) was designed to investigate whether the various AWLs were associated with reduced per capita alcohol consumption during the study period. Consumption during the AWL period was compared with consumption during the period without the intervention labels and when only the BD/ID labels were put on product containers.

Data sources

We were provided with monthly retail alcohol sales data for the whole of Yukon to calculate monthly per capita al-

CHART 1. Point-of-sale warning labels placed on alcohol containers in different alcohol monopoly liquor stores in Yukon and Northwest Territories (NWT) at different times between January 2015 and July 2018

Label content				
Whitehorse City in Yukon (n = 1)	• Jul. 2015–Nov. 19, 2017 • Aug.–Dec. 2018	• Nov. 20–Dec 19, 2017	• Nov. 20–Dec. 19, 2017 • Apr. 11–Jul. 31, 2018	• May 28–Jul. 31, 2018
Rural areas in Yukon (n = 5)	• Jul. 2015–Dec. 2018	None	None	None
NWT (n = 1)	• Jul. 2015–Dec. 2018	None	None	None

cohol consumption for people age 15 and older (estimated as monthly SDs per adults age ≥ 15 years) with Whitehorse and the additional five surrounding areas each acting as comparison areas. Socioeconomic and demographic data by areas and times in Yukon were obtained to produce per capita alcohol consumption estimates and socioeconomic variables in order to examine and control for their potential confounding effects (Gruenewald & Ponicki, 1995; Gruenewald et al., 1995; Holder & Parker, 1992; Sloan et al., 1994; Stockwell et al., 2011). The analysis included the estimated retail alcohol sales in NWT as an additional control.

Alcohol sales data

Monthly alcohol sales data for each liquor store were obtained from the Yukon Liquor Corporation, which regulates the distribution, purchase, and sale of alcoholic beverages in Yukon. The data were structured by products, container sizes, and alcohol strengths in each area from July 2015 to December 2018. Total monthly alcohol sales data in NWT were obtained from a public website (NWT Bureau of Statistics, 2019). Mean SDs per people age 15 years and older were calculated and estimated using the monthly sales of alcohol converted to pure alcohol in SDs (sold volumes × alcohol strength × 1,000 / 17.05; one SD = 17.05 ml) for different categories of labeled and unlabeled products (Box 1). Monthly per capita SDs of total retail sales in NWT from 2015 to 2018 were estimated based on the total monthly sales in NWT and the monthly retail sales in Yukon.

Population data

We obtained population estimates for June 30 of each year from 2014 to 2018 by age groups in areas in Yukon (www.sewp.gov.yk.ca/home) and for the Indigenous population by area (www.eco.gov.yk.ca/stats/archives.html#social). Population data in NWT were obtained from Statistics Canada and used to estimate per capita alcohol consumption (Statistics Canada, 2019a). We used the spline method (DeBoor, 1981; McNeil et al., 1977) to estimate monthly total population, population age 15 and older, and the Indigenous populations for the study period. The data were used to calculate monthly per capita alcohol consumption as the main outcome variable. Percentages of the population ages 20–29, male, and Indigenous population were considered as covariates included in the analysis.

Income and customer price index data

We obtained annual personal income tax data from the Canada Revenue Agency for each of the six areas in Yukon and NWT (Canada Revenue Agency, 2012, 2013, 2014, 2015, 2016, 2017; Yukon Bureau of Statistics, 2013). Monthly customer price index (CPI) data for Yukon and NWT were

Box 1. Timeline for placement of different alcohol warning labels across six government monopoly liquor stores in Yukon serving six separate areas

Area	Year	Months	Labels placed by product category:[a]			Unlabeled products: <200 ml, single beers[b] (D)
			Wine 750 ml, spirit 750 ml, beer 355 ml, cooler 2 L (A)	Spirit>750 ml, fortified wine, liqueurs, others (B)	Local products (excl. beer 650 ml) (C)	
NWT	2015–2018	1–12	BD/ID	BD/ID	BD/ID	
Dawson City	2015–2018	1–12	BD	BD	BD	
Faro	2015–2018	1–12	BD	BD	BD	
Haines Junction	2015–2018	1–12	BD	BD	BD	
Mayo	2015–2018	1–12	BD	BD	BD	
Watson Lake	2015–2018	1–12	BD	BD	BD	
Whitehorse	2015–2016	1–12	BD	BD	BD	
Whitehorse	2017	1–10	BD	BD	BD	
Whitehorse	2017	11	Ca/LRDG	Ca/LRDG	Ca/LRDG	
Whitehorse	2017	12	Ca/LRDG	Ca/LRDG	Ca/LRDG	
Whitehorse	2018	1	*Ca/LRDG*[c]	*Ca/LRDG*[c]	*Ca/LRDG*[c]	
Whitehorse	2018	2	*Ca/LRDG*[c]	*Ca/LRDG*[c]	*Ca/LRDG*[c]	
Whitehorse	2018	3	*LRDG*[c]	*LRDG*[c]	*LRDG*[c]	
Whitehorse	2018	4	LRDG	LRDG	*LRDG*[c]	
Whitehorse	2018	5	SD	LRDG	*LRDG*[c]	
Whitehorse	2018	6	SD	LRDG	*LRDG*[c]	
Whitehorse	2018	7	SD	LRDG	*LRDG*[c]	
Whitehorse	2018	8	BD+*SD*[c]	BD+*LRDG*[c]	BD+*LRDG*[c]	
Whitehorse	2018	9	BD+*SD*[c]	BD+*LRDG*[c]	BD+*LRDG*[c]	
Whitehorse	2018	10	BD+*SD*[c]	BD+*LRDG*[c]	BD+*LRDG*[c]	
Whitehorse	2018	11	BD+*SD*[c]	BD+*LRDG*[c]	BD+*LRDG*[c]	

[a]Labels types: BD = birth defect; BD/ID = birth defect (BD) and impaired driving and general health concern message labels (ID) used in Northwest Territories July 2015–December 2018; Ca = cancer; LRDG = low-risk drinking guidelines; SD = standard drink. [b]Unlabeled alcohol products included 650 ml or larger beer bottles made by local producers, alcohol containers smaller than 200 ml and single beers. [c]Italics added for periods in which no labels were added to new products but they would have remained on products labeled earlier but not sold.

obtained from Statistics Canada (Statistics Canada, 2019b). Average income in Canadian dollars was estimated by total tax income of all tax returns divided by the number of tax returns in each year for each area in Yukon and for NWT with adjustment for monthly CPI.

Land data

We obtained land data at 2016 census subdivisions in Yukon and NWT from Statistics Canada (Statistics Canada, 2017) to estimate population density in each of the six areas in Yukon and in NWT. The monthly population density was estimated by monthly total population in each area in Yukon and in NWT divided by land area in square kilometers.

Statistical analysis

The monthly number of SDs per adult were calculated and analyzed using the monthly retail sales of alcohol beverages converted to pure alcohol in SDs (sold volumes × alcohol strength × 1000 / 17.05, one SD = 17.05 ml or 13.45 g in Canada) divided by monthly population age 15 years and older. The per capita SDs were calculated and analyzed by total product sales (A, B, C, and D in Box 1), total labeled alcohol sales in government liquor stores (A, B, and C), the sales of products (A) with Ca/LRDG/LRDG/SD labels, the sales of products (B) with Ca/LRDG/LRDG labels, local products (C) with Ca/LRDG labels, and unlabeled products (D). Bivariate analysis was performed to examine potential confounding effects of covariates and thus should be included in multivariate regression analyses for control. Bivariate linear regression analysis was used to examine the area, year, and seasonal differences in the consumption, and F test was used to test a significant relationship. Bivariate linear regression was performed to examine the relationships between per capita SDs and population density, average income, and percentages of the population age 15 and older who were Indigenous, ages 20–29 years, and male.

The potential confounding effects were thus identified and included in multivariate regression analyses to control for the effects. We considered covariates with a bivariate relationship to alcohol sales with a p less than .20 as candidates for inclusion in the multivariate regression analyses of the consumption (Hosmer & Lemeshow, 2000). We also considered the change-in-estimate, that is, whether crude and adjusted estimates differed by 10% (Maldonado & Greenland, 1993). We detected the effects and multicollinearity by exploring the correlation matrix and using the Variance Inflation Factor (VIF) and Tolerance (Allison, 2012; Schreiber-Gregory, 2017). The potential effect of collinearity of a covariate was considered when the covariate had a high correlation (coefficient of .8 or higher) with any other covariates and/or the Tolerance value fell below .1 and the VIF value was greater than 10 (Allison, 2012; Schreiber-Gregory, 2017).

The VIF value of the average income variable is greater than 10 (17), but we still included this covariate in the models because inclusion/exclusion of the income variable did not change the effect estimates of the labeling intervention (Allison, 2012; Schreiber-Gregory, 2017). Durbin–Watson (DW) statistics were calculated for testing autocorrelation average effect (Durbin & Watson, 1951), and "sandwich estimation" was used to test and correct for heteroskedasticity (White, 1980). We also examined modified effects of region and time by using interaction terms of area-label and time-label in the models and did not identify significant effects of area or time (t test $p > .9000$); thus, no modified effects were hypothesized or presented in the study.

We then used mixed or multilevel models (Laird & Ware, 1982; Littell et al., 2006; Raffalovich & Chung, 2014), which provide straightforward but flexible methods for assessing regional and temporal dynamics of longitudinal panels of data to model the pooled monthly alcohol consumption. The multilevel model estimated the percentage immediate change (×100%) of per capita drinks for the same month when the AWLs were put on the containers of alcohol beverage products after controlling for potential confounding effects of covariates and the data themselves, including temporal and regional autoregressive effects and time trend and seasonality.

Mixed models permit tests of fixed effects through either maximum likelihood or restricted maximum likelihood estimation. These methods are superior to traditional repeated-measures analysis of variance because they allow simultaneous inference about regional and temporal factors using fixed and random effects and also apply to a variety of covariance (correlation) structures. Thus, more appropriate covariance data structures can be analyzed. We initially included area- and time-specific variables as random effect variables to examine and control for heterogeneity effect if there was an area- or time-specific heterogeneity. We included the area-specific variable as a random effect to control for the area autoregressive effect in multilevel regression models because the time-specific effect was not significant (Ayyangar, 2007; Raffalovich & Chung, 2014). We also produced effect estimates using minimum variance quadratic unbiased estimation (MIVQUE) of covariance parameters to test heterogeneous quadratic trend effects (Littell et al., 2006). While the tests found no differences in the effect estimates using the REML and MIVQUE methods, the study presented the effect estimates using the REML method. We included regional and temporal autocorrelation effects in all models. Log transformations were applied when necessary to correct for significantly skewed distributions and to make the variance stationary for dependent variables. The seasonal index method was used to de-seasonalize monthly per capita alcohol consumption to remove the effect of seasonality of alcohol consumption (Anderson et al., 1996). Adjustments for temporal autocorrelation were made if it was detected by the DW statistic (Durbin & Watson, 1951). A covariate was created to differentiate between Yukon areas (rural area and Whitehorse) and NWT so as to control for regional effects.

We conducted all statistical analyses using SAS Version 9.3 (SAS Institute Inc., Cary, NC), and the SAS PROC MIXED procedure was used to model the data and produce the effect estimates (Kleinschmidt et al., 2001; Littell et al., 2006). Further details of the equation of multilevel models and SAS codes can be found in Appendix I. (The supplemental appendix appears as an online-only addendum to this article on the journal's website.)

Results

Patterns and predictors of Yukon alcohol sales

Liquor store total sales accounted for 65.2% of all recorded sales, and liquor store retail sales accounted for 90% of liquor store total sales in Yukon and NWT during the study period, of which 98% received some kind of new intervention label during the study period. Table 1 presents estimates of the mean number of SDs of alcoholic beverages sold per person age 15 and older per month in each of the six area liquor stores in Yukon (one each in Whitehorse and five outlying areas) and the whole territory of NWT during the study period (i.e., between 2015 and 2018). There were significant differences in the estimates of total sales, sales of labeled and unlabeled products, and subtypes of sales across these areas (all F test ps $< .0001$). There was a significantly increased trend in the unlabeled sales over time during the study period (t test $p < .01$). The intervention site had the lowest per capita consumption for age 15 and older of 33.08 SDs per month relative to the other five areas in Yukon but close to that in NWT.

There were significant differences in each category of sales by season (F test ps $< .001$), with more estimated consumption in all product categories during the spring and summer months. Figure 1 shows the trends and seasonal

changes in these categories of monthly sales data. DW tests revealed significant first-order temporal autocorrelation for mean monthly total sales, labeled sales, and unlabeled sales (all *p*s of DW test < .0001).

Bivariate linear regression was used to examine the relationship between estimated mean monthly per capita consumption in people age 15 and older, income, and various sociodemographic variables (Table A1 in Appendix II). The level of alcohol consumption for labeled products was higher where there were more males (*t* test $p = .0001$), more young adults ages 20–29 (*t* test $p = .1849$), more Indigenous residents (*t* test $p = .0022$), greater population density (*t* test $p = .0001$), and lower average income (*t* test $p = .0001$). The multicollinearity analyses showed that there was no threat of multicollinearity (no coefficients of .8 or higher in the correlation matrix, a VIF less than 10, or a Tolerance value of .1) (Schreiber-Gregory, 2017). The VIF value of the income variable was 17, but inclusion/exclusion of this covariate in the models did not substantially change the effect estimates of the labeling intervention; thus, the income variable was still included in multivariate regression analyses (Allison, 2012). As a consequence, these variables were treated as potential confounders in the following multivariate mixed models.

Changes in alcohol consumption before, during, and after the labeling intervention

Table 2 presents estimated percentage changes in mean monthly per capita SDs sold during the planned intervention (i.e., from November 2017 until July 2018) compared with periods and control sites where only the BD labels (or BD and ID labels) were applied, while adjusting for temporal, regional, and demographic variations. In the model for total alcohol sales, there was an estimated reduction in per capita alcohol sales of 6.31% (*t* test $p < .0001$) during the newly designed AWL period in Whitehorse. During the post-intervention months (August through December 2018), a still larger reduction of 9.97% (*t* test $p = .0001$) was estimated. An exactly parallel trend was observed for the model used only for labeled products while controlling for sales of unlabeled products, although with a slightly higher effect size (-6.59%, *t* test $p < .0001$) during the intervention period and a larger effect size afterward (-10.29%, *t* test $p < .0001$). The third model applied only to unlabeled products found significant (6.91%, *t* test $p < .05$) and marked increases (9.16%, *t* test $p = .0946$) in consumption during the intervention and post-intervention periods.

Table 3 presents models similar to those presented in Table 2 but with the intervention period broken into three phases: (i) 2 months during which the initial combination of approximately 96,000 Ca and LRDG labels were applied to most alcoholic products in the Whitehorse liquor store for 30 days, (ii) the period after the intervention was halted as a result of industry interference and when no new labels were added (3 months), and (iii) a 4-month period during which most alcohol containers sold in Whitehorse were labeled with either an SD or LRDG label (approximately 200,000 containers). Gradually increasing reductions in total and labeled alcohol sales were observed over time, with the smallest during the initial 1-month period (i) (-2.28% for total retail sales, *t* test $p < .0001$) and the largest during the LRDG/SD labeling and post-intervention periods (iii). Marked and significant increases were observed in per capita sales of unlabeled products since the initial labeling intervention took effect in November 2017.

Table A2 (Appendix II) presents three more models equivalent to those in Table 3 but with subsets of alcohol sales data containing either products that received the LRDG labels or the SD labels between April and July 2018. The table also presents the sale of local products excluding beers (D in Box 1). Very similar patterns of reduced alcohol sales were observed.

Figure 2 presents the adjusted estimates of monthly SDs of total sales in Whitehorse and Yukon rural areas combined and in NWT from 2015 to 2018. The alcohol sales showed a decreased trend in Whitehorse after the newly designed AWLs were introduced in November 2017, whereas alcohol sales tended to increase slightly in Yukon rural areas and no changes in NWT.

We performed sensitivity tests to examine the robustness of the observed changes under different assumptions and degrees of control for alcohol sales in control regions without the new labeling intervention (Table 4). The first model (Model 1) compares per capita alcohol sales in Whitehorse during the intervention period with the baseline Whitehorse sales during which only the BD label was applied. The second model uses all monthly sales for both the five area liquor stores in Yukon outside of Whitehorse and the Whitehorse liquor store when only the BD label was applied as a comparison. The third model repeats the second one but includes monthly alcohol sales in NWT as a further control. As can be seen, very similar effect sizes are observed in each model with reductions of approximately 6% during the intervention period and between 9% and 10% after intervention. Model 4 presents the effect estimates for Yukon rural area alcohol sales during the Whitehorse labeling (November 2017–July 2018) and post-labeling periods (August–December 2018) versus before (July 2015–October 2017). The analysis included NWT data for adjustment. There were no significant increases (2.81% and 1.37%, respectively) in the alcohol sales in rural areas during the Whitehorse labeling intervention and post-intervention periods compared with that before the labeling intervention period. Model 5 presents the effect estimates for both Yukon rural area and NWT alcohol sales during the Whitehorse labeling (November 2017–July 2018) and post-intervention periods (August–December 2018) versus before (July 2015–October 2017) in Yukon rural areas

TABLE 1. Mean monthly per capita consumption in standard drinks by labeled[a] and unlabeled[b] alcohol products (total retail sales sold) in Whitehorse, rural areas of Yukon, and Northwest Territories for 2015–2018

	Labeled products		Unlabeled products		Total retail sales	
Variable	*M*	(*SD*)	*M*	(*SD*)	*M*	(*SD*)
Community						
NWT	34.55	(4.22)	0.86	(0.16)	35.41	(4.33)
Dawson City	61.53	(25.88)	1.80	(0.94)	63.33	(26.74)
Faro	50.66	(7.53)	0.67	(0.25)	51.33	(7.64)
Haines Junction	40.52	(7.67)	0.85	(0.28)	41.37	(7.84)
Mayo	56.90	(10.79)	0.72	(0.42)	57.62	(11.10)
Watson Lake	68.68	(16.09)	0.77	(0.22)	69.45	(16.20)
Whitehorse	32.21	(6.33)	0.86	(0.17)	33.08	(6.46)
F test *p*	.0001		.0001		.0001	
Year						
2015	52.57	(18.20)	0.75	(0.40)	53.32	(18.39)
2016	48.39	(17.63)	0.90	(0.44)	49.29	(17.88)
2017	49.01	(19.05)	0.95	(0.58)	49.96	(19.37)
2018	48.86	(18.73)	1.04	(0.68)	49.90	(19.15)
F test *p*	.6567		.0394		.7023	
t test *p* for trend	.4685		.0047		.5291	
Season						
Jan.–Mar.	37.28	(9.71)	0.67	(0.27)	37.96	(9.69)
Apr.–Jun.	53.84	(20.69)	1.15	(0.71)	54.99	(21.07)
Jul.–Sep.	57.85	(20.83)	1.12	(0.68)	58.97	(21.26)
Oct.–Dec.	46.34	(12.75)	0.78	(0.25)	47.12	(12.72)
F test *p*	.0001		.0001		.0001	

Notes: NWT = Northwest Territories. [a]Labeled products included those with cancer/low-risk drinking guidelines, standard drinks only, low-risk drinking guidelines only (Box 1). [b]Unlabeled products included 650 ml beer bottles by local producers, alcohol container < 200 ml, and single beers without any labels including birth defects.

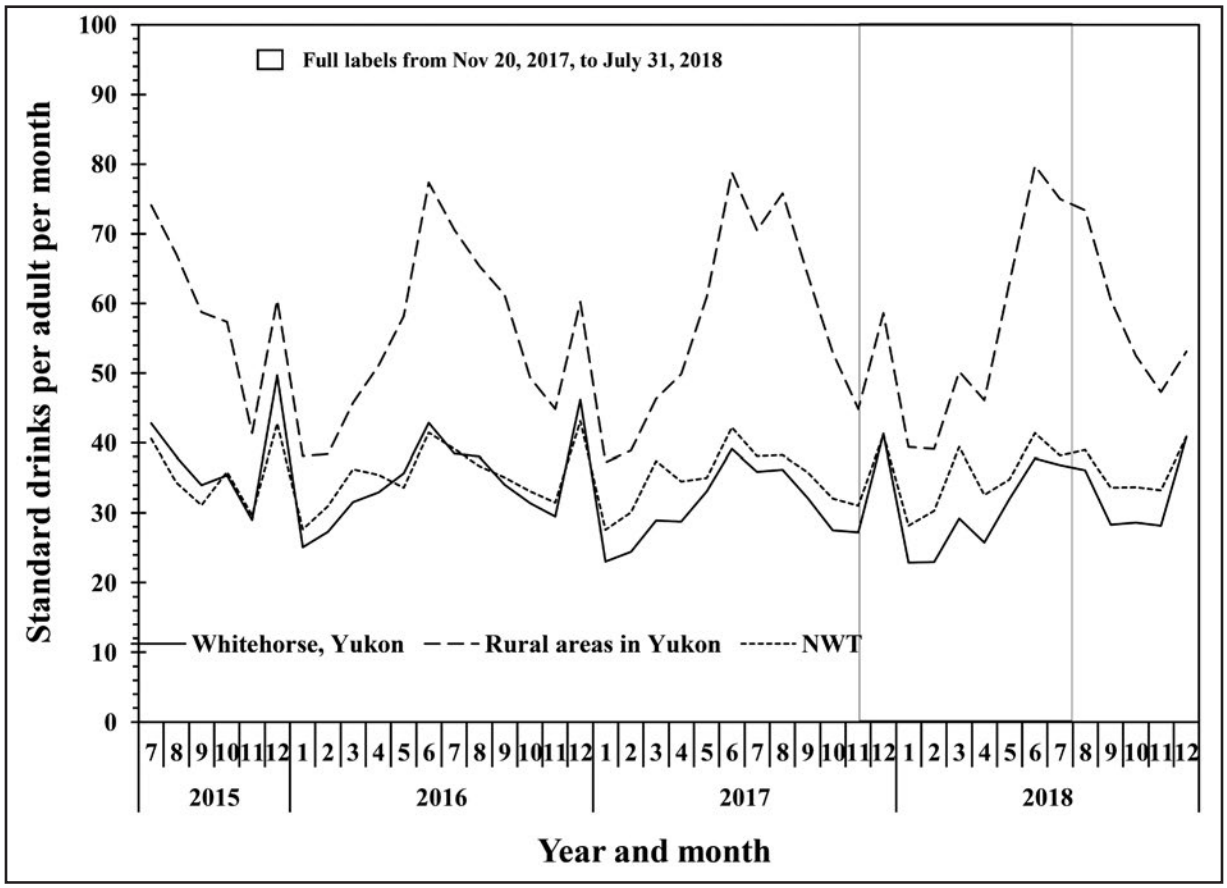


FIGURE 1. Mean number of standard drinks consumed per person age 15 years and older per month from liquor store sales in Whitehorse, rural areas of Yukon, and in Northwest Territories (NWT) during the study period

TABLE 2. Estimated percentage changes in mean number of standard drinks consumed per adult per month for total, labeled, and unlabeled liquor store alcohol sales in Whitehorse during the full labeling period and after the labeling intervention period compared with baseline

Labels[a]	Time period[b]	Drinks/month/adult[d]			
		% change[c]	*M*	[95% CI]	*t* test *p*
Model 1: Total alcohol sales					
Baseline (all areas) (BD/ID)	Jul. 2015–Oct. 2017	0.00	45.35	[44.47, 46.24]	ref.
Intervention (Ca/LRDG/SD)	Nov. 2017–Jul. 2018	**-6.31**	**42.48**	**[41.37, 43.62]**	**.0001**
Post-intervention Whitehorse (BD)	Aug. 2018–Dec. 2018	**-9.97**	**40.83**	**[39.17, 42.56]**	**.0001**
Model 2: Total sales of labeled products					
Baseline (all areas) (BD/ID)	Jul. 2015–Oct. 2017	0.00	44.47	[43.61, 45.34]	ref.
Intervention (Ca/LRDG/SD)	Nov. 2017–Jul. 2018	**-6.59**	**41.53**	**[40.43, 42.67]**	**.0001**
Post-intervention Whitehorse (BD)	Aug. 2018–Dec. 2018	**-10.29**	**39.89**	**[38.25, 41.60]**	**.0001**
Model 3: Total sales of unlabeled product					
Baseline (all areas) (BD/ID)	Jul. 2015–Oct. 2017	0.00	0.82	[0.69, 0.98]	ref.
Intervention (Ca/LRDG/SD)	Nov. 2017–Jul. 2018	**+6.91**	**0.88**	**[0.72, 1.08]**	**.0182**
Post-intervention Whitehorse (BD)	Aug. 2018–Dec. 2018	+9.16	0.90	[0.74, 1.10]	.0946

Notes: **Bold indicates statistical significance.** Ref. = reference. [a]BD/ID = birth defect (BD) in Yukon plus impaired driving and general health concern message (ID) in Northwest Territories; Ca = cancer, LRDG = low-risk drinking guideline; SD = standard drink. [b]"Baseline" sales include the pre-intervention period in Whitehorse plus all sales in outer regions of the Yukon in which birth defect (BD) and Northwest Territories in which BD+ID were labels added throughout study period. [c]Percentage change in monthly per capita standard drinks ([d]) for labeling intervention period versus baseline (BD/ID). [d]Mean estimates adjusted for time trend, seasonality (seasonal index method), regional and temporal regressive effects, average personal income, percentage population ages 20–29 years old, percentage males in population, percentage Indigenous population and the regional variable (rural areas and Whitehorse in Yukon and Northwest Territories). A weighting variable was used to adjust for various number of days per month. The models for labeled alcohol sales were further adjusted for unlabeled beverage sales and vice versa.

and NWT. There were also no significant increases (2.25% and 0.24%, respectively) in the alcohol sales in rural areas and NWT during the Whitehorse labeling intervention and post-intervention periods compared with that before the labeling intervention period.

Discussion

An accumulating reduction in per capita alcohol sales from liquor stores was observed in the intervention site of Whitehorse in comparison variously with the baseline period in Whitehorse, with per capita sales in five outlying control regions in Yukon, and also after adjustment for total per capita monthly alcohol sales in neighboring NWT. These statistically significant reductions were estimated in models that adjusted for a number of economic and demographic predictors of the level of alcohol consumption in different regions. It is noteworthy that in this remote area of Canada, per capita alcohol consumption estimated from sales was significantly higher in the outlying, control regions in Yukon, regions that also had a higher proportion of males, young adults, persons with low income, and non-Indigenous people. It is also important to note that significant reductions in consumption were observed only in relation to alcohol products that received the manual application of some 300,000 bright yellow and red intervention warning labels and not among products that were not labeled. In fact, there were significant increases in the consumption of unlabeled products in Whitehorse during the intervention. These products could not be labeled because they were from local or small producers, the containers were too small, or it was otherwise impractical to add labels (e.g., single containers of beer were exempt). They represented only 3% of sales. Although it is possible that factors other than the absence of labels may account for this finding, the pattern of results is consistent with some customers selecting unlabeled products to avoid seeing the series of stark warning and health messages.

The central question raised by these results is whether it is plausible to attribute the observed reductions in per capita alcohol sales to the labeling intervention. Against this interpretation is the scant evidence of changes in population consumption as a result of the much-studied introduction of U.S. warning labels in 1989 (Greenfield, 1997). Furthermore, the greatest reduction in monthly sales was observed after the application of LRDG and SD labels to product containers was completed at the end of July 2018 (Hobin et al., 2020). In favor of the hypothesis that the labeling intervention had a causal role, these labels were strikingly different from their U.S. predecessors. They were developed over 4 years, during which the literature on what constitutes effective warning labels was carefully reviewed and both a randomized experiment and a focus group study were conducted (Hobin et al., 2018; Vallance et al., 2018) to identify effective content and presentation. Thus, the labels presented messages for which there was low awareness at baseline (Vallance et al., 2020b) but that both local stakeholders and drinkers judged to be important information for consumers, that is, warnings of serious health risks for conditions prevalent in Yukon (e.g., colon and breast cancer), LRDGs (Stockwell et al., 2012), and information about the number of SDs in alcohol containers to enable consumers to follow the guidelines (Osiowy et al., 2015). The label design also followed best practices by using multiple colors, adequate size, and inclusion of images as well as text. Furthermore, a case could be made that the

TABLE 3. Estimated percentage changes in mean number of standard drinks per adult per month for total, labeled and unlabeled alcohol sales in Yukon during the period of Ca+LRDG/LRDG+SD labels and after the labeling intervention period compared with baseline

		Drinks/month/adult[d]			
Labels[a]	Time period[b]	% change[c]	*M*	[95% CI]	*t* test *p*
Mean	95%	CI			
Model 1: Total alcohol sales					
Baseline (All areas) (BD/ID)	Jul. 2015–Oct. 2017	0.00	44.94	[44.05, 45.84]	ref.
(i) Ca/LRDG	Nov. 2017–Dec. 2017	**-2.28**	**43.91**	**[42.90, 44.93]**	**.0001**
(ii) No new labels added	Jan. 2018–Mar. 2018	**-4.21**	**43.04**	**[41.60, 44.54]**	**.0001**
(iii) LRDG+SD	Apr. 2018–Jul. 2018	**-11.35**	**39.83**	**[38.54, 41.28]**	**.0001**
Post-intervention Whitehorse (BD)	Aug. 2018–Dec. 2018	**-11.85**	**39.61**	**[38.30, 40.99]**	**.0001**
Model 2: Total sales of labeled products					
Baseline (All areas) (BD)	Jul. 2015–Oct. 2017	0.00	44.07	[43.32, 44.84]	ref.
(i) Ca/LRDG	Nov. 2017–Dec. 2017	**-2.41**	**43.01**	**[42.16, 43.88]**	**.0001**
(ii) No new labels added	Jan. 2018–Mar. 2018	**-4.46**	**42.11**	**[40.82, 43.43]**	**.0001**
(iii) LRDG+SD	Apr. 2018–Jul. 2018	**-11.79**	**38.87**	**[37.71, 40.08]**	**.0001**
Post-intervention Whitehorse (BD)	Aug. 2018–Dec. 2018	**-12.20**	**38.69**	**[37.55, 39.88]**	**.0001**
Model 3: Total sales of unlabeled product					
Baseline (All areas) (BD/ID)	Jul. 2015–Oct. 2017	0.00	0.70	[0.65, 0.75]	ref.
(i) Ca/LRDG	Nov. 2017–Dec. 2017	+2.68	0.72	[0.67, 0.77]	.6778
(ii) No new labels added	Jan. 2018–Mar. 2018	+6.38	0.74	[0.65, 0.85]	.4157
(iii) LRDG+SD	Apr. 2018–Jul. 2018	+14.32	0.80	[0.69, 0.93]	.0258
Post-intervention Whitehorse (BD)	Aug. 2018–Dec. 2018	+15.64	0.81	[0.70, 0.94]	.1457

Notes: **Bold indicates statistical significance.**CI = confidence interval; ref. = reference. [a]BD = birth defect (BD) in Yukon and plus impaired driving and general health concern message (ID) in Northwest Territories; Ca = cancer, LRDG = low-risk drinking guideline; SD = standard drink. [b]Percentage change in monthly per capita standard drinks ([d]) for labeling intervention period versus baseline (BD/ID)). [c]Mean estimates for total sales adjusted for time trend, seasonality, regional and temporal regressive effects, average personal income, percentage of population ages 20–29 years old, percentage of males to total population, percentage of Indigenous population; mean estimates for labeled alcohol sales further adjusted for unlabeled beverage sales and mean estimates for unlabeled alcohol sales further adjusted for labeled beverage sales. A weighting variable was used to adjust for various number of days per month. A regional variable was included to control for the difference between Yukon (rural areas and Whitehorse) and Northwest Territories.

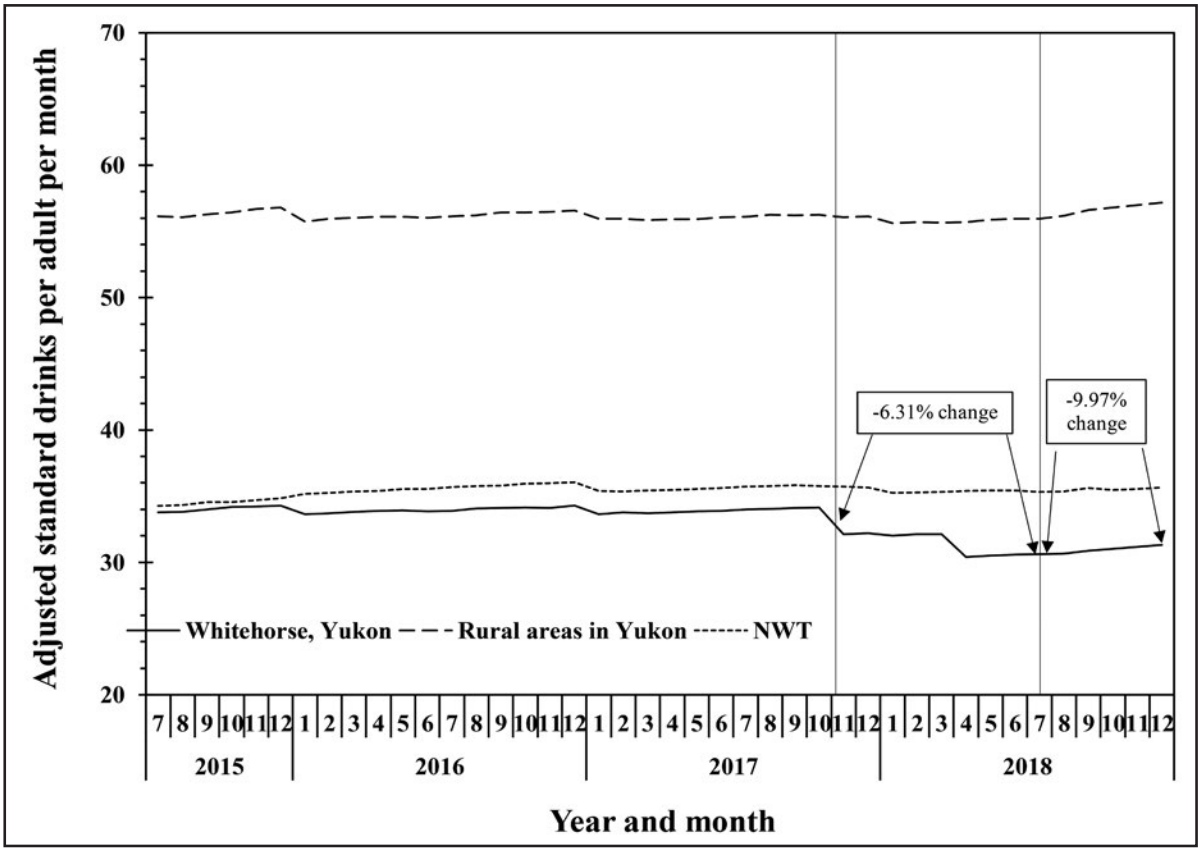


FIGURE 2. Adjusted mean number of standard drinks consumed per person age 15 years and older per month from liquor store sales in Whitehorse, rural areas of Yukon, and Northwest Territories (NWT) during the study period

TABLE 4. Estimated percentage changes in mean number of standard drinks per adult per month for total, labeled and unlabeled alcohol sales in Whitehorse during and after the labeling intervention period compared with baseline in Whitehorse, Yukon, and NWT

Labels[a]	Time period[b]	Drinks/month/adult[d] % change[c]	*M*	[95% CI]	*t* test *p*
Model 1: Pre-intervention Whitehorse alcohol sales only as reference period (analysis included rural areas but no NWT data)					
Baseline (BD)	Jul. 2015–Oct. 2017	0.00	51.99	[48.74, 55.45]	ref.
Intervention (Ca/LRDG/SD)	Nov. 2017–Jul. 2018	**-6.55**	**48.59**	**[45.20, 52.22]**	**.0001**
Post-intervention (BD/AWLs)	Aug. 2018–Dec. 2018	**-10.56**	**46.50**	**[43.24, 50.01]**	**.0001**
Model 2: Yukon-wide alcohol sales with BD only labels periods and regions as reference (no NWT data)					
Baseline (BD)	Jul. 2015–Oct. 2017	0.00	51.22	[50.80, 51.64]	ref.
Intervention (Ca/LRDG/SD)	Nov. 2017–Jul. 2018	**-6.27**	**48.01**	**[47.06, 48.98]**	**.0001**
Post-Intervention (BD/AWLs)	Aug. 2018–Dec. 2018	**-10.20**	**46.00**	**[44.80, 47.22]**	**.0001**
Model 3: Yukon-wide alcohol sales (Model 2) + adjustment for NWT sales (retail sales in NWT)					
Baseline (BD/ID)	Jul. 2015–Oct. 2017	0.00	45.81	[44.27, 47.41]	ref.
Intervention (Ca/LRDG/SD)	Nov. 2017–Jul. 2018	**-6.20**	**42.97**	**[41.68, 44.30]**	**.0001**
Post-intervention (BD/ID/AWL)	Aug. 2018–Dec. 2018	**-9.33**	**41.54**	**[40.08, 43.04]**	**.0005**
Model 4: Yukon rural alcohol sales during the Whitehorse labeling (Nov. 2017–Jul. 2018) and post-labeling periods (Aug.–Dec. 2018) versus before (Jul. 2015–Oct. 2017)					
Baseline (BD/ID)	Jul. 2015–Oct. 2017	0.00	55.16	[54.42, 55.91]	ref.
Intervention (Ca/LRDG/SD)	Nov. 2017–Jul. 2018	2.81	56.71	[54.91, 58.57]	.1918
Post-intervention (BD/ID/AWLs)	Aug. 2018–Dec. 2018	1.37	55.91	[52.33, 59.74]	.7095
Model 5: Yukon rural alcohol sales during the Whitehorse labeling (Nov. 2017–Jul. 2018) and post-labeling periods (Aug.-Dec. 2018) versus before (Jul. 2015–Oct. 2017) and NWT alcohol sales (Jul. 2015 – Dec. 2018)					
Baseline (BD/ID)	Jul. 2015–Oct. 2017	0.00	45.76	[44.06, 47.52]	ref.
Intervention (Ca/LRDG/SD)	Nov. 2017–Jul. 2018	2.25	46.79	[44.12, 49.62]	.2628
Post-intervention (BD/ID/AWL)	Aug. 2018–Dec. 2018	0.24	45.87	[43.77, 48.07]	.9502

Notes: **Bold indicates statistical significance.** NWT = Northwest Territories; CI = confidence interval; ref. = reference category. [a]BD/ID = birth defect (BD) warning; ID = impaired driving and general health warning in NWT; Ca = cancer; LRDG = low-risk drinking guidelines; SD = standard drink; AWLs = alcohol warning labels (Ca/LRDG/SD). [b]"Baseline" sales for Models 2 and 3 include the pre-intervention period in Whitehorse plus all sales in outer regions of the Yukon when BD labels were added throughout the study period. [c]Percentage change in monthly per capita standard drinks ([d]) for labeling intervention period versus baseline (BD or BD/ID). [d]Mean estimates were adjusted for time trend, seasonality, regional and temporal regressive effects, average personal income, % population ages 20–29 years old, % males in population, % Indigenous population, and region in Model 3 (Yukon rural areas, Whitehorse, and NWT). A weighting variable was used to adjust for varying number of days per month.

effect size of the reductions in per capita sales reflected the intensity of the intervention. Thus, the smallest effect size (about 3%) occurred at the outset when about 100,000 of the new cancer and LRDG labels were applied to most containers for just 30 days.

Over the following 3 months, when the reduction in sales was 5%, there was intense media coverage of the study (Hobin et al., 2020; Vallance et al., 2020c), which could have served to reinforce the labeling messages and intensify their effect even though no new labels were added. There would nonetheless have been a decreasing number of containers in the Whitehorse store still labeled with the Ca and LRDG messages. During the third 4-month phase, approximately 200,000 LRDG and SD labels were applied, and there was an effect size of approximately 7%. The post-intervention phase included a change in labeling (i.e., the return of the small BD label that had been placed on alcohol containers for more than 25 years until the beginning of this study in November 2017). Previous studies showed that health messages or warnings need to be sufficiently large as to be readily legible for consumers of all ages, be colorful and concise, contain graphic images, and be varied over time to maintain their salience to consumers (Al-Hamdani & Smith, 2017; Wigg & Stafford, 2016). The change in the warning label back to the BD label at this point itself could have created more discussion and attention to health aspects of alcohol consumption. Last, significant increases in per capita sales were observed in models examining unlabeled products, indicating a measure of specificity for the effect of the intervention warning labels.

Alcohol warning labels allow consumers to make more informed choices about what they drink and warn consumers of the potential dangers and health risks from products (Deutsche Hauptstelle für Suchtfragene, 2008; Wilkinson & Room, 2009). In providing such information, warning labels also deliver a clear message to consumers that alcohol is not an ordinary commodity (Babor et al., 2010; Deutsche Hauptstelle für Suchtfragene, 2008). After seeing the new

label messages, shoppers may have stopped purchasing alcoholic beverages or decided to purchase fewer alcohol products than planned, and therefore the total or some types of products sales could be reduced during the study period.

It is important, however, to acknowledge both the advantages and limitations of the use of sales data to estimate the impacts of a policy intervention. We followed international best practices to estimate local per capita alcohol consumption, estimating total recorded sales from official sources and expressing these as a rate for the proportions of local residents age 15 and older (Stockwell & Chikritzhs, 2000; Stockwell et al., 2018). Because Yukon has a government monopoly on the sale and distribution of alcohol, the monthly data provided on recorded sales provide an excellent and accurate record of off-premise sales across all the regions included. However, these would not include sources of unrecorded alcohol consumption such as homemade and travelers' imports, although these are likely to be small, especially because Yukon is a fairly remote area.

A further weakness in these sales data is that the per capita estimates do not control for the volume of tourism; it is entirely conceivable that the results are confounded somehow by unusual variations across regions in Yukon—although this was partly addressed by the adjustments made for seasonal variation in the sales data and by the use of controls for consumption in the five outlying areas of Yukon and in NWT. Another limitation is that this was an ecological study in which the data are measures averaged over individuals and, therefore, may not reflect individual-level associations and may be sensitive to changes in unit aggregation (Rothman & Greenland, 1998). However, the inherent qualities of the ecological design for epidemiological and policy analysis can be valuable for investigating potential population-wide effects (Cohen, 1994; Susser, 1994). The effect of the labeling intervention may also be lagged. This study did not examine any lagged effects of the labeling intervention on the consumption because of the short period observed after the labeling was implemented. However, the observed large effect for the post-intervention phase would be consistent with such an interpretation. Last, the confounding effect of other social policies or factors may exist in Whitehorse. One candidate is the legalization of cannabis that occurred Canada-wide and was implemented on October 17, 2018 (Department of Justice, 2018), when the first government-run online and retail store selling cannabis opened in Whitehorse, midway through the post-intervention period. However, in separate analyses, no differences were observed in alcohol sales from before to after October 17, 2018.

Conclusion

We found that the introduction of new AWLs displayed on the containers of alcohol products sold in a major Yukon liquor store was associated with significantly reduced per capita alcohol consumption. The accumulating effect size over time can be interpreted as being consistent with a causal effect of the labeling intervention, especially as an opposite change was observed for unlabeled products and no reductions were seen in two separate control regions within and outside Yukon where there were no changes in labeling practices. The results are also broadly consistent with those from the self-report survey data collected before, during and after the labeling interventions (Hobin et al., 2020).

Acknowledgment

We thank the Yukon Liquor Corporation for providing the sales data for this study.

Conflict-of-Interest Statement

Tim Stockwell received research funds and travel expenses from both the Swedish and Finnish government alcohol monopolies in the past 4 years. Other authors declare no conflicts of interest.

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From: Erin Hobin
To: Jennifer.Roach
Cc: Tim Stockwell (timstock@uvic.ca)
Subject: RE: Meeting with Yukon Minister responsible for Yukon Liquor Corporation
Date: Thursday, September 17, 2020 10:29:51 AM
Attachments: image001.png
Briefing_Yukon_Minister_Alcohol_Label_Study_200917.pdf
Study_Overview_200917.pdf
Papers Refs and Abstracts_200916.pdf

Hi Jennifer,

Please find attached to this email the materials for our meeting with Minister and President, YLC.

1. Briefing Note;
2. Slide Deck presenting study overview including background information, intervention timeline, and results; and,
3. Abstracts from the 11 peer-reviewed manuscripts published from the labelling study.

Please let me know if you have questions or any issues with the attached documents. Thanks again for following up today.

Erin

From: Jennifer.Roach@gov.yk ca [mailto:Jennifer.Roach@gov.yk.ca]
Sent: September 17, 2020 11:29 AM
To: Erin Hobin
Subject: Meeting with Yukon Minister responsible for Yukon Liquor Corporation

Hi Erin – you mentioned having some materials for the minister prior to the meeting next week? When will these be available? The president is meeting with him tomorrow, so if it is possible to provide me them to me today, that would be ideal. If not, no worries.

Thanks,

Jennifer Roach
Executive Assistant
Yukon Liquor Corporation, Lotteries Yukon | President s Office
T 867-667-5265 | Yukon ca

Briefing Note

LEAD: Dr. Erin Hobin and Dr. Tim Stockwell

AGENDA ITEM: Evidence-informed alcohol labels

ITEM SUMMARY:

Title: Alcohol labels can support more informed and safer alcohol use: results from a quasi-experimental study in Whitehorse, Yukon.

ACTION REQUESTED FROM COUNCIL:
Information __X____ Discussion __X____ Approval _____

CONTEXT:

The **primary objective** of this Health Canada-funded was to test if, in a real-world setting, labelling alcohol containers with health messages supports more informed and safer alcohol consumption.

The label intervention included relatively large, full colour alcohol labels with three rotating messages: 1) cancer warning, 2) Canada's national drinking guidelines, and 3) the number of standard drinks in containers of wine, spirits, beer, and 2L cider (Figure 1). Label content, size, and format were informed by evidence as well as consultations with local and international health experts and community stakeholders.

Figure 1. Alcohol Label Intervention (actual size 5cm x 3.2cm)

Label 1 - Cancer Warning

Label 2 - Canada's National Drinking Guidelines

Label 3 - Standard Drink Information (example for Wine)

Partnering with the Yukon Liquor Corporation, the **research goal** was to test the impact of posting the three labels on all alcohol sold, with the exception of local beer and cider, in its liquor store in Whitehorse for an eight-month period, relative to alcohol sold in the two government-operated liquor stores in Yellowknife (comparison site), without the enhanced alcohol labels. Yukon and NWT are ideal jurisdictions to test alcohol labels because these two

territories are the only regions in Canada that have required a post-manufacturer label on containers since 1991 cautioning consumers about drinking while pregnant, with an additional message in NWT warning about drinking when driving and operating machinery (Figure 2). Therefore, the processes and procedures required to test labels on alcohol containers sold in its Whitehorse liquor store have already been established.

Figure 2. Alcohol Label in Yukon and Northwest Territories since 1991

Label in Yukon
(actual size 2.8cm x 2.3cm)

Label in NWT
(actual size 3.0cm x 5.0cm)

Only one month into the eight-month intervention period, the Yukon Government paused their participation in the study because of intense pressure from Canada's national alcohol industry lobby groups. Two months later, the Yukon Government resumed their participation in the study under the condition that the cancer warning label was excluded from the label rotation. The two labels with Canada's national drinking guidelines and standard drink information were reintroduced on containers in the liquor store in Whitehorse April 12, 2018 until July 31, 2018.

DATA SOURCES & METHODS:

Two primary data sources and methods were used to evaluate the impact of the alcohol labelling intervention:

1) Per capita alcohol sales data: An interrupted time series analysis was conducted to evaluate the effects of the labels on alcohol consumption in Whitehorse for 28 months before and 14 months after starting the intervention, relative to two separate comparison sites, neighbouring regions in Yukon, and Northwest Territories.

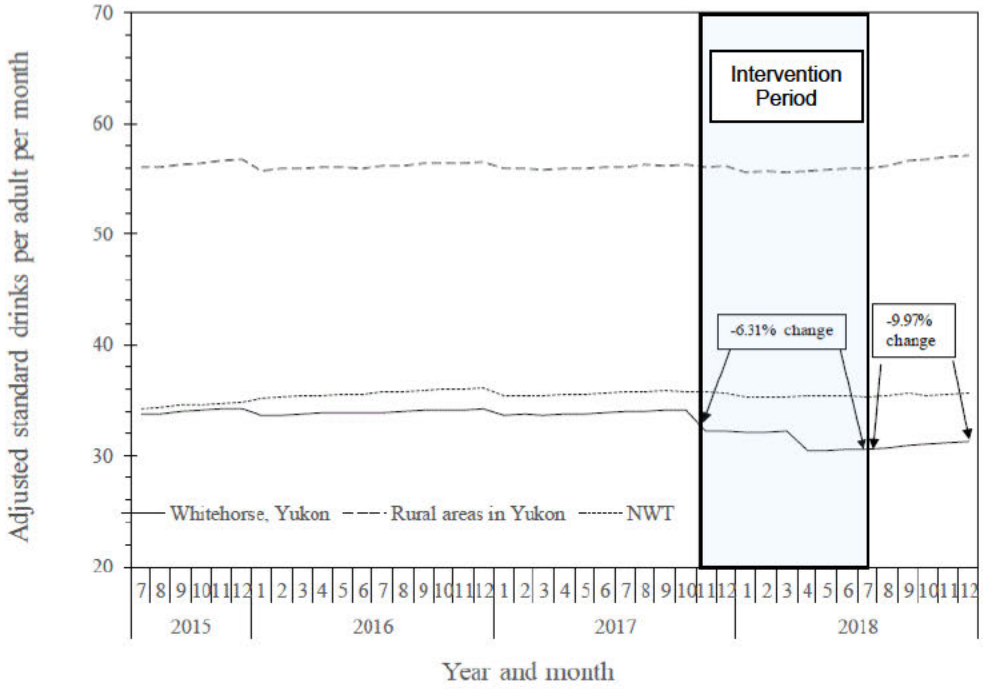
2) Longitudinal surveys with adult drinkers: Three waves of surveys were conducted before and at two time points after the label intervention among a cohort of 2049 adult drinkers that were systematically recruited in the one government-operated liquor store in Whitehorse (intervention site) and the two government-operated liquor stores in Yellowknife (comparison site). Surveys assessed changes in consumer awareness, knowledge, and self-reported use of the label messages.

KEY RESULTS:

- In total, approximately 300,000 labels were applied to 97% of alcohol containers sold in the liquor store in Whitehorse over the intervention period.
- Per capita alcohol sales in Whitehorse decreased by 6.31% ($p<0.001$) during the intervention period (Figure 3). Per capita sales of labelled products reduced by 6.99% ($p<0.001$), while sales of unlabeled products increased by 6.91% ($p<0.05$).[1]
- Prior to the intervention, levels of awareness of cancer risk, Canada's Low-Risk Drinking Guidelines and the size of a standard drink were low across both sites.[2]
- Enhanced labels achieved their goals of attracting consumer attention, deepening engagement, and enhancing motivation to reduce alcohol use.[3]

- Awareness of alcohol-related cancer risk and Canada's Low-Risk Drinking Guidelines increased in Whitehorse relative to Yellowknife, the comparison site.[4,5] 0156
- Consumers who became aware that alcohol is carcinogenic were 1.86 times more likely to support alcohol minimum unit pricing policy relative to those not aware.[6]
- Additional formal analysis of Canadian laws showed that industry's questioning of the legality of implementing alcohol warning labels was flawed and that Canadian territories and provinces have a duty to inform consumers about the health risks of a product they are involved in distributing, promoting and selling.[7]

Figure 3. Label impact on adjusted standard drinks per capita (ages 15+) in Whitehorse, neighbouring regions in Yukon, and NWT (July 2015 – December 2018).[1]



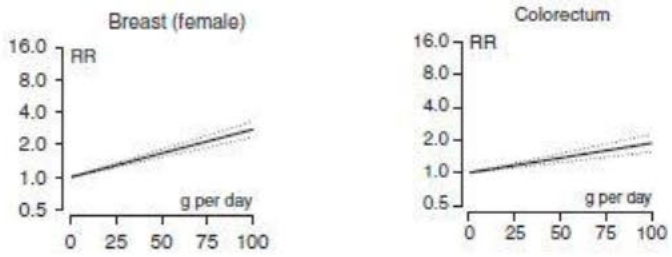
CONCLUSIONS:

The findings demonstrate that evidence-informed alcohol labels do an effective of job conveying risk information and promoting safer alcohol use than existing practices. The alcohol industry's opposition to warnings on serious health effects, such as cancer,[8] highlights the importance of mandatory alcohol labelling to ensure that consumers are adequately informed.

BACKGROUND:

Alcohol use is causally linked to more than 200 health conditions.[9] In 2010, alcohol placed 10.8 million Canadians at risk for immediate harm and 7.4 million at risk for chronic health conditions, such as cancer.[10] According to the World Health Organization's International Agency for Research on Cancer, on the basis of the sum total of evidence of studies of cancer in humans and animal models, as well as mechanistic studies, alcoholic beverages are carcinogenic to humans and are causally related to malignant tumours in at least seven sites, including mouth, pharynx, larynx, esophagus, liver, colon, and female breast.[11,12] (Figure 4 below illustrates the linear risk relationship between alcohol consumption and breast and colon cancer risk).[13] Similar conclusions about the causal relationship between alcohol and cancer were also reached by other expert groups from the World Cancer Research Fund and the American Society for Clinical Oncology.[14,15] In 2012, alcohol is estimated to have caused approximately half a million deaths from cancer; 5.8% of cancer deaths world-wide.[16]

Figure 4. Relative risk functions and corresponding 95% confidence intervals describing the dose-response relationship between alcohol consumption and breast and colon cancer risk obtained by fitting meta-regression models, by cancer site. RR=Relative Risk



The annual economic burden of alcohol-related harms in Canada in 2014 was $14.6 billion, more than all illicit substances combined and, by some estimates, more than tobacco.[17] The Canadian Institute for Substance Use Research (CISUR) at the University of Victoria has developed a tool to calculate alcohol attributable hospital admissions in British Columbia (BC). Specifically for cancer-related conditions, based on data supplied by the Canadian Institute for Health Information, CISUR estimates there were 1,099 inpatient hospitalizations in BC in 2015, representing 9,407 hospital days and costing approximately $15.2 million (Table 1).[18]

Table 1. Inpatient Hospitalizations for Alcohol Attributable Cancers in British Columbia, 2015

Cancer Site	# of Alcohol-Attributable Inpatient Hospitalizations	# of Days Spent in Hospital	Costs related to Alcohol-Attributable Cancer Hospitalizations
Oral cavity and pharynx Cancer	120	1,189	$2,097,492
Oesaphageal Cancer	67	763	$1,049,365
Colorectal Cancer	537	5,089	$7,932,332
Liver Cancer	128	1,019	$1,696,964
Pancreatic Cancer	35	439	$533,471
Laryngeal Cancer	33	413	$654,151
Female Breast Cancer	179	494	$1,197,118
Total	**1,099**	**9,407**	**$15,160,893**

Data supplied by the Canadian Institute for Health Information

Canada's Low-Risk Drinking Guidelines, released in November 2011 after endorsement by all Canadian Health Ministers, aim to help drinkers minimize alcohol-related harms and conditions.[19] Yet, Canadians remain largely unaware of the link between alcohol and health risks, and in most regions, 80% are unaware of the LRDGs, and understanding of what constitutes a "standard drink" is also low.[20-22] Our baseline survey of 836 adult drinkers conducted in spring 2017 in Whitehorse and Yellowknife demonstrated that there was low knowledge of alcohol-related cancer risk (24.4%), limited ability to calculate a standard drink (28.9%), and low awareness of Canada's LRDG (32.4%).[2]

Knowing the health risks caused by drinking alcohol as well as the guidelines for safer alcohol consumption may help some Canadians pay closer attention to their drinking and stop negative impacts on their health and the health of others.

ALCOHOL WARNING LABELS

Alcohol warning labels are supported by the World Health Organization as one component of a comprehensive strategy to inform consumers about the negative consequences of alcohol.[23, 24] The intent is to provide information at key points of intervention - the point-of-purchase and the point-of-pour. Currently, 47 countries mandate alcohol warnings on containers).[25] However,

given the little evidence to inform alcohol label content, format, and size, these elements vary across countries.[26] The common warning statements focus on a specific behaviour or sub-population, such as drinking when driving or pregnant women, or refer to general harms and excessive drinking. Some countries include label messages stating the number of standard drinks or units of alcohol in a container, or national drinking guidelines. None of the current labels include a cancer warning, except South Korea.[25] Since 2017, alcohol manufacturers in South Korea are able to choose one of three messages, two of which cite cancer risk. Additionally, Ireland passed legislation in late 2018 mandating cancer warnings on alcohol product labels. Yet, because of the pragmatic challenges of evaluating large-scale population-based interventions, until the labelling study in Yukon, evaluations were limited to the inconspicuous US text warnings cautioning about drinking when pregnant and operating a motor vehicle, and general health harms.[26,27]

The use of warning labels has been well studied in tobacco and there is a broad evidence base detailing strategies to maximize effectiveness.[28] Findings indicate that large labels using full colour and graphics, posted in a prominent and consistent location on the pack, and integrated with marketing campaigns, are effective for increasing awareness, and changing attitudes and behaviours.[29,30] To date, the limited effectiveness of alcohol warning labels for changing behaviour may in part be due to the weak design of the US label. Until recently, it was not known if well-designed alcohol warning labels perform similarly to tobacco warning labels in influencing alcohol-related beliefs and attitudes, and behaviour. The alcohol label study in Yukon was designed to answer this specific question in a real world policy experiment and results indicate that indeed alcohol labels may perform similarly to those used on tobacco packages.

RELEVANT WEBSITES:

Alcohol Labels Study Website:
https://www.uvic.ca/research/centres/cisur/projects/active/projects/northern-territories-alcohol-study.php

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Alcohol labels can support more informed and safer alcohol use: results from a quasi-experimental study in Whitehorse, Yukon.

September 22, 2020

Health information matters

Enhanced alcohol labelling could:

- ✓ Help people understand the number of standard drinks in their drinks and how their drinking relates to the low-risk drinking guidelines
  - E.g., Before the enhanced labels, only 35% of consumers in Whitehorse were aware of Canada's national drinking guidelines
- ✓Increase understanding of the health risks associated with drinking
  - E.g., Before the enhanced labels, 25% of consumers in Whitehorse were aware of the link between alcohol and cancer risk
- ✓Change the norms around alcohol
- ✓Reduce consumption

Primary research goals

- Develop evidence-informed alcohol warning labels, and
- Test, in a real-world setting, if the labels are an effective tool for supporting more informed and safer alcohol use.

Providing information via labels is a key way for people to **access health information and advice** at the point of choosing whether or what to purchase, as is the case with food, non-alcoholic drinks, and cannabis.

Background information

- Collaboration started in 2014 with former YLC President, Mark Hill
- Series of preliminary studies conducted to inform label design:
  - Online randomized controlled trial with 2,000 adult consumers to experimentally test label messages, format, and size (Hobin et al., 2018)
  - 5 focus groups in 3 Yukon communities in 2015 to refine label design and messages, and gauge consumer acceptability (Vallance et al., 2018)
- Quasi-experimental study in Whitehorse (intervention site) and Yellowknife (comparison site without the enhanced labels) with 2 key data sources:
  1. Longitudinal surveys with 2,049 adult consumers recruited at liquor stores in Whitehorse and Yellowknife before and 2-time points after label intervention
  2. Official YLC and NWT alcohol sales data before and after label intervention
- Funding: Research funding awarded by Health Canada Substance Use and Addiction Program (2017 – 2020)

Intervention timeline

November 20, 2017
- Intervention launch in liquor store in Whitehorse

December 19, 2017
- Intervention is put on hold, largely due to cancer warning label

January 3-11, 2018
- Study's halt receives widespread international and national media coverage

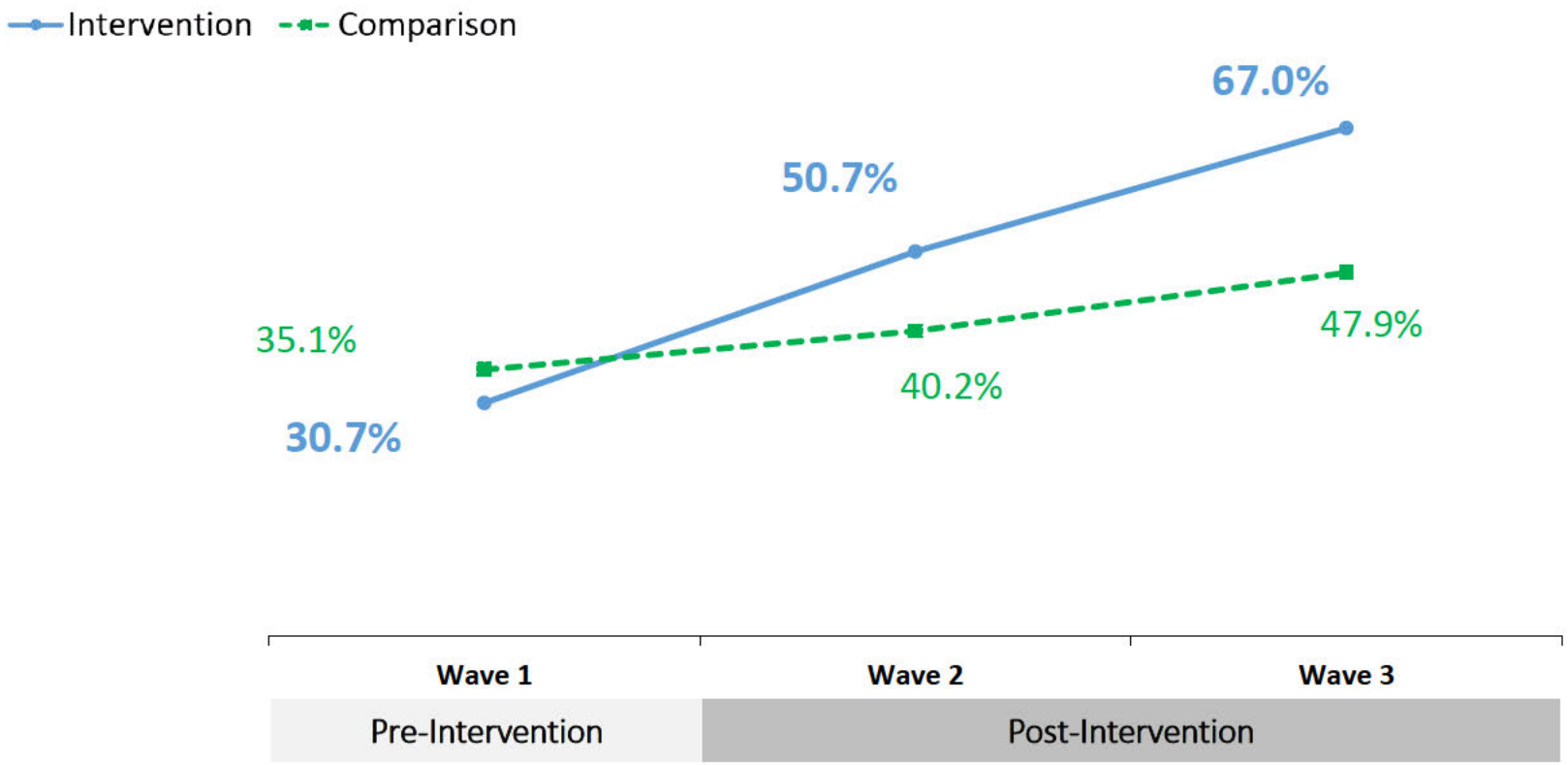
April 12, 2018
- Intervention resumes in liquor store in Whitehorse, excluding cancer warning label

July 31, 2018
- Intervention is completed

~300,000 labels were applied to 97% of alcohol containers sold in the liquor store in Whitehorse over the intervention period (Nov 2017 – Jul 2018)

Source: Vallance, K. et al. (2019). Testing the effectiveness of enhanced alcohol warning labels and modifications resulting from alcohol industry interference in Yukon, Canada: protocol for a quasi-experimental study. JMIR Research Protocols, 8(12):e16320 doi: 10.2196/16320.

Increases in awareness of national drinking guidelines (% aware of Canada's Low-Risk Drinking Guidelines, n=2,049)

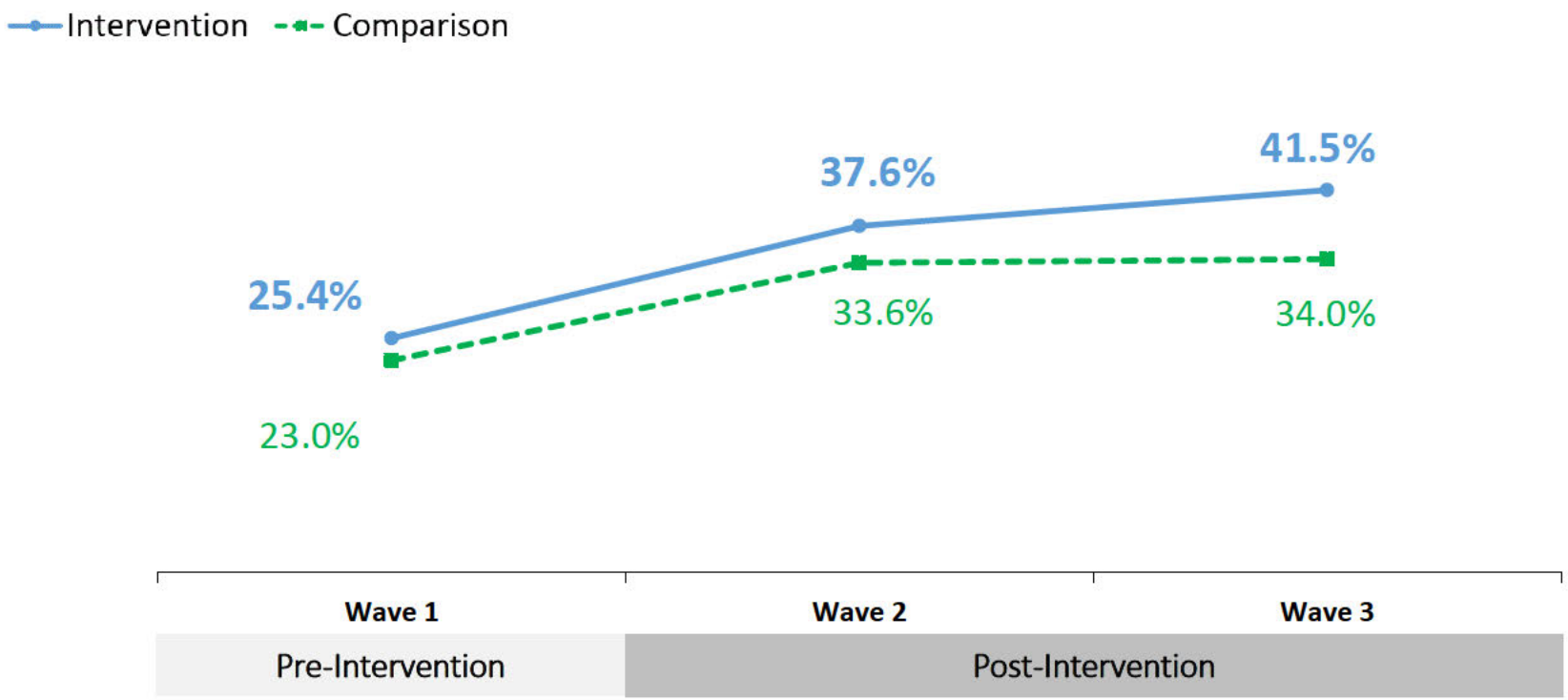


(+31.9% vs +17.2%; Adjusted OR=2.9, 95%CI: 2.0-4.3)

* All models compare W1 vs W3 and adjust for age, sex, ethnicity, education level, drinking level, and time-in-sample

Source: Schoueri-Mychasiw, N., et al. (2020). Examining the impact of alcohol labels on awareness and knowledge of national drinking guidelines: a real-world study in Yukon, Canada. Journal of Studies on Alcohol and Drugs, 81(2):262-272.

Increases in knowledge that alcohol can cause cancer (% believe that alcohol can cause cancer, n=2,049)



(+16.1% vs +11.0%; Adjusted OR=1.1, 95%CI: 0.8-1.6)

* All models compare W1 vs W3 and adjust for age, sex, ethnicity, education level, drinking level, and time-in-sample

Source: Hobin, E., et al. (2020). Testing alcohol labels as a tool to communicate cancer risk to drinkers: a real-world quasi-experimental study. Journal of Studies on Alcohol and Drugs, 81(2):249-261.

Knowledge of alcohol-cancer link and support for alcohol policies

- Knowledge that alcohol is a carcinogen was significantly associated with support for policies controlling:
  - **Pricing:** Adjusted OR=1.90, 95%CI: 1.5-2.4
  - **Availability:** Adjusted OR=1.63, 95% CI: 1.3-2.0
  - **Marketing:** Adjusted OR=1.55, 95% CI: 1.2-2.0

* All models adjusted for age, sex, ethnicity, education level, drinking level, site, and survey wave.

Results similar to previously published studies conducted in UK, Denmark, and Australia.

Sources: Weerasinghe, A., et al. (2020). Improving knowledge that alcohol can cause cancer is associated with consumer support for alcohol policies: findings from a real-world alcohol labelling study. International Journal of Environmental Research and Public Health, 17(2): doi10.3390/ijerph17020398. Martin et al (2018). Population Level Effects of a Mass Media Alcohol and Breast Cancer Campaign: A Cross-Sectional Pre-Intervention and Post-Intervention Evaluation. *Alcohol Alcohol, 53*, 31-38. Bates et al. (2018). Awareness of alcohol as a risk factor for cancer is associated with public support for alcohol policies. *BMC Public Health, 18*. Buykx et al. (2015). Public support for alcohol policies associated with knowledge of cancer risk. *Int. J. Drug Policy, 26*, 371-379. Christensen et al., (2019). Can a mass media campaign raise awareness of alcohol as a risk factor for cancer and public support for alcohol related policies? Preventive Medicine, 126.

Increases in knowledge of alcohol-cancer link and support for alcohol policies (n=445)

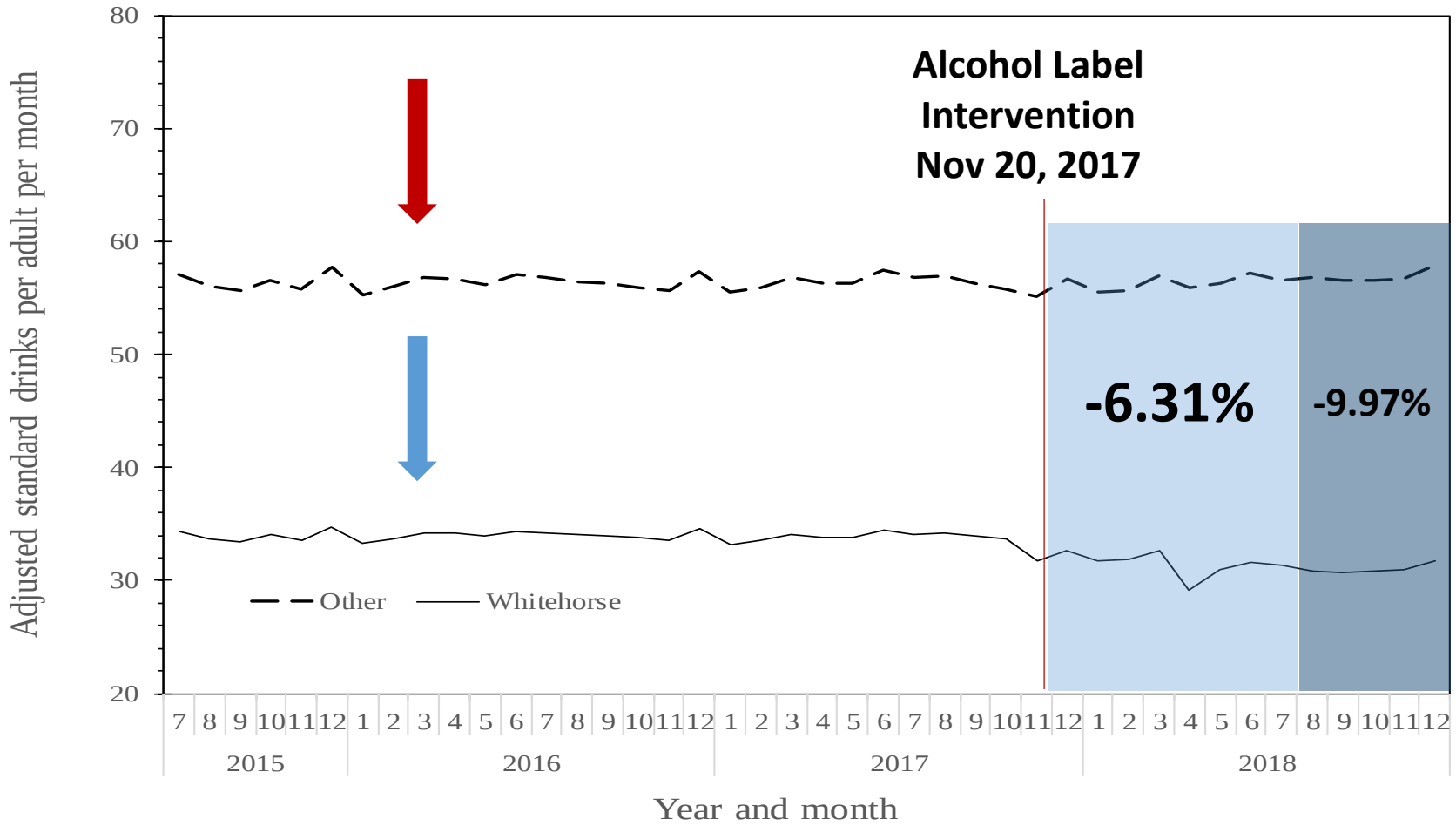
- Among 445 participants that completed surveys in both waves 1 and 2, an increase in knowledge of alcohol as a carcinogen among 20.2% of participants
- Associations between an increase in knowledge (vs. no change) and support for alcohol policies controlling:
  - **Price:** 37.8% vs 25.9%; Adjusted OR=1.86, 95%CI: 1.1-3.1
  - **Availability:** 26.7% vs 24.8%; Adjusted OR=1.20, 95% CI: 0.7-2.0
  - **Marketing:** 78.9% vs 74.1%; Adjusted OR=1.30, 95% CI: 0.7-2.4

* All models adjusted for age, sex, ethnicity, education level, and drinking level

Source: Weerasinghe, A., et al. (2020). Improving knowledge that alcohol can cause cancer is associated with consumer support for alcohol policies: findings from a real-world alcohol labelling study. International Journal of Environmental Research and Public Health, 17(2): doi10.3390/ijerph17020398.

Reductions in per capita alcohol consumption

Adjusted standard drinks (total retail sales) per person aged 15+ per month in Whitehorse liquor store and other liquor stores in Yukon in 2015-2018



Source: Zhao, J., Stockwell, T., Vallance, K., and Hobin, E. (2020). The effects of alcohol warning labels on population alcohol consumption: an interrupted time series analysis of alcohol sales in Yukon, Canada. Journal of Studies on Alcohol and Drugs, 81(2):225-237.

There is support for enhanced labels among Whitehorse consumers

- 66% agreed or strongly agreed to alcohol container labels with the number of standard drinks per container
- 61% agreed or strongly agreed to alcohol container labels with health warning messages, such as cancer
- 52% agreed or strongly agreed to alcohol container labels with national drinking guidelines

Sources: Hobin, E., et al. (2020). Testing alcohol labels as a tool to communicate cancer risk to drinkers: a real-world quasi-experimental study. Journal of Studies on Alcohol and Drugs, 81(2):249-261. Schoueri-Mychasiw, N., et al. (2020). Examining the impact of alcohol labels on awareness and knowledge of national drinking guidelines: a real-world study in Yukon, Canada. Journal of Studies on Alcohol and Drugs, 81(2):262-272. Schoueri-Mychasiw, N. et al. (In Press). **:** Use as directed: do standard drink labels on alcohol containers help consumers drink (ir)responsibly? Real-world evidence from a quasi-experimental study in Yukon, Canada. Drug and Alcohol Review.

Limitations

- Intervention was interrupted after 1 month, and duration was shortened by 50%
- Intervention was compromised – exclude cancer warning label 1 month into the 8-month intervention, awareness campaign was cancelled
- Potential contamination in comparison site due to national media coverage
- Sales data include total recorded sales, do not include unrecorded consumption or control for volume of tourism

Peer-Reviewed Manuscripts

- **11 peer-reviewed manuscripts**, including 6 papers in a special series in *Journal for Studies on Alcohol and Drugs*

Testing Alcohol Labels as a Tool to Communicate Cancer Risk to Drinkers: A Real-World Quasi-Experimental Study

ERIN HOBIN, PH.D.,[a,b,*] ASHINI WEERASINGHE, M.P.H.,[a] KATE VALLANCE, M.A.,[c] DAVID HAMMOND, PH.D.,[d] JONATHAN MCGAVOCK, PH.D.,[e] THOMAS K. GREENFIELD, PH.D.,[f] NOUR SCHOUERI-MYCHASIW, PH.D.,[a] CATHERINE PARADIS, PH.D.,[g] & TIM STOCKWELL, PH.D.[c]

The Effects of Alcohol Warning Labels on Population Alcohol Consumption: An Interrupted Time Series Analysis of Alcohol Sales in Yukon, Canada

JINHUI ZHAO, PH.D.,[a,*,†] TIM STOCKWELL, PH.D.,[a,†] KATE VALLANCE, M.A.,[a] & ERIN HOBIN, PH.D.[b,c]

Cancer Warning Labels on Alcohol Containers: A Consumer's Right to Know, a Government's Responsibility to Inform, and an Industry's Power to Thwart

TIM STOCKWELL, PH.D.,[a,*] ROBERT SOLOMON, LL.M.,[b] PAULA O'BRIEN, PH.D.,[c] KATE VALLANCE, M.A.,[a] & ERIN HOBIN, PH.D.[d,e]

Research Paper

Effects of strengthening alcohol labels on attention, message processing, and perceived effectiveness: A quasi-experimental study in Yukon, Canada

Erin Hobin[a,b,*], Nour Schoueri-Mychasiw[a], Ashini Weerasinghe[a], Kate Vallance[c], David Hammond[d], Thomas K. Greenfield[e], Jonathan McGavock[f], Catherine Paradis[g], Tim Stockwell[c]

Testing the Effectiveness of Enhanced Alcohol Warning Labels and Modifications Resulting From Alcohol Industry Interference in Yukon, Canada: Protocol for a Quasi-Experimental Study

Kate Vallance, MA, Timothy Stockwell, PhD, [...], and Erin Hobin, PhD

Knowledge Translation Activities

- 10+ face-to-face meetings with partners in Yukon and Northwest Territories partners
- 9 national and international peer-reviewed conference abstracts, webinars, symposia
- Project website
- 5 invited presentations, 50+ media interviews
- Policy brief, Lay summary, 4 Infographics, Social media campaign, Blog posts, Press releases, Press conferences
- 2 project reports for local partners

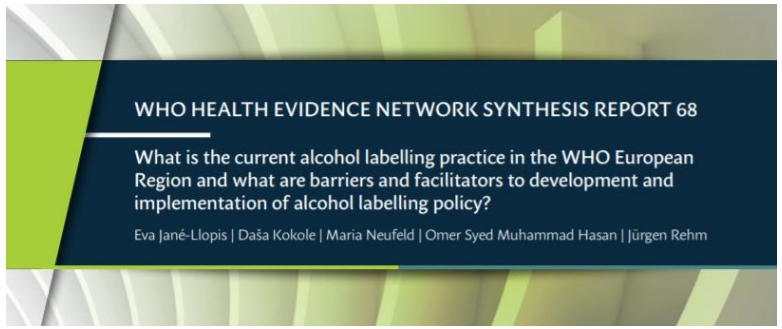
Press Conference - Study launch in Whitehorse liquor store

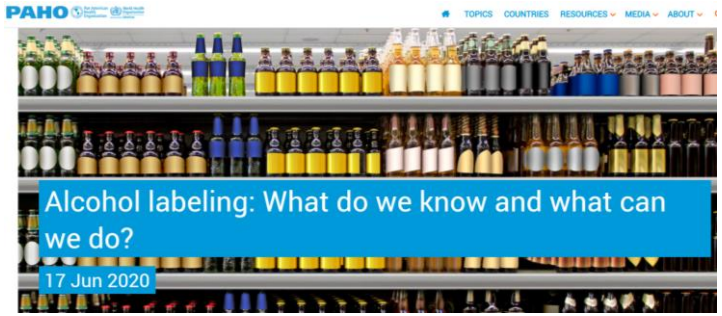
Project Website

Global interest and uptake

Results are being sought after and cited by researchers, practitioners, and policymakers nationally and internationally

- World Health Organization invited Principal Investigators to provide expert review for their recent report on alcohol labels, strongly referenced our research in webinars and international guidance documents
- Pan-American Health Organization's webinar series on alcohol labelling strongly referenced our research





Sources: Jané-Llopis E, Kokole D, Neufeld M, Hasan OSM, Rehm J. What is the current alcohol labelling practice in the WHO European Region and what are barriers and facilitators to development and implementation of alcohol labelling policy? Copenhagen: WHO Regional Office for Europe; 2020 (Health Evidence Network (HEN) synthesis report 68). https://apps.who.int/iris/bitstream/handle/10665/332129/9789289054898-eng.pdf. PAHO. Alcohol labelling: What do we know and what can we do? https://www.paho.org/en/events/alcohol-labeling-what-do-we-know-and-what-can-we-do

Thank you

Erin Hobin

Tel: (647) 260-7198

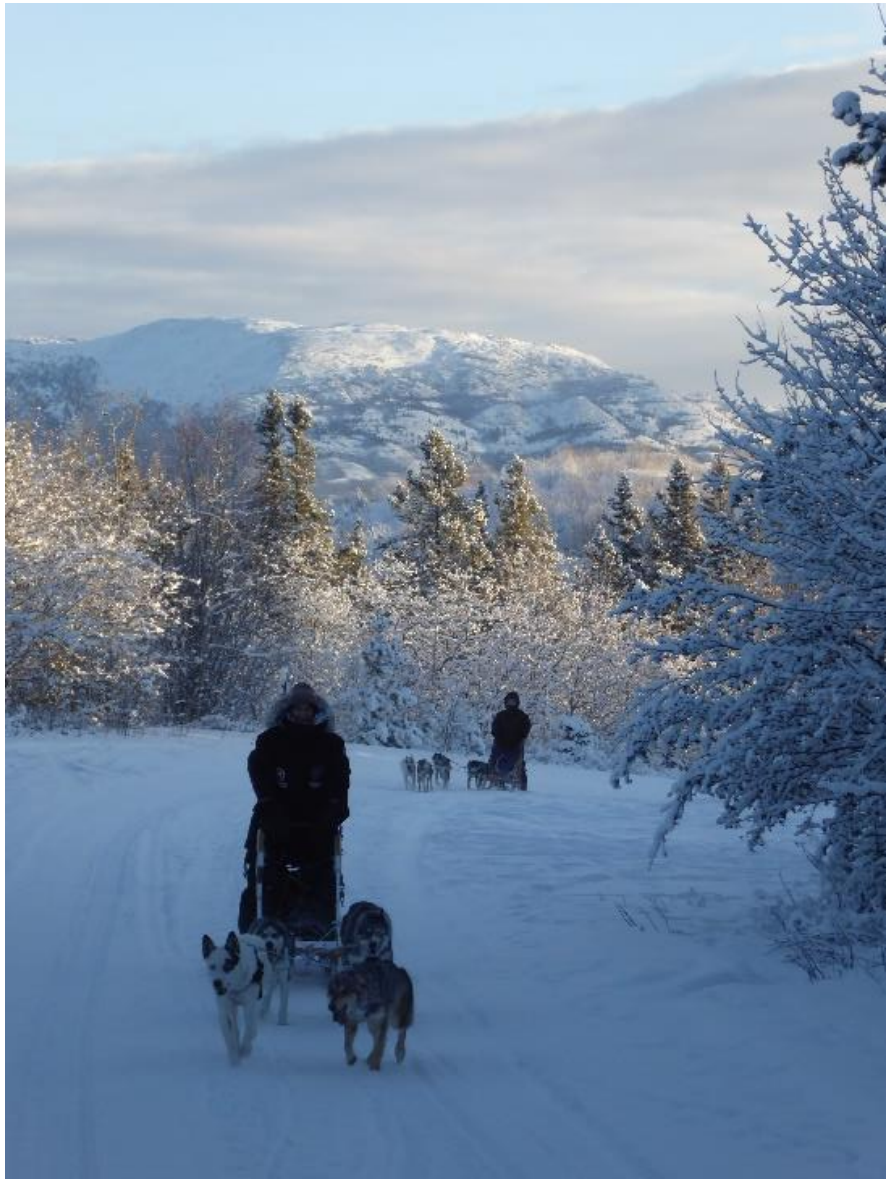
Email: erin.hobin@oahpp.ca

Twitter: @erinhobinPhD

Tim Stockwell

Tel: (250) 472-5445

Email: tstock@uvic.ca



Research team / L'équipe de recherche

- **Co-Principal Applicants**
  - Erin Hobin, PHO, University of Toronto, CISUR
  - Tim Stockwell, CISUR, University of Victoria
- **Co-Investigators**
  - Tom Greenfield, Alcohol Research Group
  - David Hammond, University of Waterloo
  - Jonathan McGavock, University of Manitoba
  - Catherine Paradis, Canadian Centre for Substance Use and Addictions
- **Research Managers:** Kate Vallance, Simran Shokar, Nour Schoueri-Mychasiw, Ashini Weerasinghe, Alexandria Vincent
- **Local, National, and International Experts and Collaborators including Yukon Liquor Corporation, Office of the Yukon Chief Medical Officer of Health**

University of Victoria | Canadian Institute for Substance Use Research

Peer-Reviewed Papers

Special Series in Journal of Studies on Alcohol and Drugs

1. Vallance, K., Stockwell, T., Zhao, J., Simran, S., Schoueri-Mychasiw, N., Hammond, D., Greenfield, T.K., McGavock, J., Weerasinghe, A., and Hobin, E. (2020). Baseline assessment of alcohol-related knowledge of and support for alcohol warning labels among alcohol consumers in northern Canada, and associations with key socio-demographic characteristics. Journal of Studies on Alcohol and Drugs, 81(2):238-248.

2. Zhao, J., Stockwell, T., Vallance, K., and Hobin, E. (2020). The effects of alcohol warning labels on population alcohol consumption: an interrupted time series analysis of alcohol sales in Yukon, Canada. Journal of Studies on Alcohol and Drugs, 81(2):225-237.

3. Schoueri-Mychasiw, N., Weerasinghe, A., Vallance, K., Stockwell, T., Hammond, D., McGavock, J., Greenfield, T.K., Paradis, C., and Hobin, E. (2020). Examining the impact of alcohol labels on awareness and knowledge of national drinking guidelines: a real-world study in Yukon, Canada. Journal of Studies on Alcohol and Drugs, 81(2):262-272.

4. Hobin, E., Weerasinghe, A., Schoueri-Mychasiw, N., Vallance, K., Hammond, D., McGavock, J., Greenfield, T.K., Paradis, C., and Stockwell, T. (2020). Testing alcohol labels as a tool to communicate cancer risk to drinkers: a real-world quasi-experimental study. Journal of Studies on Alcohol and Drugs, 81(2):249-261.

5. Stockwell, T., O'Brien, P., Solomon, R., and Hobin, E. (2020). Cancer warnings on alcohol containers: A consumer's right to know, a government's responsibility to inform, and an industry's power to thwart. Journal of Studies on Alcohol and Drugs, 81(2):284-292.

6. Vallance, K., Vincent, A.*, Schoueri-Mychasiw, N., Stockwell, T., Hammond, D., Greenfield, T. K., McGavock, J., and Hobin, E. (2020). News media and the influence of the alcohol industry: an analysis of news media coverage of alcohol warning labels with a cancer message in Canada and Ireland. Journal of Studies on Alcohol and Drugs, 81(2):273-283.

Other International and Canadian Journals

7. Hobin, E., Schoueri-Mychasiw, N., Weerasinghe, A., Vallance, K., Hammond, D., Greenfield, T.K., McGavock, J., Paradis, C., and Stockwell, T. (2020). Effects of strengthening alcohol labels on attention, message processing, and perceived effectiveness: a quasi-experimental study in Yukon, Canada. International Journal of Drug Policy, 77:102666.

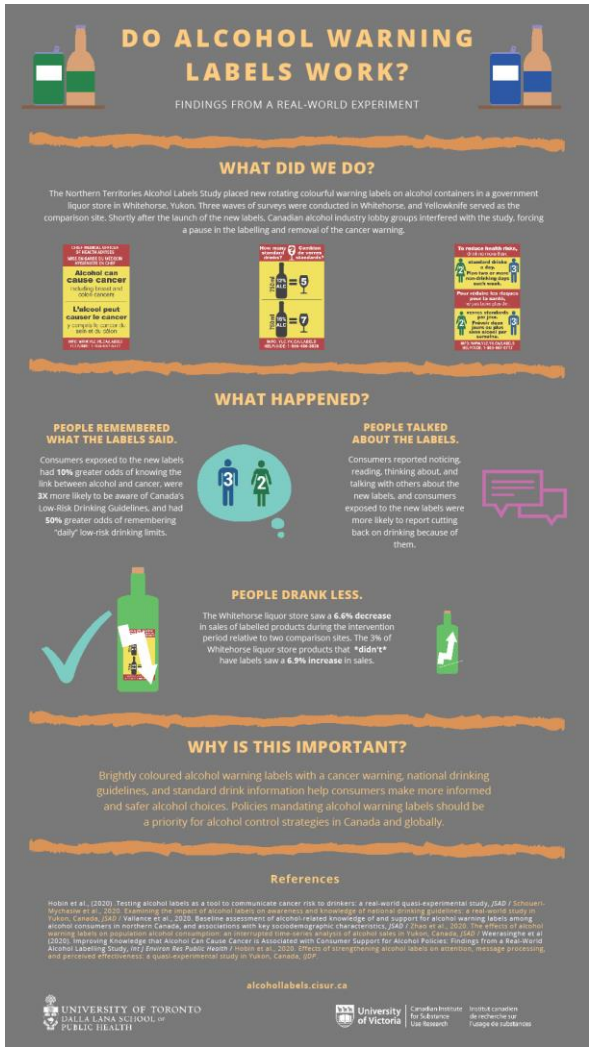
8. Vallance, K., Stockwell, T., Hammond, D., Shokar, S., Schoueri-Mychasiw, N., Greenfield, T.K., McGavock, J., Zhao, J., Weerasinghe, A., and Hobin, E. (2019). Testing the effectiveness of enhanced alcohol warning labels and modifications resulting from alcohol industry interference in Yukon, Canada: protocol for a quasi-experimental study. JMIR Research Protocols, 8(12):e16320 doi: 10.2196/16320.

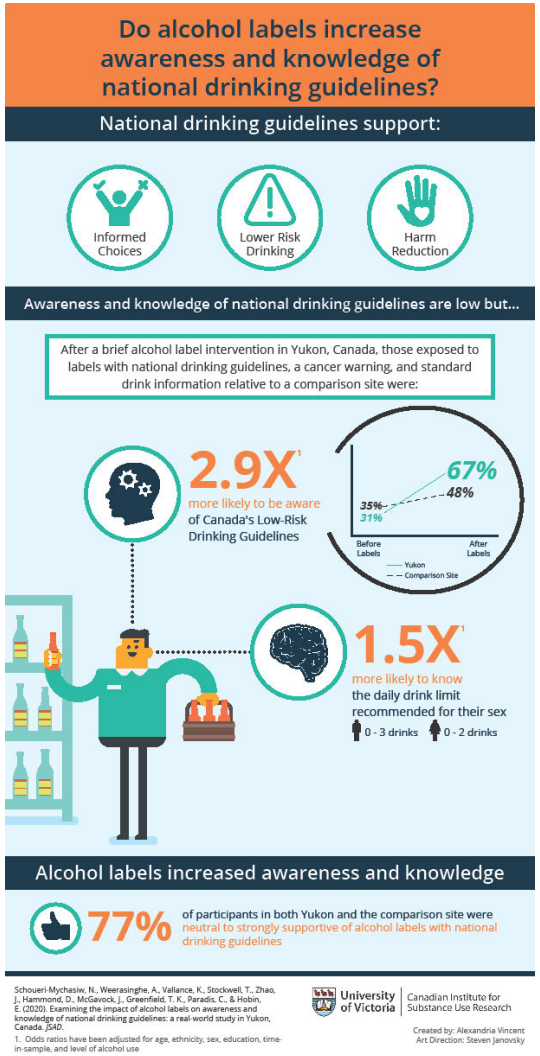
9. Weerasinghe, A., Schoueri-Mychasiw, N., Vallance, K., Stockwell, T., Hammond, D., McGavock, J., Greenfield, T.K., Paradis, C., and Hobin, E. (2020). Improving knowledge that alcohol can cause cancer is associated with consumer support for alcohol policies: findings from a real-world alcohol labelling study. International Journal of Environmental Research and Public Health, 17(2): doi10.3390/ijerph17020398.

10. Hobin, E., Shokar, S., Vallance, K., Hammond, D., McGavock, J., Greenfield, T.K., Schoueri-Mychasiw, N., Paradis, C., and Stockwell, T. (In press). Communicating risks to drinkers: testing alcohol labels with a cancer warning and national drinking guidelines in Canada. Canadian Journal of Public Health.

11. Schoueri-Mychasiw, N. Weerasinghe, A., Stockwell, T., Vallance, K., Hammond, D., McGavock, J., Greenfield, T.K., and Hobin, E. (In Press). **:** Use as directed: do standard drink labels on alcohol containers help consumers drink (ir)responsibly? Real-world evidence from a quasi-experimental study in Yukon, Canada. Drug and Alcohol Review.

Infographics





Peer-Reviewed Publications - References & Abstracts

Zhao, J., Stockwell, T., Vallance, K., & Hobin, E. (2020). The effects of alcohol warning labels on population alcohol consumption: An interrupted time series analysis of alcohol sales in Yukon, Canada. Journal of Studies on Alcohol and Drugs, 81, 225–237. doi:10.15288/jsad.2020.81.225

ABSTRACT. Objective: There is limited evidence that alcohol warning labels (AWLs) affect population alcohol consumption. New evidence-informed AWLs were introduced in the sole government-run liquor store in Whitehorse, Yukon, that included a cancer warning (Ca), low-risk drinking guidelines (LRDGs) and standard drink (SD) messages. These temporarily replaced previous pregnancy warning labels. We test if the intervention was associated with reduced alcohol consumption. **Methods:** An interrupted time series study was designed to evaluate the effects of the AWLs on consumption for 28 months before and 14 months after starting the intervention. Neighboring regions of Yukon and Northwest Territories served as control sites. About 300,000 labels were applied to 98% of alcohol containers sold in Whitehorse during the intervention. Multilevel regression analyses of per capita alcohol sales data for people age 15 years and older were performed to examine consumption levels in the intervention and control sites before, during, and after the AWLs were introduced. Models were adjusted for demographic and economic characteristics over time and region. **Results:** Total per capita retail alcohol sales in Whitehorse decreased by 6.31% (*t* test $p < .001$) during the intervention. Per capita sales of labeled products decreased by 6.59% (*t* test $p < .001$), whereas sales of unlabeled products increased by 6.91% (*t* test $p < .05$). There was a still larger reduction occurring after the intervention when pregnancy warning labels were reintroduced (-9.97% and 10.29%, *t* test $p < .001$). **Conclusions:** Applying new AWLs was associated with reduced population alcohol consumption. The results are consistent with an accumulating impact of the addition of varying and highly visible labels with impactful messages.

Vallance, K., Stockwell, T., Zhao, J., Shokar, S., Schoueri-Mychasiw, N., Hammond, D., Greenfield, T. K., McGavock, J., Weerasinghe, A., & Hobin, E. (2020). Baseline assessment of alcohol-related knowledge of and support for alcohol warning labels among alcohol consumers in northern Canada and associations with key sociodemographic characteristics. Journal of Studies on Alcohol and Drugs, 81, 238–248. doi:10.15288/jsad.2020.81.238

ABSTRACT. Objective: Evidence-informed alcohol warning labels (AWLs) are a promising, well-targeted strategy to increase consumer awareness of health risks. We assessed consumers' baseline knowledge of alcohol-related cancer risk, standard drinks, and low-risk drinking guidelines as well as levels of support for AWLs. We further assessed associations with sociodemographic factors. **Methods:** Forming part of a larger study testing new evidence-informed AWLs in a northern Canadian territory compared with a neighboring territory, baseline surveys were completed among liquor store patrons systematically selected in both sites. Chi-square and multivariable logistic regression analyses were performed to assess outcomes. **Results:** In total, 836 liquor store patrons (47.8% female) completed baseline surveys across both sites. Overall, there was low knowledge of alcohol-related cancer risk (24.4%), limited ability to calculate a standard drink (28.9%), and low knowledge of daily (48.9%) and weekly (47.6%) low-risk drinking guideline limits. There was

moderate support for AWLs with a health warning (55.4%) and standard drink information (51.0%), and lower support for low-risk drinking guideline labels (38.3%). No sociodemographic characteristics were associated with cancer knowledge. Identifying as female and having adequate health literacy were associated with support for all three AWLs; high alcohol use was associated with not supporting standard drink (adjusted odds ratio = 0.60, 95% CI [0.40, 0.88]) and low-risk drinking guideline (adjusted odds ratio = 0.57, 95% CI [0.38, 0.87]) labels. **Conclusions:** Few consumers in this study had key alcohol-related health knowledge; however, there was moderate support for AWLs as a tool to raise awareness. Implementation of information-based interventions such as evidence-informed AWLs with health messages including alcohol-related cancer risk, standard drink information, and national drinking guidelines is warranted.

Hobin, E., Weerasinghe, A., Vallance, K., Hammond, D., McGavock, J., Greenfield, T. K., Schoueri-Mychasiw, N., Paradis, C., & Stockwell, T. (2020). Testing alcohol labels as a tool to communicate cancer risk to drinkers: a real-world quasi-experimental study. Journal of Studies on Alcohol and Drugs, 81, 249–261. doi:10.15288/jsad.2020.81.249

ABSTRACT. Objective: This study tested the initial and continued effects of cancer warning labels on drinkers' recall and knowledge that alcohol can cause cancer. **Methods:** A quasi-experiment was conducted to examine changes in the intervention versus comparison site for three outcomes: unprompted and prompted recall of the cancer warning, and knowledge that alcohol can cause cancer. The intervention site applied cancer warning labels to alcohol containers in its liquor store for 1 month, and the two liquor stores in the comparison site did not apply cancer labels. In total, 2,049 unique cohort participants (1,056 male) were recruited at liquor stores in the intervention and comparison sites to participate in surveys 4 months before labels were applied and 2 and 6 months after the cancer label was halted because of alcohol industry interference. Generalized estimating equations tested differences in outcomes between sites over time adjusting for socio-demographics and other covariates. **Results:** Two months after the cancer label, unprompted (+24.2% vs. +0.6%; adjusted odds ratio [AOR] = 32.7, 95% CI [5.4, 197.7]) and prompted (+35.7% vs. +4.1%; AOR = 6.2, 95% CI [3.6, 10.9]) recall increased to a greater extent in the intervention versus comparison site. There was a 10% greater increase in knowledge (+12.1% vs. +11.6%; AOR = 1.1, 95% CI [0.7, 1.5]) 2 months after the cancer label in the intervention versus comparison site. Similar results were found 6 months after the intervention for all three outcomes. **Conclusions:** In a real-world setting, cancer warning labels get noticed and increase knowledge that alcohol can cause cancer. Additional cancer label intervention studies are required that are not compromised by industry interference.

Schoueri-Mychasiw, N., Weerasinghe, A., Vallance, K., Stockwell, T., Zhao, J., Hammond, D., McGavock, J., Greenfield, T. K., Paradis, C., & Hobin, E. (2020). Examining the impact of alcohol labels on awareness and knowledge of national drinking guidelines: A real-world study in Yukon, Canada. Journal of Studies on Alcohol and Drugs, 81, 262–272. doi:10.15288/jsad.2020.81.262

ABSTRACT. Objective: Alcohol labels are one strategy for communicating health information to consumers. This study tested the extent to which consumers recalled alcohol labels with national drinking guidelines and examined the impact of labels on awareness and knowledge

of the guidelines. **Methods:** A quasi-experimental study was conducted in two jurisdictions in northern Canada examining the impact of labels on the following outcomes: unprompted and prompted recall of the drinking guideline label message, awareness of the drinking guidelines, and knowledge of the daily and weekly recommended drink limits. The intervention site applied labels with national drinking guidelines, a cancer warning, and standard drink information to alcohol containers in its liquor store, whereas the comparison site did not apply these labels. In total, 2,049 cohort participants in both sites were recruited to complete surveys before and at two time points after the intervention. Changes in outcomes were examined using generalized estimating equations. **Results:** After the intervention, unprompted and prompted recall of the drinking guideline label message increased more in the intervention versus comparison site (adjusted odds ratio [AOR] = 10.8, 95% CI [0.9, 127.6]; AOR = 7.0, 95% CI [3.3, 14.9], respectively). Awareness of the drinking guidelines increased 2.9 times more in the intervention versus comparison site (AOR = 2.9, 95% CI [2.0, 4.3]). In addition, knowledge of the daily and weekly drink limits increased 1.5 and 1.4 times more in the intervention versus comparison site, respectively (daily: AOR = 1.5, 95% CI [1.0, 2.1]; weekly: AOR = 1.4, 95% CI [1.0, 2.0]). **Conclusions:** Enhanced alcohol labels get noticed and may be an effective population-level strategy for increasing awareness and knowledge of national drinking guidelines.

Vallance, K., Vincent, A., Schoueri-Mychasiw, N., Stockwell, T., Hammond, D., Greenfield, T. K., McGavock, J., & Hobin, E. (2020). News media and the influence of the alcohol industry: An analysis of media coverage of alcohol warning labels with a cancer message in Canada and Ireland. Journal of Studies on Alcohol and Drugs, 81, 273–283. doi:10.15288/jsad.2020.81.273

ABSTRACT. Objective: Media coverage of alcohol-related policy measures can influence public debate and is often more aligned with interests of the alcohol industry than public health. The purpose of this study was to examine the framing of news coverage of alcohol warning label (AWL) initiatives that included a cancer message on alcohol containers in two different countries. Policy contexts and industry perspectives were also evaluated. **Methods:** We identified and systematically reviewed news articles published between 2017–2019 covering an AWL academic study in Yukon, Canada, and labeling provisions in a Public Health (Alcohol) Bill in Ireland. Both included a cancer message. News stories were coded for media type and topic slant; inclusion of alcohol industry perspectives was examined using content analysis. **Results:** Overall, 68.4% of media articles covering the Yukon Study (*n* = 38) and 18.9% covering the Ireland Bill (*n* = 37) were supportive of AWLs with a cancer message. The majority of articles in both sites presented alcohol industry perspectives (Yukon, 65.8%; Ireland, 86.5%), and industry arguments opposing AWLs were similar across both contexts. In articles with statements from industry representatives, the label message was frequently disputed by distorting or denying the evidence that alcohol causes cancer (*n* = 33/43). **Conclusions:** News coverage of AWLs with a cancer message was more supportive in Canada than Ireland, where alcohol industry perspectives were consistently foregrounded. Industry arguments opposing the cancer label bore similarities across contexts, often distorting or denying the evidence. Increasing awareness of industry messaging strategies may generate more critical coverage of industry lobbying activities and increase public support for alcohol policies.

Stockwell, T., Solomon, R., O'Brien, P., Vallance, K., & Hobin, E. (2020). Cancer warning labels on alcohol containers: A consumer's right to know, a government's responsibility to inform, and an industry's power to thwart. Journal of Studies on Alcohol and Drugs, 81, 284–292. doi:10.15288/jsad.2020.81.284

ABSTRACT. Objective: Although the World Health Organization (WHO) declared alcohol a Class 1 carcinogen 30 years ago, few governments have communicated this fact to the public. We illustrate how alcohol industry groups seek to keep their customers in the dark about alcohol-related cancer risks. In Canada, a federally funded scientific study examining the introduction of cancer warning labels on containers was shut down following industry interference. We show that the industry complaints about the study had no legal merit. Of 47 WHO member countries with alcohol warning labels, only South Korea requires cancer warnings on alcohol containers. However, industry complaints, supported by sympathetic governments, helped weaken the warning labels' implementation. Ireland has legislated for cancer warnings but faces continuing legal opposition expressed through regional and global bodies. Cancer societies and the public health community have failed to counter industry pressures to minimize consumer awareness of alcohol's cancer risks. Placing cancer warnings on alcohol containers could make a pivotal difference in motivating both drinkers to consume less and regulators to introduce more effective policies to reduce the serious harms of alcohol consumption.

Hobin, E., Shokar, S., Vallance, K., Hammond, D., McGavock, J., Greenfield, T.K., Schoueri-Mychasiw, N., Paradis, C., Stockwell, T. (2020). Communicating risks to drinkers: testing alcohol labels with a cancer warning and national drinking guidelines in Canada. *Canadian Journal of Public Health*, doi: 10.17269/s41997-020-00320-7.

ABSTRACT. Objective: To test if alcohol labels with a cancer warning and national drinking guidelines are an effective tool for supporting more informed and safer alcohol consumption among drinkers. **Methods:** Using a quasi-experimental design, pre-post surveys were conducted with 1,647 cohort participants systematically selected in liquor stores in two matched sites in Canada in 2017-2018. Enhanced labels designed according to best practices for effective product labels were applied to alcohol containers in the liquor store in the intervention site for one month, and usual practice continued in the comparison site. Generalized Estimating Equations tested the difference between sites over time in label salience and processing, and self-reported impact of the labels on drinking behaviours. **Results:** After the intervention, recall of the cancer warning label increased to a greater extent in the intervention versus comparison site [Adjusted Odds Ratio (AOR)=32.2, 95%CI=5.4, 191.1], but not the national drinking guideline label (AOR=2.7, 95%CI=0.2, 31.8). There were significant label effects in the intervention versus comparison site for reading (AOR=1.8, 95%CI=1.3, 2.5), thinking about (AOR=2.0, 95%CI=1.4, 2.9), and talking with others about (AOR=2.1, 95%CI=1.3, 3.6) the labels, as well as self-reported impact to cut down on drinking (AOR=2.5, 95%CI=1.3, 4.7) and to drink less (AOR=2.4, 95%CI=1.3, 4.3). **Conclusions:** Alcohol labels with a cancer warning and national drinking guidelines do a better job conveying risk information and promoting safer consumption than existing practices. Industry has a legal duty to adequately inform consumers about their products and should be mandated to include key information on alcohol containers.

Hobin, E., Schoueri-Mychasiw, N., Weerasinghe, A., Vallance, K., Hammond, D., Greenfield, T.K., McGavock, J., Paradis, C., Stockwell, T. (2020). Effects of strengthening alcohol labels on attention, message processing, and perceived effectiveness: a quasi-experimental study in Yukon, Canada. *International Journal of Drug Policy*, 77:102666.

ABSTRACT. Alcohol labels are one strategy for raising consumer awareness about the negative consequences of alcohol, but evidence to inform labels is limited. This quasi-experimental study sought to test the real-world impact of strengthening health messages on alcohol container labels on consumer attention, message processing (reading, thinking, and talking with others about labels), and self-reported drinking. Alcohol labels with a cancer warning, national drinking guidelines, and standard drink information were implemented in the intervention site, and usual labelling practices continued in the comparison site. Changes in key indicators of label effectiveness were assessed among a cohort of adult drinkers in both the intervention and comparison sites using three waves of surveys conducted before and at two time-points after the alcohol label intervention. Generalized Estimating Equations with difference-in-difference terms were used to examine the impact of the label intervention on changes in outcomes. Strengthening health messages on alcohol container labels significantly increased consumer attention to [Adjusted Odds Ratio (AOR)=17.2, 95%CI:8.2,36.2] and processing of labels (e.g., reading labels: AOR=2.6, 95%CI:1.8,3.7), and consumer reports of drinking less due to the labels (AOR=3.7, 95%CI: 2.0,7.0). Strengthening health messages on alcohol containers can achieve their goal of attracting attention, deepening engagement, and enhancing motivation to reduce alcohol use. Strengthening alcohol labelling policies should be a priority for alcohol control globally.

Vallance, K., Stockwell, T., Hammond, D., Shokar, S., Schoueri-Mychasiw, N., Greenfield, T.K., McGavock, J., Zhao, J., Weerasinghe, A., Hobin, E. (2019). Testing the effectiveness of enhanced alcohol warning labels and modifications resulting from alcohol industry interference in Yukon, Canada: protocol for a quasi-experimental study. JMIR Research Protocols; 8(12):e16320 doi: 10.2196/16320.

ABSTRACT. Background: Alcohol warning labels are a promising, well-targeted strategy to increase public awareness of alcohol-related health risks and support more informed and safer use. However, evidence of their effectiveness in real-world settings remains limited and inconclusive. **Objective:** This paper presents a protocol for a real-world study examining the population-level impact of enhanced alcohol warning labels with a cancer message; national drinking guidelines; and standard drink information on attention, processing, and alcohol-related behaviors among consumers in Canada. Post-implementation modifications to the original protocol due to interference by national alcohol industry representatives are also described. **Methods:** This quasi-experimental study involved partnering with local governments in two northern Canadian territories already applying alcohol warning labels on alcohol containers for sale in liquor stores. The study tested an 8-month intervention consisting of three new enhanced, rotating alcohol warning labels in an intervention site (Whitehorse, Yukon) relative to a comparison site (Yellowknife, Northwest Territories) where labelling practices would remain unchanged. Pre-post surveys were conducted at both sites to measure changes in awareness and processing of label messages, alcohol-related knowledge, and behaviors. Liquor store transaction data were collected from both sites to assess changes in population-level alcohol consumption. The intervention was successfully

implemented for 1 month before it was halted due to complaints from the alcohol industry. The government of the intervention site allowed the study to proceed after a 2-month pause, on the condition that the cancer warning label was removed from rotation. Modifications to the protocol included applying the two remaining enhanced labels for the balance of the intervention and adding a third wave of surveys during the 2-month pause to capture any impact of the cancer label. **Results:** This study protocol describes a real-world quasi-experimental study that aimed to test the effectiveness of new enhanced alcohol warning labels as a tool to support consumers in making more informed and safer alcohol choices. Alcohol industry interference shortly after implementation compromised both the intervention and the original study design; however, the study design was modified to enable completion of three waves of surveys with cohort participants (n=2049) and meet the study aims. **Conclusions:** Findings from this study will directly inform alcohol labelling policies in Canada and internationally and provide further insight into the alcohol industry's attempts to disrupt research in this area. Additional unimpeded real-world evaluations of enhanced alcohol warning labels are recommended.

Weerasinghe, A., Schoueri-Mychasiw, N., Vallance, K., Stockwell, T., Hammond, D., McGavock, J., Greenfield, T.K., Paradis, C., Hobin, E. (2020). Improving knowledge that alcohol can cause cancer is associated with consumer support for alcohol policies: findings from a real-world alcohol labelling study*. International Journal of Environmental Research and Public Health*, 17(2): doi10.3390/ijerph17020398.

ABSTRACT. Knowledge that alcohol can cause cancer is low in Canada. Alcohol labels are one strategy for communicating alcohol-related harms, including cancer. Extending existing research observing an association between knowledge of the alcohol–cancer link and support for alcohol policies, this study examined whether increases in individual-level knowledge that alcohol is a carcinogen following an alcohol labelling intervention are associated with support for alcohol polices. Cancer warning labels were applied to alcohol containers at the intervention site, and the comparison site did not apply cancer labels. Pre-post surveys were conducted among liquor store patrons at both sites before and two-and six-months after the intervention was stopped due to alcohol industry interference. Limiting the data to participants that completed surveys both before and two-months after the cancer label stopped, logistic regression was used to examine the association between increases in knowledge and support for policies. Support for pricing and availability policies was low overall; however, increases in individual-level knowledge of the alcohol-cancer link was associated with higher levels of support for pricing policies, specifically, setting a minimum unit price per standard drink of alcohol (OR = 1.86, 95% CI: 1.11–3.12). Improving knowledge that alcohol can cause cancer using labels may increase support for alcohol policies.

Schoueri-Mychasiw, N., Weerasinghe, A., Stockwell, T., Vallance, K., Hammond, D., McGavock, J., Greenfield, T.K., Hobin, E. (In Press). Use as directed: do standard drink labels on alcohol containers help consumers drink (ir)responsibly? Real-world evidence from a quasi-experimental study in Yukon, Canada. Drug and Alcohol Review.

ABSTRACT. Introduction and Aims: Alcohol labelling is one strategy for communicating health information. This paper examines the impact of an alcohol labelling intervention on recall of and support for standard drink (SD) labels, estimating the number of SDs in alcohol containers, and intended and unintended use of SD labels. **Design and Methods:** A quasi-

experimental study was conducted in northern Canada where labels with a cancer warning, national drinking guidelines, and SD information were applied to alcohol containers in the single liquor store in the intervention site, while usual labelling continued in the two liquor stores in the comparison site. Three waves of surveys were conducted in both sites before and at two time-points after the labelling intervention with 2,049 cohort participants. Generalized estimating equations were applied to estimate changes in all outcomes. **Results:** Participants in the intervention relative to the comparison site had greater odds of recalling (AOR=5.69, 95%CI=3.02, 10.71) and supporting SD labels (AOR=1.49, 95%CI=1.04, 2.12), and lower odds of reporting using SD labels to purchase high strength low cost alcohol (AOR=0.65, 95%CI=0.45, 0.93). Exposure to the labels had small but negligible effects on accurately estimating the number of SD in alcohol containers (AOR=1.06, 95%CI=0.59, 1.93) and using SD labels to drink within guidelines (AOR=1.04, 95%CI=0.75, 1.46). **Discussion and Conclusions:** Evidence-informed labels with a health warning, national drinking guidelines, and SD information increased support for and decreased unintended use of SD labels. Such labels can improve accuracy in estimating the number of SDs in alcohol containers and adherence to drinking guidelines.

—Northern Territories Alcohol Study—
Relaunch schedule with examples

Date	What	Notes
April 12 (Thurs)	Start labelling products	Regular hours
April 13 (Fri)	***Official relaunch of label intervention***	
April 13 - April 30	LRDG labels – only – applied to all products	See table below
May 1 - July 31	LRDG, pregnancy, and four SD labels	See table below
Week: June 11 - 16	Wave 3 in-store research training	Two day training
June 16 - July 31	Wave 3 in-store exit surveys	
July 31, 2018	***End field work – labelling and in-store survey***	
August 1	Done with the study labels	

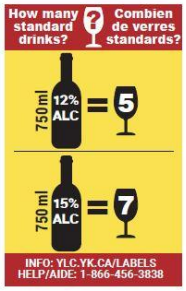
Please apply alcohol labels according to the following schedule:

Study Labels Matrix and Timeline

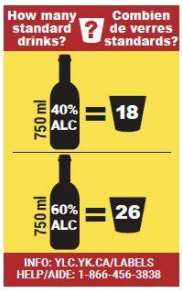
Alcohol containers	April 13, 2018	May 28 onward	June	July
750ml Wine (any ABV% strength)	LRDG	SD L1	SD L1	SD L1
750ml Spirits (any ABV% strength)	LRDG	SD L2	SD L2	SD L2
2L Coolers	LRDG	SD L3	SD L3	SD L3
~355ml and 341ml Beer, Cider, Coolers* including 6-packs of bottles/cans & 6-, 12-, 15-, 24-pack cardboard cases of cans	LRDG	SD L4	SD L4	SD L4
Fortified wine/liqueurs (all sizes)	LRDG	LRDG	LRDG	LRDG
All other sizes of cider, beer coolers, wine, etc.	LRDG	LRDG	LRDG	LRDG
• **Small producers** • **~40ml mini bottles** • **beer bombers**	No label	No label	No label	No label

LRDG - All fortified wines/liqueurs and other sizes of cider, beer, coolers, wine

SD L1 Wine - 750ml bottles

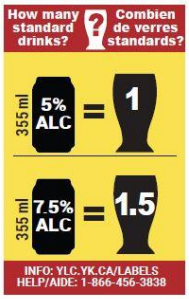


SD L2 Spirits – 750ml bottles



SD L3 Ciders – 2L bottles

SD L4 Beer, Coolers, Ciders – 341/355ml bottles/cans



From: Erin Hobin
To: Patch.Groenewegen
Cc: Tim Stockwell (timstock@uvic.ca)
Subject: Yukon alcohol labelling study out
Date: Friday, May 1, 2020 11:10:34 AM
Attachments: Labeling.JSAD press release EMBARGO May 4 5am GMT.pdf
UVic NR_EMBARGOED TO MAY 4 5am GMT-Alcohol labels study 2020.pdf
Labels study backgrounder EMBARGO May 4 2020.pdf
JSAD Labels Abstracts EMBARGO May 4 5am GMT 2020.pdf
Labels infographic EMBARGO May 4 5am GMT.pdf
media_legal infographic EMBARGO May 4 5am GMT.pdf
Labels infographic minis EMBARGO May 4 5am GMT.pdf
media_legal infographic minis EMBARGO May 4 5am GMT.pdf

Dear Patch,
Hope you and your family are safe and healthy.

On **Monday May 4th at 5am GMT**, we are releasing a series of publications from our Yukon alcohol labelling study as part of a Special Section in the Journal of Studies on Alcohol and Drugs. We wanted to provide you, **in confidence, with an embargoed copy** of the two media releases going out from the journal and from the institution of one of the principal investigators on the study as well as some additional documents related to the publications.

Attached to this email you will find:

- Embargoed media release from the University of Victoria
- Embargoed media release from the Journal of Studies on Alcohol and Drugs
- Two page backgrounder on the labels study
- Abstracts and citation information from the 6 articles that form part of the Special Section
- Infographics related to the publications (2 full and 2 brief)

Please do not share these documents before the embargo is lifted on Monday May 4th at 5am GMT.

Key labelling study results:

• About 300,000 labels were applied to 98 per cent of alcohol containers sold in the liquor store in Whitehorse over the study period.

• Prior to the new labels, consumer awareness of alcohol's cancer risk, of Canada's national drinking guidelines, and of the number of standard drinks in containers was low.

• After the new labels were introduced in the main liquor store in Whitehorse, consumer **awareness of alcohol's cancer risk and Canada's national drinking guidelines increased** in Whitehorse compared to Yellowknife, where no new labels had been added.

• Consumers who became **aware that alcohol can cause cancer were twice as likely to express support policies to increase the price of cheap alcohol** as those who were unaware of the alcohol-cancer link.

• Analysis of the sales data showed that average alcohol consumption in Whitehorse decreased by 6% during the study period compared to NWT and neighbouring regions in Yukon.

• Average consumption of alcohol sold in **labelled** alcohol containers ***decreased*** by 7 per cent while average consumption of alcohol from the many fewer **unlabeled** containers ***increased*** by 7 per cent.

• Expert legal analysis showed that the Canadian alcohol industry lobbyists statements about the legality of alcohol warning labels was flawed. Instead, the analysis showed that Canadian territories and provinces have a duty to inform consumers about the health risks of a product they are involved in distributing, promoting and selling. Failure to adequately inform consumers

exposes governments to future civil lawsuits as happened with tobacco.
Project website: www.AlcoholLabels.CISUR.ca

Thank you for your time, steadfast support, and contributions to this work. It is exciting to be able to share the results.

Erin

Labels on Alcohol Bottles Increase Awareness of Drinking Harms, Guidelines

By Paul Candon

(Embargoed for release on Monday, May 4, 2020, at 1:00 a.m. Eastern time)

PISCATAWAY, NJ – When alcohol bottles come with conspicuous labels providing information on the risks of alcohol consumption or drinking guidelines, people are better informed about alcohol's harms and may cut down their drinking, according to a series of studies in the *Journal of Studies on Alcohol and Drugs.*

"The results provide the first real-world evidence that relatively large, bright yellow alcohol labels with rotating health messages get noticed by consumers and can increase awareness of national drinking guidelines, improve knowledge of alcohol-related health risks, such as cancer, and reduce alcohol sales compared to control sites without the labels," says Erin Hobin, Ph.D., affiliated scientist at the University of Toronto's Dalla Lana School of Public Health. She is principal investigator on the studies in this series.

The Canadian research, called the Northern Territories Alcohol Label Study, involved placing bright-colored labels on bottles of beer, wine and distilled spirits with one of three brief messages: One label displayed scientific evidence regarding the established link between alcohol and cancer, the second contained the Canadian government's low-risk drinking guidelines and the third provided information about the number of standard drinks in the container.

One of the studies, led by Jinhui Zhao, Ph.D., and Tim Stockwell, Ph.D., both of the Canadian Institute for Substance Use Research at the University of Victoria, found that adding such labels to alcohol bottles (300,000 labels in all) decreased total sales of alcohol by 6.9% compared with sales in regions without the new labels.

In another article, researchers led by Nour Schoueri-Mychasiw, Ph.D., of Public Health Ontario, found that, among 2,049 participants, awareness of Canada's low-risk drinking guidelines increased nearly three times in the site in which the labels were placed compared with a control location. (Canada recommends no more than two drinks a day for women, no more than three for men and at least two alcohol-free days per week.)

A third study generated controversy. Here, Hobin and her colleagues queried the same 2,049 participants about their knowledge of the link between alcohol consumption and cancer. (The cancer label read, "Chief Medical Officer of Health advises alcohol can cause cancer, including breast and colon cancer.")

Before the label intervention, only about 25% of participants knew alcohol consumption can cause cancer. After the labeling, awareness in Yukon rose to 42%, a 10% greater increase in awareness of the alcohol-cancer link relative to the control site in neighboring Northwest Territories.

However, the cancer label part of these studies was cut short because the alcohol industry protested about the placement of labels on their products. The industry complained that the Yukon Government, who helped coordinate the study and is responsible for alcohol distribution and sales in the territory, did not have legal authority to place such labels, that the labels violated industry's freedom of expression and that the government was defaming alcohol manufacturers.

Under pressure, the Yukon Government shut down the cancer label research in December 2017, only one month after the study's launch.

"I'd describe this study as a David versus Goliath scenario," says Hobin. "Our Yukon partners and research team members worked tirelessly to execute this study and persevered, despite tremendous adversity."

After consultation with legal experts, Stockwell and colleagues concluded, "none of the industry's claims had any merit." In fact, they note that provincial and territorial governments in Canada could be held liable if they do not warn consumers about the link between alcohol and cancer. (The World Health Organization declared alcohol as a human carcinogen more than 30 years ago.)

"Warning labels help drinkers to be better informed about alcohol's health risks and prompted many to cut down their drinking," says Stockwell, co-lead on the studies. "This is an especially vital public health intervention now, as we see people at risk of increasing their alcohol intake as they isolate at home during the COVID-19 outbreak."

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Babor, T. F. (2020). The arrogance of power: Alcohol industry interference with warning label research. *Journal of Studies on Alcohol and Drugs, 81,* 222–224. doi:10.15288/jsad.2020.81.222

Zhao, J., Stockwell, T., Vallance, K., & Hobin, E. (2020). The effects of alcohol warning labels on population alcohol consumption: An interrupted time series analysis of alcohol sales in Yukon, Canada. *Journal of Studies on Alcohol and Drugs, 81,* 225–237. doi:10.15288/jsad.2020.81.225

Vallance, K., Stockwell, T., Zhao, J., Shokar, S., Schoueri-Mychasiw, N., Hammond, D., Greenfield, T. K., McGavock, J., Weerasinghe, A., & Hobin, E. (2020). Baseline assessment of

alcohol-related knowledge of and support for alcohol warning labels among alcohol consumers in northern Canada and associations with key sociodemographic characteristics. *Journal of Studies on Alcohol and Drugs, 81,* 238–248. doi:10.15288/jsad.2020.81.238

Hobin, E., Weerasinghe, A., Vallance, K., Hammond, D., McGavock, J., Greenfield, T. K., Schoueri-Mychasiw, N., Paradis, C., & Stockwell, T. (2020). Testing alcohol labels as a tool to communicate cancer risk to drinkers: a real-world quasi-experimental study. *Journal of Studies on Alcohol and Drugs, 81,* 249–261. doi:10.15288/jsad.2020.81.249

Schoueri-Mychasiw, N., Weerasinghe, A., Vallance, K., Stockwell, T., Zhao, J., Hammond, D., McGavock, J., Greenfield, T. K., Paradis, C., & Hobin, E. (2020). Examining the impact of alcohol labels on awareness and knowledge of national drinking guidelines: A real-world study in Yukon, Canada. *Journal of Studies on Alcohol and Drugs, 81,* 262–272. doi:10.15288/jsad.2020.81.262

Vallance, K., Vincent, A., Schoueri-Mychasiw, N., Stockwell, T., Hammond, D., Greenfield, T. K., McGavock, J., & Hobin, E. (2020). News media and the influence of the alcohol industry: An analysis of media coverage of alcohol warning labels with a cancer message in Canada and Ireland. *Journal of Studies on Alcohol and Drugs, 81,* 273–283. doi:10.15288/jsad.2020.81.273

Stockwell, T., Solomon, R., O'Brien, P., Vallance, K., & Hobin, E. (2020). Cancer warning labels on alcohol containers: A consumer's right to know, a government's responsibility to inform, and an industry's power to thwart. *Journal of Studies on Alcohol and Drugs, 81,* 284–292. doi:10.15288/jsad.2020.81.284

###

To arrange an interview with Erin Hobin, Ph.D., please contact Heidi Singer at heidi.singer@utoronto.ca or 416.571.5769

To arrange an interview with Tim Stockwell, Ph.D., please contact Amanda Farrell-Low at farlow@uvic.ca or 250-472-5445

###

The *Journal of Studies on Alcohol and Drugs* (www.jsad.com) is published by the Center of Alcohol & Substance Use Studies at Rutgers, The State University of New Jersey. It is the oldest substance-related journal published in the United States.

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To learn about education and training opportunities for addiction counselors and others at the Rutgers Center of Alcohol & Substance Use Studies, please visit https://education.alcoholstudies.rutgers.edu/education-training.

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University of Victoria

EMBARGOED UNTIL 10:00 PM PT SUNDAY, MAY 3, 2020

UNIVERSITY OF VICTORIA NEWS RELEASE

May 4, 2020

Alcohol warning labels reduce sales, change minds

Colourful, highly visible warning labels applied to bottles and cans of alcohol in Yukon's largest liquor store prompted many people in Canada's highest-alcohol-consuming region to cut back on their drinking.

This was one of the major findings from the Northern Territories Alcohol Labels Study—a real-world study of alcohol warning labels launched in Whitehorse, Yukon, in 2017—published this month in a special section of the *Journal of Studies on Alcohol and Drugs.*

The world-first research from the Canadian Institute for Substance Research (CISUR) at the University of Victoria shows that well-designed warning labels are an effective public health intervention, and can play a role in curbing alcohol intake at home during the COVID-19 outbreak.

Researchers also found that people who bought alcohol with the labels better remembered national drinking guidelines and warning risks about cancer.

"Despite the best efforts of Canada's alcohol-industry lobbyists to shut down our study and keep consumers in the dark, we found evidence the warning labels helped drinkers in Yukon to be better informed about alcohol's health risks, and prompted many to cut down their drinking," says Tim Stockwell, director of CISUR and co-lead of the study. "This is an especially vital public health intervention now, as we see people at risk of increasing their alcohol intake as they isolate at home during the COVID-19 outbreak."

An analysis of sales data* led by Stockwell and CISUR scientist Jinhui Zhao found that per capita sales of labelled products dropped by 6.6 per cent compared to the products in control sites that didn't get the new labels.

CISUR research associate Kate Vallance, lead author on an evaluation of baseline survey data, found that initially only a quarter of respondents were aware of the alcohol-cancer link, 29 per cent could estimate the number of standard drinks in their preferred drink and less than 50 per cent were aware of Canada's Low-Risk Drinking Guidelines.

Two papers led by study co-lead Erin Hobin, scientist at Public Health Ontario and assistant professor at the University of Toronto's Dalla Lana School of Public Health, looked at how people retained the labels' messages. She found consumers exposed to the new labels were 10 per cent more likely to recall the causal link between alcohol and cancer*, three times more likely to be aware of Canada's low-risk drinking guidelines, and 50 per cent more likely to remember daily low-risk drinking limits.*

The study attracted a lot of attention—and controversy—when the labelling intervention was launched in the liquor store in Whitehorse in late 2017. Approximately 300,000 labels were applied to 98 per cent of alcohol containers during the study period. Canadian alcohol industry lobby groups objected to the study, questioned the government's authority to place the labels on the containers in the first place, and challenged the link

between alcohol and cancer despite decades of scientific evidence. After just one month, the study was halted for three months and the cancer labels removed. The study continued, with standard drink and low-risk drinking guideline labels, until July 2018.

Two of the papers in the journal—a media analysis led by Vallance, and a legal analysis led by Stockwell—look at industry claims. Stockwell collaborated with legal experts to analyze the alcohol lobby's arguments* around Yukon's right to affix the labels on alcohol containers, and found that their arguments held no water and governments had a duty to inform citizens they were selling a product that could cause cancer or risk leaving themselves exposed to future civil lawsuits. Vallance's analysis found that 68 per cent of news stories supported use of the labels in Yukon.

"We found some striking similarities with the tobacco industry in the way the alcohol lobby groups consistently downplayed or outright denied the link between alcohol and cancer in news coverage," says Vallance. "That's worrying because they are not providing accurate information to the public and there are still no evidence-based warning labels available on alcohol containers in Canada, even though people support them."

"We recommend that all alcohol containers be required to carry health warning labels, including health risk information such as a cancer warning, Canada's Low-Risk Drinking Guidelines, and the number of standard drinks per container," says Stockwell, adding that these changes could be achieved variously at the federal, provincial and/or territorial levels of government.

The Northern Territories Alcohol Labels Study was funded by Health Canada's Substance Use and Addictions Program.

More info on the Northern Territory Alcohol Labels Study: http://alcohollabels.cisur.ca/

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View this release in your browser. [Hyperlink: this line is for email only; please omit from online version.]

A media kit containing high resolution photos and infographics is available on Dropbox.

* These studies are open access as of May 4. For advanced copies of the published JSAD studies (currently under embargo), or copies of the non open-access papers, please email Amanda Farrell-Low at farlow@uvic.ca.

Media contacts:
Tim Stockwell (CISUR/Psychology) at 250-415-7376 or timstock@uvic.ca
Kate Vallance (CISUR) at vallance@uvic.ca
Amanda Farrell-Low (CISUR Communications Officer) at 250-472-5445 or farlow@uvic.ca
Suzanne Ahearne (University Communications + Marketing) at 250-721-6139 or sahearne@uvic.ca

BACKGROUNDER: Northern Territories Alcohol Label Study

May 4, 2020

The aim of this Health Canada-funded study was to test if, in a real-world setting, labelling alcohol containers with health messages could support more informed and safer alcohol consumption. Partnering with the Yukon Liquor Corporation, the research plan was to place new health labels on all alcohol containers sold in the main liquor store in Whitehorse, Yukon, for an eight-month period. The impacts of these labels on consumers were assessed by examining alcohol sales data and consumer responses in Whitehorse compared to neighbouring regions of Yukon and Northwest Territories (NWT), where no new labels were added. Yukon and NWT are ideal jurisdictions to test new alcohol warning labels because both these territories have been the only regions in Canada to require a post-manufacturer label on containers since 1991. These labels have cautioned consumers about drinking while pregnant, while in NWT there has also been a warning about drinking when driving and operating machinery and general health problems (Figure 1).

The new alcohol labels were larger than the previous ones, brightly coloured and ran three rotating messages (Figure 2): 1) a cancer warning, 2) Canada's national drinking guidelines, and 3) the number of standard drinks in bottles or cans of wine, spirits, beer and 2L cider (Figure 1). Label content, size and format were informed by research evidence as well as consultations with local and international health experts and community stakeholders.

Figure 1. Alcohol warning labels in place since 1991
(left: Yukon; right: NWT)

(actual size 2cm x 2cm) **(actual size 3.2cm x 5cm)**

Figure 2: Intervention alcohol warning labels 2017

Label 1 - Cancer Warning

Label 2 - Canada's National Drinking Guidelines

Label 3 - Standard Drink Information (example for Wine)

(actual size 5cm x 3.2cm)

Key data sources and methods:

Two key data sources and methods were used to evaluate the impact of the new alcohol labels:

1) Official alcohol sales data: The Yukon Liquor Corporation provided the research team with detailed monthly sales data for products that were either labelled with the new warnings or were exempt from the labels. These data covered 28 months before the new labels were first introduced and 14 months afterwards,

separately for Whitehorse and for other rural areas of Yukon. Comparable sales data were obtained from the Northwest Territories Bureau of Statistics for the whole of NWT for same time period. Researchers used official data on the numbers of people living in each of these regions to calculate the average consumption of pure alcohol per person, per month in each region.

2) Longitudinal surveys with adult drinkers: Three waves of survey data were collected in Whitehorse and Yellowknife: a baseline survey four months before the intervention began in Whitehorse (May-June 2017) and at two time periods during the eight months the new alcohol labels were in place (February-March 2018 and June-July 2018). A total of 2,049 adults who reported drinking alcohol in the previous month were recruited after shopping atthe government operated liquor stores in both cities. These surveys asked customers if they had noticed the new labels, were aware of the new label messages and if they had modified their drinking as a result.

Key results:

- About 300,000 labels were applied to 98 per cent of alcohol containers sold in the liquor store in Whitehorse over the study period.
- Prior to the new labels, consumer awareness of alcohol's cancer risk, of Canada's national drinking guidelines, and of the number of standard drinks in containers was low.
- After the new labels were introduced in the main liquor store in Whitehorse, consumer **awareness of alcohol's cancer risk and Canada's national drinking guidelines increased** in Whitehorse compared to Yellowknife, where no new labels had been added.
- Consumers who became **aware that alcohol can cause cancer were twice as likely to express support policies to increase the price of cheap alcohol** as those who were unaware of the alcohol-cancer link.
- Analysis of the sales data showed that average alcohol consumption in Whitehorse decreased by 6% during the study period compared to NWT and neighbouring regions in Yukon.
- Average consumption of alcohol sold in **labelled** alcohol containers ***decreased*** by 7 per cent while average consumption of alcohol from the many fewer **unlabeled** containers ***increased*** by 7 per cent.
- Expert legal analysis showed that the Canadian alcohol industry lobbyists statements about the legality of alcohol warning labels was flawed. Instead, the analysis showed that Canadian territories and provinces have a duty to inform consumers about the health risks of a product they are involved in distributing, promoting and selling. Failure to adequately inform consumers exposes governments to future civil lawsuits as happened with tobacco.

Conclusions:

The findings of this research demonstrate that highly visible, brightly coloured alcohol warning labels are an effective way of communicating important information about alcohol's health risks and of how consumers can drink more safely. The alcohol industry has opposed warnings on health effects, such as cancer, which highlights the importance of compulsory alcohol labelling to ensure that consumers are well informed about risks if they choose to drink alcohol.

Policy recommendation:

74(1)(a)

For further information about the study, media coverage, infographics and peer-reviewed manuscripts and conference abstracts, please visit: http://www.alcohollabels.cisur.ca/

Zhao, J., Stockwell, T., Vallance, K., & Hobin, E. (2020). The effects of alcohol warning labels on population alcohol consumption: An interrupted time series analysis of alcohol sales in Yukon, Canada. Journal of Studies on Alcohol and Drugs, 81, 225–237. doi:10.15288/jsad.2020.81.225

ABSTRACT. Objective: There is limited evidence that alcohol warning labels (AWLs) affect population alcohol consumption. New evidence-informed AWLs were introduced in the sole government-run liquor store in Whitehorse, Yukon, that included a cancer warning (Ca), low-risk drinking guidelines (LRDGs) and standard drink (SD) messages. These temporarily replaced previous pregnancy warning labels. We test if the intervention was associated with reduced alcohol consumption. **Method:** An interrupted time series study was designed to evaluate the effects of the AWLs on consumption for 28 months before and 14 months after starting the intervention. Neighboring regions of Yukon and Northwest Territories served as control sites. About 300,000 labels were applied to 98% of alcohol containers sold in Whitehorse during the intervention. Multilevel regression analyses of per capita alcohol sales data for people age 15 years and older were performed to examine consumption levels in the intervention and control sites before, during, and after the AWLs were introduced. Models were adjusted for demographic and economic characteristics over time and region. **Results:** Total per capita retail alcohol sales in Whitehorse decreased by 6.31% (*t* test $p < .001$) during the intervention. Per capita sales of labeled products decreased by 6.59% (*t* test $p < .001$), whereas sales of unlabeled products increased by 6.91% (*t* test $p < .05$). There was a still larger reduction occurring after the intervention when pregnancy warning labels were reintroduced (-9.97% and 10.29%, *t* test $p < .001$). **Conclusions:** Applying new AWLs was associated with reduced population alcohol consumption. The results are consistent with an accumulating impact of the addition of varying and highly visible labels with impactful messages. (*J. Stud. Alcohol Drugs, 81,* 000–000, 2020)

Vallance, K., Stockwell, T., Zhao, J., Shokar, S., Schoueri-Mychasiw, N., Hammond, D., Greenfield, T. K., McGavock, J., Weerasinghe, A., & Hobin, E. (2020). Baseline assessment of alcohol-related knowledge of and support for alcohol warning labels among alcohol consumers in northern Canada and associations with key sociodemographic characteristics. Journal of Studies on Alcohol and Drugs, 81, 238–248. doi:10.15288/jsad.2020.81.238

ABSTRACT. Objective: Evidence-informed alcohol warning labels (AWLs) are a promising, well-targeted strategy to increase consumer awareness of health risks. We assessed consumers' baseline knowledge of alcohol-related cancer risk, standard drinks, and low-risk drinking guidelines as well as levels of support for AWLs. We further assessed associations with sociodemographic factors. **Method:** Forming part of a larger study testing new evidence-informed AWLs in a northern Canadian territory compared with a neighboring territory, baseline surveys were completed among liquor store patrons systematically selected in both sites. Chi-square and multivariable logistic regression analyses were performed to assess outcomes. **Results:** In total, 836 liquor store patrons (47.8% female) completed baseline surveys across both sites. Overall, there was low knowledge of alcohol-related cancer risk (24.4%), limited ability to calculate a standard drink (28.9%), and low knowledge of daily (48.9%) and weekly (47.6%) low-risk drinking guideline limits. There was moderate support for AWLs with a health warning (55.4%) and standard drink information (51.0%), and lower support for low-risk drinking guideline labels (38.3%). No

sociodemographic characteristics were associated with cancer knowledge. Identifying as female and having adequate health literacy were associated with support for all three AWLs; high alcohol use was associated with not supporting standard drink (adjusted odds ratio = 0.60, 95% CI [0.40, 0.88]) and low-risk drinking guideline (adjusted odds ratio = 0.57, 95% CI [0.38, 0.87]) labels. **Conclusions:** Few consumers in this study had key alcohol-related health knowledge; however, there was moderate support for AWLs as a tool to raise awareness. Implementation of information-based interventions such as evidence-informed AWLs with health messages including alcohol-related cancer risk, standard drink information, and national drinking guidelines is warranted. (*J. Stud. Alcohol Drugs, 81,* 000–000, 2020)

Hobin, E., Weerasinghe, A., Vallance, K., Hammond, D., McGavock, J., Greenfield, T. K., Schoueri-Mychasiw, N., Paradis, C., & Stockwell, T. (2020). Testing alcohol labels as a tool to communicate cancer risk to drinkers: a real-world quasi-experimental study. Journal of Studies on Alcohol and Drugs, 81, 249–261. doi:10.15288/jsad.2020.81.249

ABSTRACT. Objective: This study tested the initial and continued effects of cancer warning labels on drinkers' recall and knowledge that alcohol can cause cancer. **Method:** A quasi-experiment was conducted to examine changes in the intervention versus comparison site for three outcomes: unprompted and prompted recall of the cancer warning, and knowledge that alcohol can cause cancer. The intervention site applied cancer warning labels to alcohol containers in its liquor store for 1 month, and the two liquor stores in the comparison site did not apply cancer labels. In total, 2,049 unique cohort participants (1,056 male) were recruited at liquor stores in the intervention and comparison sites to participate in surveys 4 months before labels were applied and 2 and 6 months after the cancer label was halted because of alcohol industry interference. Generalized estimating equations tested differences in outcomes between sites over time adjusting for socio-demographics and other covariates. **Results:** Two months after the cancer label, unprompted (+24.2% vs. +0.6%; adjusted odds ratio [AOR] = 32.7, 95% CI [5.4, 197.7]) and prompted (+35.7% vs. +4.1%; AOR = 6.2, 95% CI [3.6, 10.9]) recall increased to a greater extent in the intervention versus comparison site. There was a 10% greater increase in knowledge (+12.1% vs. +11.6%; AOR = 1.1, 95% CI [0.7, 1.5]) 2 months after the cancer label in the intervention versus comparison site. Similar results were found 6 months after the intervention for all three outcomes. **Conclusions:** In a real-world setting, cancer warning labels get noticed and increase knowledge that alcohol can cause cancer. Additional cancer label intervention studies are required that are not compromised by industry interference. (*J. Stud. Alcohol Drugs, 81,* 000–000, 2020)

Schoueri-Mychasiw, N., Weerasinghe, A., Vallance, K., Stockwell, T., Zhao, J., Hammond, D., McGavock, J., Greenfield, T. K., Paradis, C., & Hobin, E. (2020). Examining the impact of alcohol labels on awareness and knowledge of national drinking guidelines: A real-world study in Yukon, Canada. Journal of Studies on Alcohol and Drugs, 81, 262–272. doi:10.15288/jsad.2020.81.262

ABSTRACT. Objective: Alcohol labels are one strategy for communicating health information to consumers. This study tested the extent to which consumers recalled alcohol labels with national drinking guidelines and examined the impact of labels on awareness and knowledge of the guidelines. **Method:** A quasi-experimental study was conducted in two jurisdictions in northern Canada examining the impact of labels on the following outcomes: unprompted and prompted recall of the drinking guideline label message, awareness of the drinking

guidelines, and knowledge of the daily and weekly recommended drink limits. The intervention site applied labels with national drinking guidelines, a cancer warning, and standard drink information to alcohol containers in its liquor store, whereas the comparison site did not apply these labels. In total, 2,049 cohort participants in both sites were recruited to complete surveys before and at two time points after the intervention. Changes in outcomes were examined using generalized estimating equations. **Results:** After the intervention, unprompted and prompted recall of the drinking guideline label message increased more in the intervention versus comparison site (adjusted odds ratio [AOR] = 10.8, 95% CI [0.9, 127.6]; AOR = 7.0, 95% CI [3.3, 14.9], respectively). Awareness of the drinking guidelines increased 2.9 times more in the intervention versus comparison site (AOR = 2.9, 95% CI [2.0, 4.3]). In addition, knowledge of the daily and weekly drink limits increased 1.5 and 1.4 times more in the intervention versus comparison site, respectively (daily: AOR = 1.5, 95% CI [1.0, 2.1]; weekly: AOR = 1.4, 95% CI [1.0, 2.0]). **Conclusions:** Enhanced alcohol labels get noticed and may be an effective population-level strategy for increasing awareness and knowledge of national drinking guidelines. (*J. Stud. Alcohol Drugs, 81,* 000–000 2020)

Vallance, K., Vincent, A., Schoueri-Mychasiw, N., Stockwell, T., Hammond, D., Greenfield, T. K., McGavock, J., & Hobin, E. (2020). News media and the influence of the alcohol industry: An analysis of media coverage of alcohol warning labels with a cancer message in Canada and Ireland. Journal of Studies on Alcohol and Drugs, 81, 273–283. doi:10.15288/jsad.2020.81.273

ABSTRACT. Objective: Media coverage of alcohol-related policy measures can influence public debate and is often more aligned with interests of the alcohol industry than public health. The purpose of this study was to examine the framing of news coverage of alcohol warning label (AWL) initiatives that included a cancer message on alcohol containers in two different countries. Policy contexts and industry perspectives were also evaluated. **Method:** We identified and systematically reviewed news articles published between 2017–2019 covering an AWL academic study in Yukon, Canada, and labeling provisions in a Public Health (Alcohol) Bill in Ireland. Both included a cancer message. News stories were coded for media type and topic slant; inclusion of alcohol industry perspectives was examined using content analysis. **Results:** Overall, 68.4% of media articles covering the Yukon Study (*n* = 38) and 18.9% covering the Ireland Bill (*n* = 37) were supportive of AWLs with a cancer message. The majority of articles in both sites presented alcohol industry perspectives (Yukon, 65.8%; Ireland, 86.5%), and industry arguments opposing AWLs were similar across both contexts. In articles with statements from industry representatives, the label message was frequently disputed by distorting or denying the evidence that alcohol causes cancer (*n* = 33/43). **Conclusions:** News coverage of AWLs with a cancer message was more supportive in Canada than Ireland, where alcohol industry perspectives were consistently foregrounded. Industry arguments opposing the cancer label bore similarities across contexts, often distorting or denying the evidence. Increasing awareness of industry messaging strategies may generate more critical coverage of industry lobbying activities and increase public support for alcohol policies. (*J. Stud. Alcohol Drugs, 81,* 000–000, 2020)

Stockwell, T., Solomon, R., O'Brien, P., Vallance, K., & Hobin, E. (2020). Cancer warning labels on alcohol containers: A consumer's right to know, a government's responsibility to inform, and an industry's power to thwart. Journal of Studies on Alcohol and Drugs, 81, 284–292. doi:10.15288/jsad.2020.81.284

ABSTRACT. Objective: Although the World Health Organization (WHO) declared alcohol a Class 1 carcinogen 30 years ago, few governments have communicated this fact to the public. We illustrate how alcohol industry groups seek to keep their customers in the dark about alcohol-related cancer risks. In Canada, a federallyfunded scientific study examining the introduction of cancer warning labels on containers was shut down following industry interference. We show that the industry complaints about the study had no legal merit. Of 47 WHO member countries with alcohol warning labels, only South Korea requires cancer warnings on alcohol containers. However, industry complaints, supported by sympathetic governments, helped weaken the warning labels' implementation. Ireland has legislated for cancer warnings but faces continuing legal opposition expressed through regional and global bodies. Cancer societies and the public health community have failed to counter industry pressures to minimize consumer awareness of alcohol's cancer risks. Placing cancer warnings on alcohol containers could make a pivotal difference in motivating both drinkers to consume less and regulators to introduce more effective policies to reduce the serious harms of alcohol consumption. (*J. Stud. Alcohol Drugs, 81,* 000–000, 2020)

Babor, T. F. (2020). The arrogance of power: Alcohol industry interference with warning label research. Journal of Studies on Alcohol and Drugs, 81, 222–224. doi:10.15288/jsad.2020.81.222

DO ALCOHOL WARNING LABELS WORK?

FINDINGS FROM A REAL-WORLD EXPERIMENT

WHAT DID WE DO?

The Northern Territories Alcohol Labels Study placed new rotating colourful warning labels on alcohol containers in a government liquor store in Whitehorse, Yukon. Three waves of surveys were conducted in Whitehorse, and Yellowknife served as the comparison site. Shortly after the launch of the new labels, Canadian alcohol industry lobby groups interfered with the study, forcing a pause in the labelling and removal of the cancer warning.

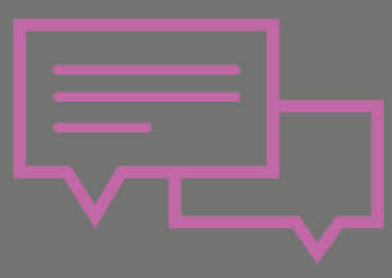
WHAT HAPPENED?

PEOPLE REMEMBERED WHAT THE LABELS SAID.

Consumers exposed to the new labels had **10%** greater odds of knowing the link between alcohol and cancer, were **3X** more likely to be aware of Canada's Low-Risk Drinking Guidelines, and had **50%** greater odds of remembering "daily" low-risk drinking limits.

PEOPLE TALKED ABOUT THE LABELS.

Consumers reported noticing, reading, thinking about, and talking with others about the new labels, and consumers exposed to the new labels were more likely to report cutting back on drinking because of them.



PEOPLE DRANK LESS.

The Whitehorse liquor store saw a **6.6% decrease** in sales of labelled products during the intervention period relative to two comparison sites. The 3% of Whitehorse liquor store products that ***didn't*** have labels saw a **6.9% increase** in sales.

WHY IS THIS IMPORTANT?

Brightly coloured alcohol warning labels with a cancer warning, national drinking guidelines, and standard drink information help consumers make more informed and safer alcohol choices. Policies mandating alcohol warning labels should be a priority for alcohol control strategies in Canada and globally.

References

Hobin et al., (2020) .Testing alcohol labels as a tool to communicate cancer risk to drinkers: a real-world quasi-experimental study, *JSAD* / Schoueri-Mychasiw et al., 2020. Examining the impact of alcohol labels on awareness and knowledge of national drinking guidelines: a real-world study in Yukon, Canada, *JSAD* / Vallance et al., 2020. Baseline assessment of alcohol-related knowledge of and support for alcohol warning labels among alcohol consumers in northern Canada, and associations with key sociodemographic characteristics, *JSAD* / Zhao et al., 2020. The effects of alcohol warning labels on population alcohol consumption: an interrupted time-series analysis of alcohol sales in Yukon, Canada, *JSAD* / Weerasinghe et al (2020). Improving Knowledge that Alcohol Can Cause Cancer is Associated with Consumer Support for Alcohol Policies: Findings from a Real-World Alcohol Labelling Study, *Int J Environ Res Public Health* / Hobin et al., 2020. Effects of strengthening alcohol labels on attention, message processing, and perceived effectiveness: a quasi-experimental study in Yukon, Canada, *IJDP*.

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ALCOHOL INDUSTRY INTERFERENCE WITH WARNING LABEL RESEARCH

LEGAL CONTEXT AND MEDIA PORTRAYALS

WHAT HAPPENED?

The Northern Territories Alcohol Labels Study evaluated new rotating colourful warning labels placed on alcohol containers in a government liquor store in Whitehorse, Yukon. Three waves of surveys were conducted in Whitehorse, and Yellowknife served as the comparison site. Shortly after the launch of the new labels, Canadian alcohol industry lobby groups interfered with the study, making claims about the validity of the study and the label's messages.

WHAT DID THE ALCOHOL INDUSTRY CLAIM?

THEY DENIED ALCOHOL CAUSED CANCER.

The most frequent industry strategy was to deny or downplay the link between alcohol and cancer in media coverage. They also claimed the Yukon government could be held liable for claiming that alcohol use can cause cancer.

THEY QUESTIONED THE LABELS' LEGALITY.

The alcohol industry questioned the government's legal authority to place the warning labels on containers in both the media and correspondence, ultimately led to the study being halted for three months and the removal of the cancer label.

WERE THESE CLAIMS TRUE?

OUR LEGAL ANALYSIS SAYS NO.

GOVERNMENTS HAVE A DUTY TO WARN ABOUT CANCER.

Given that alcohol has been categorized by the WHO as a Class 1 carcinogen since the 1980s, governments that sell alcohol should be warning consumers about the potential risk associated with consuming it, as is done on tobacco labels.

THE GOVERNMENT HAD THE RIGHT TO PUT THE LABELS ON.

A previous legal analysis had established provincial rights to affix aftermarket warning labels to alcohol containers, and the *Yukon Act* gives the territorial government additional powers regarding "intoxicants".

DID THE INTERFERENCE WORK?

SORT OF...

THE CANCER WARNING LABELS WERE REMOVED.

After industry pushback, the study was paused and eventually resumed without the cancer warning label. Study protocols were altered and the intervention period was shortened.

MOST MEDIA COVERAGE SUPPORTED THE LABELS.

The small study became a national and international media story, resulting in millions of people seeing the labels. **68%** of media articles about the Yukon study were supportive of alcohol warning labels with a cancer message.

References

Vallance et al., 2020. News media and the influence of the alcohol industry: an analysis of media coverage of alcohol warning labels with a cancer message in Canada and Ireland, *JSAD* / Stockwell et al., 2020. Cancer warning labels on alcohol containers: A consumer's right to know, a government's responsibility to inform, and an industry's power to thwart, *JSAD*

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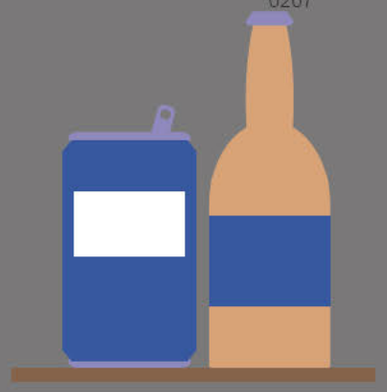

FINDINGS FROM A REAL-WORLD EXPERIMENT

WHAT HAPPENED WHEN WE PUT ROTATING, COLOURFUL LABELS ON ALCOHOL CONTAINERS?

PEOPLE REMEMBERED WHAT THE LABELS SAID.

Consumers exposed to the new labels had **10%** greater odds of knowing the link between alcohol and cancer, were **3X** more likely to be aware of Canada's Low-Risk Drinking Guidelines, and had **50%** greater odds of remembering "daily" low-risk drinking limits.

PEOPLE TALKED ABOUT THE LABELS.

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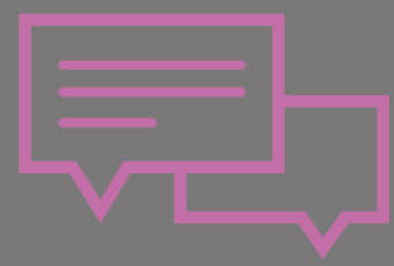

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FINDINGS FROM A REAL-WORLD EXPERIMENT

WHY ARE LABELS ON ALCOHOL CONTAINERS IMPORTANT?

Brightly coloured alcohol warning labels with a cancer warning, national drinking guidelines, and standard drink information help consumers make more informed and safer alcohol choices. Policies mandating alcohol warning labels should be a priority for alcohol control strategies in Canada and globally.

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ALCOHOL INDUSTRY INTERFERENCE WITH WARNING LABEL RESEARCH

LEGAL CONTEXT AND MEDIA PORTRAYALS

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The alcohol industry questioned the government's legal authority to place the warning labels on containers in both the media and correspondence, ultimately led to the study being halted for three months and the removal of the cancer label.

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ALCOHOL INDUSTRY INTERFERENCE WITH WARNING LABEL RESEARCH

LEGAL CONTEXT AND MEDIA PORTRAYALS

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OUR LEGAL ANALYSIS SAYS NO.

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LEGAL CONTEXT AND MEDIA PORTRAYALS

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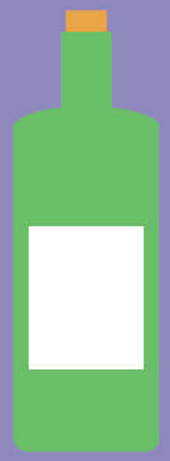

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From: Paul.McConnell
To: Amelie.Quirke-Tomlins
Cc: Patch.Groenewegen
Subject: FW: Yukon alcohol labelling study out
Date: Friday, May 1, 2020 4:54:30 PM
Attachments: 001-Babor Editor"s Corner.pdf
001-Hobin.pdf
001-Schoueri-Mychasiw.pdf
001-Stockwell.pdf
001-Vallance-1.pdf
001-Vallance-2.pdf
001-Zhao.pdf

Just fyi….they reference some other studies in the email

From: Erin Hobin
Sent: Friday, May 1, 2020 4:42 PM
To: John.Streicker
Cc: timstock@uvic.ca; Paul.McConnell ; Monica.Nordling
Subject: RE: Yukon alcohol labelling study out

Good afternoon Minister,

Thank you for your response, especially during these unprecedented times. I hope you and your family are well too.

Tim Stockwell and I are very interested in discussing the findings of this work with you.

I have attached to this email the 6 full papers that are being published in the Special Series in the Journal of Studies on Alcohol and Drugs, as well as commentary discussing this research. Please also note there are 3 other studies from this research that have already been published in separate journals, including one paper suggesting that *consumers who become aware of alcohol-related cancer risks have almost 2 times higher odds of supporting alcohol minimum unit pricing policies*.

I look forward to hearing from you and scheduling a time to further discuss.

All the best,

Erin

From: John.Streicker@gov.yk.ca [mailto:John.Streicker@gov.yk.ca]
Sent: May 1, 2020 6:17 PM
To: Erin Hobin <Erin.Hobin@oahpp.ca>
Cc: timstock@uvic.ca; Paul.McConnell@gov.yk.ca; Monica.Nordling@gov.yk.ca
Subject: Re: Yukon alcohol labelling study out

Thanks Erin,

Hope you are well.

I will have a read. One of my other roles has me responsible for the COVID-19 emergency here in the Yukon, so my days are busy. After I have had a read maybe we could set up a call to discuss your findings.

Stay safe,

John

Hon. John Streicker
Minister of Community Services |
Direction des services en français |
Liquor Corporation |

Lotteries Commission |
T 867-393-7427 | Yukon.ca

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: May 1, 2020 11:48 AM
To: John.Streicker
Cc: Tim Stockwell (timstock@uvic.ca)
Subject: Yukon alcohol labelling study out

Dear Minister Streicker,

On **Monday May 4th at 5am GMT**, we are releasing a series of publications from our Yukon alcohol labelling study as part of a Special Section in the Journal of Studies on Alcohol and Drugs. This study is co-lead by Erin Hobin of Public Health Ontario and Tim Stockwell of the Canadian Institute of Substance Use Research. We wanted to provide you, **in confidence, with an embargoed copy** of the two media releases going out from the journal and from the institution of one of the principal investigators on the study as well as some additional documents related to the publications.

Attached to this email you will find:

- Embargoed media release from the University of Victoria
- Embargoed media release from the Journal of Studies on Alcohol and Drugs
- Two page backgrounder on the labels study
- Abstracts and citation information from the 6 articles that form part of the Special Section
- Infographics related to the publications (2 full and 2 brief)

Please do not share these documents before the embargo is lifted on Monday May 4th at 5am GMT.

Key labelling study results:

• About 300,000 labels were applied to 98 per cent of alcohol containers sold in the liquor store in Whitehorse over the study period.

• Prior to the new labels, consumer awareness of alcohol's cancer risk, of Canada's national drinking guidelines, and of the number of standard drinks in containers was low.

• After the new labels were introduced in the main liquor store in Whitehorse, consumer **awareness of alcohol's cancer risk and Canada's national drinking guidelines increased** in Whitehorse compared to Yellowknife, where no new labels had been added.

• Consumers who became **aware that alcohol can cause cancer were twice as likely to express support policies to increase the price of cheap alcohol** as those who were unaware of the alcohol-cancer link.

• Analysis of the sales data showed that average alcohol consumption in Whitehorse decreased by 6% during the study period compared to NWT and neighbouring regions in Yukon.

• Average consumption of alcohol sold in **labelled** alcohol containers ***decreased*** by 7 per cent while average consumption of alcohol from the many fewer **unlabeled** containers ***increased*** by 7 per cent.

• Expert legal analysis showed that the Canadian alcohol industry lobbyists statements about the legality of alcohol warning labels was flawed. Instead, the analysis showed that Canadian territories and provinces have a duty to inform consumers about the health risks of a product they are involved in distributing, promoting and selling. Failure to adequately inform consumers exposes governments to future civil lawsuits as happened with tobacco.

Project website: www.AlcoholLabels.CISUR.ca

Thank you for your support and contributions to this work.
Erin

From: Erin Hobin
To: Patch.Groenewegen
Cc: timstock@uvic.ca
Subject: RE: Yukon alcohol labelling study out
Date: Friday, May 22, 2020 8:03:27 AM

Hi Patch,
My deadline to submit the final report to Health Canada is closing in at the end of May, so we will move ahead with the final report next week. Please provide any feedback before end of day today.
Thanks so much! Happy Friday.
Erin

From: Erin Hobin
Sent: May 12, 2020 11:30 AM
To: 'Patch.Groenewegen@gov.yk.ca'
Cc: timstock@uvic.ca
Subject: RE: Yukon alcohol labelling study out
Hi again Patch,
This is a soft reminder to please send me your feedback and comments on the final label report. We need to finish up and submit everything to Health Canada before the end of May 2020.
Best,
Erin

From: Patch.Groenewegen@gov.yk.ca [mailto:Patch.Groenewegen@gov.yk.ca]
Sent: May 4, 2020 6:27 PM
To: Erin Hobin <Erin.Hobin@oahpp.ca>
Cc: timstock@uvic.ca
Subject: RE: Yukon alcohol labelling study out
Thanks Erin.
How did the release go – pickups?
Question – is this "THE" final report for the study or ?

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: May 1, 2020 11:28 AM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>
Cc: timstock@uvic.ca
Subject: RE: Yukon alcohol labelling study out
Hi Patch,
Thanks for responding. You were sent copies of these papers intermittently for review and feedback before we submitted for publication. NWT is on my list to email today with the package.
The paper that I have recently asked for your review and feedback is the final report that has not been shared publically. Once I receive your feedback, I will update it and send to other stakeholders for review (e.g., NWT).
Please let me know if you have further questions.
Erin

From: Patch.Groenewegen@gov.yk.ca [mailto:Patch.Groenewegen@gov.yk.ca]
Sent: May 1, 2020 2:23 PM
To: Erin Hobin <Erin.Hobin@oahpp.ca>

Cc: timstock@uvic.ca
Subject: RE: Yukon alcohol labelling study out
Thanks Erin.
Two questions:

- Is this the same paper you wanted my review on?
- Does NWT know this is going out?

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: May 1, 2020 11:10 AM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>
Cc: Tim Stockwell (timstock@uvic.ca) <timstock@uvic.ca>
Subject: Yukon alcohol labelling study out
Dear Patch,
Hope you and your family are safe and healthy.

On **Monday May 4th at 5am GMT**, we are releasing a series of publications from our Yukon alcohol labelling study as part of a Special Section in the Journal of Studies on Alcohol and Drugs. We wanted to provide you, **in confidence, with an embargoed copy** of the two media releases going out from the journal and from the institution of one of the principal investigators on the study as well as some additional documents related to the publications.

Attached to this email you will find:

- Embargoed media release from the University of Victoria
- Embargoed media release from the Journal of Studies on Alcohol and Drugs
- Two page backgrounder on the labels study
- Abstracts and citation information from the 6 articles that form part of the Special Section
- Infographics related to the publications (2 full and 2 brief)

Please do not share these documents before the embargo is lifted on Monday May 4th at 5am GMT.

Key labelling study results:

• About 300,000 labels were applied to 98 per cent of alcohol containers sold in the liquor store in Whitehorse over the study period.

• Prior to the new labels, consumer awareness of alcohol's cancer risk, of Canada's national drinking guidelines, and of the number of standard drinks in containers was low.

• After the new labels were introduced in the main liquor store in Whitehorse, consumer **awareness of alcohol's cancer risk and Canada's national drinking guidelines increased** in Whitehorse compared to Yellowknife, where no new labels had been added.

• Consumers who became **aware that alcohol can cause cancer were twice as likely to express support policies to increase the price of cheap alcohol** as those who were unaware of the alcohol-cancer link.

• Analysis of the sales data showed that average alcohol consumption in Whitehorse decreased by 6% during the study period compared to NWT and neighbouring regions in Yukon.

• Average consumption of alcohol sold in **labelled** alcohol containers ***decreased*** by 7 per cent while average consumption of alcohol from the many fewer **unlabeled** containers ***increased*** by 7 per cent.

• Expert legal analysis showed that the Canadian alcohol industry lobbyists statements about the legality of alcohol warning labels was flawed. Instead, the analysis showed that Canadian

territories and provinces have a duty to inform consumers about the health risks of a product they are involved in distributing, promoting and selling. Failure to adequately inform consumers exposes governments to future civil lawsuits as happened with tobacco.
Project website: www.AlcoholLabels.CISUR.ca

Thank you for your time, steadfast support, and contributions to this work. It is exciting to be able to share the results.

Erin

From: Jennifer.Roach
To: Amelie.Quirke-Tomlins
Cc: Paul.McConnell
Subject: FW: letters to and from minister of HC
Date: Wednesday, June 10, 2020 5:09:24 PM
Attachments: 2018-02-15_LTR_HCMinister.pdf
2018-05-29 resp HCMinister.pdf
image001.png

Amelie – here are is an earlier letter from our minister to HC (labels) and their response. Paul asked me to send these to you.

Jennifer Roach
Executive Assistant
Yukon Liquor Corporation, Lotteries Yukon | President's Office
T 867-667-5265 | Yukon.ca

From: Patch.Groenewegen
To: Amelie.Quirke-Tomlins
Subject: Fwd: National Alcohol Strategy
Date: Monday, June 29, 2020 3:24:51 PM

Sent from my Bell Samsung device over Canada's largest network

---

From: Notarandrea, Rita
Sent: Monday, June 29, 2020 1:56:43 PM
To: Patch.Groenewegen@gov.yk.ca
Cc: Cesa, Frank (HC/SC) ; Costen, Eric (HC/SC)
Subject: RE: National Alcohol Strategy

Hi Patch,
To answer the questions you posed in your email, the National Alcohol Strategy recommendations are currently being updated based on the best available evidence. The refreshed National Alcohol Strategy Advisory Committee is overseeing the update, working with a Scientific Advisory working group.
The committee is co-chaired by me, on behalf of CCSA, Andy Murie on behalf of MADD Canada, and Michelle Craig on behalf of the Government of Alberta and the Provinces and Territories group. NASAC reviewed and approved the membership listed below and made suggestions for others, such as CIHR and more people with lived experience. Nicole April, Médecin spécialiste en santé publique et médecine préventive, Institute national de santé publique du Québec

- Paul Boase, Chief, Road Users, Transport Canada
- Frank Cesa, Director, Office of Alcohol Policy, Health Canada
- Erik Fraunberger, Training Director, Student Medical Response Team, University of Calgary
- Gord Garner, Executive Director, Community Addictions Peer Support Association
- Verna Ryan, Health PEI
- Marie-Hélène Lagacé, VP, Public Affairs and Communication, Société des alcools du Québec
- Sean Leggett, Program Analyst, Manitoba Health, Seniors and Active Living
- Hubert Sacy, Directeur Général, Éduc'alcool
- Dr Gerald Thomas, Director, BC Ministry of Health
- David Turner, Partner & Vice-President, First Peoples Group
- Kathy Unsworth, Managing Director, CanFASD
- Frank Welsh, Director of Policy, Canadian Public Health Association
- Robert Strang, Chief Medical Officer of Health, Nova Scotia
- Martha Vaughan, Associate Director, Division of Children and Youth, Public Health Agency of Canada
- Dr Barbara Watts, Canadian Association of Emergency Physicians
- Dr Melissa Holowaty, Chair of the Medical Interest Group in Addiction Medicine, College of Family Physicians of Canada

- Marie-Hélène Lagacé, VP Public Affairs and Communication at SAQ currently represents CALJ on the committee
- John MacDonald, Executive Director, Alcohol and Gaming Division, Service Nova Scotia

In addition to NASAC, there is also a scientific working group, noted above, made up of researchers in the field, that takes a look at the available evidence and presents recommendations to NASAC

We would be happy to connect with you regarding the ongoing work and any questions you might have.
Best,
Rita

From: Costen, Eric (HC/SC)
Sent: Friday, June 26, 2020 3:34 PM
To: Patch.Groenewegen@gov.yk.ca
Cc: Cesa, Frank (HC/SC) ; Notarandrea, Rita
Subject: Re: National Alcohol Strategy

Hi Patch:
Good to hear from you. I hope you are keeping well.
The National Alcohol Strategy Advisory Committee (NASAC) was dissolved and reconstituted a number of months ago. Frank Cesa who is the Director of Alcohol Policy here in my Branch represents Health Canada on the committee. I can confirm that the committee decided to update the National Alcohol Strategy last year. If you want to know the details about committee membership and get a better sense of the current status it would be best to get in touch with Rita Notarandrea, the CEO of the Canadian Centre on Substance Use and Addiction (CCSA). She co-chairs the committee and CCSA provides secretariat support.

Best,
Eric
A/Assistant Deputy Minister

Controlled Substances and Cannabis Branch
Health Canada

Sous-ministre Adjoint / Int.
Direction générale des substances contrôlées et du cannabis
Santé Canada

On Jun 24, 2020, at 12:37 PM, "Patch.Groenewegen@gov.yk.ca" <Patch.Groenewegen@gov.yk ca> wrote:

Good day Eric,
Long time no chat … how are you?
As you may recall, you were a speaker set for our 2017 CALJ conference, which I hosted
In any case, I trust this email finds you in good health and humour given these strange times
I am wondering if you can help me
I came across this in a CCSA document from summer 2019: *The Canadian Centre on Substance Use and Addiction has begun working with partners to update the National Alcohol Strategy, which will address issues including the availability of alcohol, underage drinking, pricing and other incentives, advertising and promotion, and labelling.*
https://ccsa ca/sites/default/files/2019-09/CCSA-Canadian-Drug-Summary-Alcohol-2019-en pdf
Might you be able to confirm if the strategy is being updated, and if so, the status, membership, etc ?
Thanks,

Patch Groenewegen
Director, Liquor Act Implementation
Yukon Liquor Corporation |
T 867-667-8926 | C 867-332-1653 | F 867-393-6306 | Yukon ca

From: Sabrina.Kinsella
To: Amelie.Quirke-Tomlins
Cc: Aynslie.Ogden
Subject: FW: Methodology review
Date: Monday, July 6, 2020 11:43:35 AM
Attachments: image001.png
image002.png

Good morning Amelie,
Aynslie asked me to send some comments directly your way in her absence. She may have additional comments of her own, but is out of the office for at least this morning and didn't want me to delay my response further.
I want to disclose, first of all, that my substantive position is with Health and Social Services, as Health Research Analyst. In that role I contributed to the planning and licensing discussions for this research, as well as to the discussions related to the study suspension and resumption. Please let me know if you have any questions or concerns about that.
In reviewing these materials, I primarily focused on the Zhao; Hobin; Shoueri/Mychasiw; Vallance2 and W2W3 documents, and less on the Stockwell; Babor Editor's Corner; and Vallance1 documents – based on the nature of the latter three and my perception of their relevance to the methodology discussion. With that in mind, I offer the following thoughts:
Sales-based methods:

- The Zhao study uses Rural Yukon as a comparison area (as well as NWT).
    - You may be in a better position to assess this, but I would suggest that some rural residents may purchase their alcohol in Whitehorse – thereby reducing the representativeness of Rural sales data for that population, and meaning that Whitehorse-based data may include some rural residents.
- I would also suggest that the Zhao study downplays, to some degree, the media attention surrounding the suspension of the study and the role this may have played in the results (There is brief mention of this in the discussion portion, but a fairly strong conclusion is drawn despite this cautionary note.)
- I assume that these sales data would include off-sales purchases (that originate from Yukon liquor corp) but if not would suggest the same caution as below re: representativeness

Survey-based methods:

- The overall sample size may be sufficient for other surveys and questions (though there is a need to distinguish the sample common across waves from the new recruits in waves 2 and 3), but has clearly impacted the reliability of the results for the questions under this specific study. The authors have clearly highlighted the impacts of the sample size on the results, and on the lack of statistically significant differences due to wide confidence intervals. I would suggest that they have been open and transparent about these limitations in the analyses above.
- I would suggest they may be over-stating the representativeness of the samples, in a couple of ways:
    - They have suggested that the liquor stores in Yukon and NWT are virtual monopolies, while also noting that these account for ~50% of alcohol sales.
        - I would suggest that these statements are incompatible, and (while again you may be in a better position to assess this) that many people may be regularly

purchasing alcohol at off-sales sites, rather than the main liquor stores.

- The Vallance 2 report suggests that the consistency of the sample with drinkers from the 2014 CCHS in terms of age, sex and ethnicity, indicates that the study sample is representative of those who drink alcohol, but I'm not sure that case is strongly made with this limited set of variables.
  - There may be systematic difference between those who purchase alcohol at the liquor store versus those who purchase at off-sales – particularly considering the location of the liquor store relative to where many people in Whitehorse live. (Completely hypothetical example – those who live outside of the downtown area and are heavy drinkers may prefer to purchase alcohol in off-sales locations that are closer to their residence…)
  - There may also be systematic differences between respondents and non-respondents, of course, that are not related to age, sex or ethnicity…
- They do not focus heavily on the issue of 'drop-outs' across waves, and the impact this might have on their results.

- Despite the above, I would say that overall the relevant authors are open about the study limitations (at least those that they see as most important) and their impact on the results. My read is that the conclusions are appropriately softened based on these limitations.

I hope these comments are helpful to you. Please let me know if you have any questions or concerns.

Sincerely,

Sabrina

Sabrina Kinsella
Science Policy Advisor
Executive Council Office | Office of the Science Advisor
T 867-456-5564 | C 867-335-5934 | Yukon.ca

I respectfully acknowledge that I work within the Traditional Territories of the Kwanlin Dün First Nation and the Ta'an Kwäch'än Council.

From: Amelie.Quirke-Tomlins <Amelie.Quirke-Tomlins@gov.yk.ca>
Sent: June 23, 2020 4:03 PM
To: Aynslie.Ogden <Aynslie.Ogden@gov.yk.ca>
Subject: FW: Methodology review

Hi Aynslie

Just wanted to double check you received this? I attached a fair few things so wanted to make sure it went through. Thanks

---

From: Amelie.Quirke-Tomlins
Sent: Wednesday, June 17, 2020 4:11 PM
To: Aynslie.Ogden
Subject: RE: Methodology review

Hi Aynslie

Sorry about the delay in getting this to you and thanks for the call on Friday.

The attached Word document is the study (I left in a couple of comments that my colleague was passing onto the researchers) recently submitted by the researchers to Health Canada, and for reference the attached PDFs are articles recently released in the context of the study, some of which mention the methodology.
As we discussed, your thoughts on the methodology/sample size would be most helpful and I'll be reaching out to YBS as you suggested. Please let me know if you have any questions. It would be great if you could get back to me by the end of June, but let me know if there are any issues with that.
Thank you
Amelie

From: Amelie.Quirke-Tomlins
Sent: June 11, 2020 10:00 AM
To: Aynslie.Ogden <Aynslie.Ogden@gov.yk.ca>
Subject: RE: Methodology review

Hi Aynslie,
That would be great, I'll send you a calendar invite and feel free to propose a new time if it doesn't work for you.
Thanks,
Amelie

From: Aynslie.Ogden <Aynslie.Ogden@gov.yk.ca>
Sent: June 11, 2020 9:41 AM
To: Amelie.Quirke-Tomlins <Amelie.Quirke-Tomlins@gov.yk.ca>
Subject: RE: Methodology review

Good morning Amelie,
Thanks for being in touch! Yes we can give you some suggestions as to who you could be in touch with. Depending on the nature of the studies, our office may also be able to assist in a review.
I've got time on Friday to connect – sorry yesterday and today have been/are a bit busy – shall we find a half our in our calendars to discuss the details?
Aynslie

From: Amelie.Quirke-Tomlins <Amelie.Quirke-Tomlins@gov.yk.ca>
Sent: June 9, 2020 4:14 PM
To: Aynslie.Ogden <Aynslie.Ogden@gov.yk.ca>
Subject: Methodology review

Hi Aynslie
My name is Amelie and I'm the Director of Policy and Comms at YLC. I'm reaching out as I'm looking for someone in government with an academic background that could spend some time over the next few weeks reviewing the methodology of some studies relevant to YLC. I was hoping you might have some recommendations for suitable people, perhaps I could give you a quick call tomorrow to provide more details at a time that's convenient for you?
Thanks,
Amelie

Amelie Quirke-Tomlins
Yukon Liquor Corporation
T 867-667-8924 | Yukon.ca

From: Aynslie.Ogden
To: Amelie.Quirke-Tomlins; Sabrina.Kinsella
Subject: RE: Methodology review
Date: Wednesday, July 8, 2020 5:03:56 PM
Attachments: image001.png
image002.png

Amelie,
I have not yet completed my review of these materials (there is a lot here!!), but have started to dig into them. What has immediately got my attention is:

- All of the papers you shared were published in the same issue of the same journal, the Journal of Studies on Alcohol and Drugs. I have access to the UofA library so checked the journal citation report for 2019 for this journal, and it is 2.448. The JIF rating gives one a sense of the relative importance of a particular journal by giving a sense of how much the work that is published within it is cited. While the impact factor doesn't necessarily give you an indication of the reliability of the study or the faith you can put into the Journal's peer review process, it is harder to get published in the top journals and the top journals are top journals because they do a great job with their peer review and publish the best science. This journal's JIF puts it at around the 50th percentile – which is a pretty good journal. The JIF doesn't raise any red flags for me about their choice to publish here.
- In fact, the authors' decision to publish the findings of these interrelated articles within the same issue will likely result in the work, as a whole, having a greater impact within the scientific community. This impact is also encouraged by the editor's introduction to the issue, where the studies are described as ground-breaking. So together this will increase the impact of this work (more folks will read it, cite it, scrutinize it, etc.). Just something to be aware of. It is sort of a scientist's dream come true for an editor of a journal to call their work ground-breaking, and people, well people like me, take note of this.
- That being said, it will be tough for any government agency or industry group to get any traction on having issues they may have with the methodology or the findings of these studies outside of the credibility of a peer review process. So if there are flaws that are great cause for concern, the best way to address them is through the scientific community. And they have their processes for doing this. I'm not really sure I see any flaws that would jump out as me as lead to retractions of findings or letters to the editor – that sort of thing is pretty rare, particularly in a journal like this one appears to be (a pretty good journal). The limitations here are mostly gaps that would in the normal course of things be areas where future studies could be carried out.
- So what is a policy analyst to recommend with regards to how apply the results of these studies to decision-making if, for example, the considerations Sabrina has raised below raise concerns? This is where our office gets quite interested – how to work at the interface of policy and science and advance evidence-informed decision-making, given the limitations of the evidence base and all the other considerations out there that decision makers base decisions on.
- It is good to keep in mind that since this is new work, and new studies will be (or should be) designed to address any of the flaws or limitations or shortcomings or gaps to encourage the knowledge base to develop, building on what was. One set of studies can't accomplish everything. In relatively recent years the Cochrane group out of the UK has advanced the practice of systematic reviews to support

decision making, where evidence is synthesized across a whole lot of studies, which if this is as ground-breaking as it is, there won't be a body of knowledge yet to do this kind of review So my point here is that this collection of studies doesn't close the book on what there is to know about the efficacy of labelling.

I'd like to try to spend some more time with these papers over the next few days -- if you are still open for comments – let me know! Keeping in mind that I'm not an expert in this field, so any further comments I may have will be general in nature, and somewhat limited by the time I have available to become familiar with what is in these papers.

Aynslie

From: Amelie.Quirke-Tomlins
Sent: Monday, July 6, 2020 12:28 PM
To: Sabrina.Kinsella
Cc: Aynslie.Ogden
Subject: RE: Methodology review

Thanks for this! Happy to receive any comments from Aynslie as well if she has any. Thanks again for taking the time to review.

Amelie

From: Sabrina.Kinsella <Sabrina.Kinsella@gov.yk.ca>
Sent: Monday, July 6, 2020 11:44 AM
To: Amelie.Quirke-Tomlins <Amelie.Quirke-Tomlins@gov.yk.ca>
Cc: Aynslie.Ogden <Aynslie.Ogden@gov.yk.ca>
Subject: FW: Methodology review

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Sincerely,

Sabrina

Sabrina Kinsella
Science Policy Advisor
Executive Council Office | Office of the Science Advisor
T 867-456-5564 | C 867-335-5934 | Yukon.ca

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From: Amelie.Quirke-Tomlins <Amelie.Quirke-Tomlins@gov.yk.ca>
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Thank you

Amelie

From: Amelie.Quirke-Tomlins
Sent: June 11, 2020 10:00 AM
To: Aynslie.Ogden <Aynslie.Ogden@gov.yk.ca>
Subject: RE: Methodology review

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Amelie

From: Aynslie.Ogden <Aynslie.Ogden@gov.yk.ca>
Sent: June 11, 2020 9:41 AM
To: Amelie.Quirke-Tomlins <Amelie.Quirke-Tomlins@gov.yk.ca>

Subject: RE: Methodology review

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Aynslie

From: Amelie.Quirke-Tomlins <Amelie.Quirke-Tomlins@gov.yk.ca>
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Thanks,
Amelie

Yukon
Amelie Quirke-Tomlins
Yukon Liquor Corporation
T 867-667-8924 | Yukon.ca

From: Jennifer.Roach
To: Amelie.Quirke-Tomlins
Subject: FW: Meeting with Yukon Minister responsible for Yukon Liquor Corporation
Date: Thursday, September 17, 2020 11:00:28 AM
Attachments: image001.png
Briefing_Yukon_Minister_Alcohol_Label_Study_200917.pdf
Study_Overview_200917.pdf
Papers Refs and Abstracts_200916.pdf

From: Erin Hobin
Sent: Thursday, September 17, 2020 10:21 AM
To: Jennifer.Roach
Cc: Tim Stockwell (timstock@uvic ca)
Subject: RE: Meeting with Yukon Minister responsible for Yukon Liquor Corporation

Hi Jennifer,

Please find attached to this email the materials for our meeting with Minister and President, YLC.

1. Briefing Note;
2. Slide Deck presenting study overview including background information, intervention timeline, and results; and,
3. Abstracts from the 11 peer-reviewed manuscripts published from the labelling study.

Please let me know if you have questions or any issues with the attached documents. Thanks again for following up today.

Erin

From: Jennifer.Roach@gov.yk ca [mailto:Jennifer.Roach@gov.yk.ca]
Sent: September 17, 2020 11:29 AM
To: Erin Hobin <Erin.Hobin@oahpp.ca>
Subject: Meeting with Yukon Minister responsible for Yukon Liquor Corporation

Hi Erin – you mentioned having some materials for the minister prior to the meeting next week? When will these be available? The president is meeting with him tomorrow, so if it is possible to provide me them to me today, that would be ideal. If not, no worries.

Thanks,

Jennifer Roach
Executive Assistant
Yukon Liquor Corporation, Lotteries Yukon | President's Office
T 867-667-5265 | Yukon.ca

From: Manon.Moreau
To: "Erin Hobin"
Cc: Amelie.Quirke-Tomlins
Subject: RE: minister label study briefing (Sept 22, 9am PST)
Date: Tuesday, October 6, 2020 1:03:30 PM
Attachments: image002.png
image003.png

Hello Erin –
Sorry for the delay in responding. I was on leave the last week and bit. Thank you for the overview of the label study research with Minister Streicker. I appreciate you providing updates going forward.
Your new research sounds very interesting. Yes, I would be interested in reviewing the data collection tools and protocols.
Regards,
Manon

Manon Moreau
President, Yukon Liquor Corporation
Secretary, Yukon Lottery Commission
T 867-667-5265 | C 867-332-0552 | Yukon ca

From: Erin Hobin
Sent: September 22, 2020 12:01 PM
To: Manon.Moreau
Subject: RE: minister label study briefing (Sept 22, 9am PST)
Hi Manon,
It was nice meeting you and your team today.
If you have questions about the labelling study, please let me know. Going forward, I can also provide updates on label-related progress in other jurisdictions or at the federal level.
I wanted to connect with you to highlight that, in partnership with the Office of the Yukon Chief Medical Officer of Health, my team recently received research funding to establish a longitudinal data collection system in the 3 territories monitoring alcohol use, cannabis use, and vaping. These data will provide trends in consumption and examine several policy-relevant outcomes. The aims of the data are to provide decision makers with rapid, ongoing feedback as changes in policies and practices unfold, as well as evidence on the longer-term public health effects of these changes. We are planning to pilot the data collection tools and recruitment protocols this year and conduct the full study in each of 2021-2023. We are currently working towards finalizing the data collection tools and protocols, and if you're interested, I can share with you for review and feedback.
Thanks,
Erin

From: Jennifer.Roach@gov.yk ca [mailto:Jennifer.Roach@gov.yk.ca]
Sent: September 3, 2020 2:34 PM
To: Erin Hobin ; timstock@uvic.ca
Cc: manon.moreau@gov.yk.ca
Subject: RE: minister label study briefing (Sept 22, 9am PST)
Great and thanks a lot for such a quick response. We'll go with September 22. I'll forward a meeting invitation from the president's calendar in just a minute. Manon Moreau (who has been copied in our correspondence) is the president here now. I'm not sure if you have met her yet, and if you haven't then this will be a good opportunity to do that as well.
And thank you Erin – sharing materials before the teleconference would be great. Thanks,

---

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: Thursday, September 3, 2020 11:12 AM
To: Jennifer.Roach <Jennifer.Roach@gov.yk.ca>; timstock@uvic.ca
Cc: Manon.Moreau <manon.moreau@gov.yk ca>
Subject: RE: Requested label study briefing
Hi Jennifer,
Thank you for your email and invitation. I can be available at the suggested times that Tim is also available on Tuesday, September 22 and Thursday, September 24.
Once the meeting time is set, Tim and I may reach out to you to share some materials with the Minister prior to the teleconference.
Thanks,
Erin

From: Jennifer.Roach@gov.yk ca [mailto:Jennifer.Roach@gov.yk.ca]
Sent: September 3, 2020 1:59 PM
To: timstock@uvic.ca; Erin Hobin <Erin.Hobin@oahpp ca>
Cc: manon.moreau@gov.yk.ca
Subject: Requested label study briefing
Hello Tim and Erin – hope you are both doing well. I'm contacting you to ask if you would you be able to provide a briefing to our minister on the findings from the label study? If you can, the following are some possible times – do any work for you? (Erin, assuming you will be on EST?) I will likely set the meeting up to be teleconference as opposed to video conference.
Monday, September 21, 3:30pm PST (6:30pm EST)
Tuesday, September 22, 9am PST (noon EST)
Thursday, September 24, 11am PST (2pm EST)
Friday, September 25, 11am PST (2pm EST)
And thanks,

Jennifer Roach
Executive Assistant
Yukon Liquor Corporation, Lotteries Yukon | President's Office
T 867-667-5265 | Yukon.ca

From: Manon.Moreau
To: Stephen.Samis; Brendan.Hanley
Cc: Jennifer.Roach; Amelie.Quirke-Tomlins
Subject: alcohol label study research
Date: Tuesday, October 6, 2020 1:15:27 PM
Attachments: Briefing_Yukon_Minister_Alcohol_Label_Study_200917.pdf
image001.png
Papers Refs and Abstracts_200916.pdf
Study_Overview_200917.pdf

Hello Stephen and Dr. Hanley:
I just wanted to let you know that Yukon Liquor Corporation and Minister Streicker had a conference call with Tim Stockwell and Erin Hobin September 22 to discuss the findings from their labelling study. I've attached the materials they provided. If you are interested in meeting and reviewing, just let me know and we will set up a time for us to do so.
I also understand the Yukon CMOH office is involved in new research with Tim and Erin to monitor alcohol use, cannabis use and vaping. If you need assistance from us, please let us know.
Have a great day.
Manon

Manon Moreau
President, Yukon Liquor Corporation
Secretary, Yukon Lottery Commission
T 867-667-5265 | C 867-332-0552 | Yukon.ca

Editor's Corner

The Arrogance of Power: Alcohol Industry Interference With Warning Label Research

IN THIS ISSUE, the *Journal of Studies on Alcohol and Drugs* publishes a set of interrelated articles that speak volumes about the potential role of alcohol warning labels in the prevention of alcohol-related morbidity and mortality. At a time when the alcohol industry and public health authorities are both moving toward the development of procedures that would advise consumers about the health hazards of alcohol consumption, alcohol scientists at Public Health Ontario and the Canadian Institute for Substance Use Research at the University of Victoria have been conducting groundbreaking studies that are sure to advance alcohol labeling policy, labeling research, and prevention theory.

Groundbreaking research

In the first article, Zhao et al. (2020) describe an innovative analysis of the population- level impact of introducing evidence-informed alcohol warning labels in Whitehorse, Yukon, that included (a) a cancer warning, (b) low-risk drinking guidelines, and (c) standard drink messages. An interrupted time series analysis evaluated the effects of these labels for 28 months before and 14 months after starting the intervention. Compared with neighboring regions of Yukon and the Northwest Territories (which served as control sites), per capita sales of labelled products (the great majority of sales) declined in the intervention community by 6.6%, whereas sales of the many fewer unlabeled products increased by 6.9%. The results suggest an accumulating effect over time when highly visible labels with impactful messages are introduced in rotation.

In addition to the warning labels' influence on population alcohol sales, a set of related studies was conducted to evaluate consumer awareness of alcohol-related health information and how this is affected by the introduction of various warning labels. Vallance et al. (2020a) assessed consumers' baseline knowledge of alcohol-related health information by conducting surveys with 836 liquor store patrons. They found a low level of knowledge of alcohol–breast cancer risk (24.4%), limited ability to calculate a standard drink (28.9%), and low knowledge of daily (48.9%) and weekly (47.6%) low-risk drinking limits. Support for health warnings (55.4%) and standard drink information (51.0%) was moderate. The authors conclude that despite the rather low level of alcohol-related health knowledge, there was moderate support for alcohol warning labels as a tool to raise awareness. As might be expected, support was lower among heavy drinkers than other among groups.

Hobin et al. (2020) tested the effects of the cancer warning labels on drinkers' recall and knowledge. Two to 4 months after application of the cancer labels, unprompted and prompted recall increased to a greater extent in the intervention versus comparison sites. Similar results were found 6 months after the intervention for all three outcomes.

Using a creative two-group pretest–posttest quasi-experimental design, Schoueri-Mychasiw et al. (2020) examined the impact of national low-risk drinking guideline labels. Awareness of the drinking guidelines increased from 30.7% pre- to 67.0% post-intervention and was 2.89 times greater in the intervention versus comparison site. This study showed that enhanced alcohol labels are noticed and may be an effective strategy for increasing awareness and knowledge of national drinking guidelines.

Another direction taken in this research program was precipitated quite unexpectedly when alcohol industry lobbyists pressured the Yukon government to temporarily shut down the research. Two articles address the influence of the alcohol industry itself.

In the first article, Vallance et al. (2020b) analyzed media coverage of alcohol warning labels with a cancer message in Canada, and compared the Yukon coverage with a related initiative in Ireland. This kind of research is particularly important because media coverage can influence public debate and policy outcomes, especially if it is more aligned with the interests of the alcohol industry than with those of public health authorities. The investigators found that 68.4% of media articles covering the Yukon study (n = 38) and 18.9% covering the Ireland Bill (n = 37) were supportive of alcohol warning labels with a cancer message. Industry arguments opposing the warning labels were similar across both contexts, often containing statements from industry representatives distorting or denying the evidence that alcohol causes cancer. The finding that news coverage of alcohol warning

labels with a cancer message was more supportive in Canada than in Ireland may have been due to media coverage of the industry's opposition to the warning label study itself. By drawing attention to its own lobbying activities, the industry may have inadvertently increased public support for alcohol policies and helped to further broadcast the message that alcohol is a cause of cancer.

In their concluding "Perspectives" article, Stockwell et al. (2020) explore three issues in the ongoing debate over alcohol warning labels: (a) a consumer's right to know, (b) a government's responsibility to inform, and (c) an industry's power to thwart both consumer rights and government responsibility. These issues are discussed not only in the context of the Yukon labeling study but also in relation to recent industry interference in alcohol labeling policy in South Korea and Ireland. The authors describe how their federally funded scientific study in Canada was affected by industry interference. Despite a temporary pause in the labeling program, enough data were collected to make these reports possible. In similar fashion, industry complaints in South Korea helped to weaken that country's implementation of cancer warning labels. And in Ireland, cancer warnings faced continuing legal opposition from industry groups.

The Arrogance of power

In addition to the interference observed in Canada, South Korea, and Ireland, alcohol industry tactics are raising eyebrows in other parts of the world as well. These tactics are notable because of their inconsistency with the industry's public pronouncements that they are committed to encourage "responsible drinking" through guidance labels and other measures to prevent alcohol-impaired driving and youth drinking.

In Africa, one transnational beer producer has been described in a recent book by Van Beemen (2019) as a company engaged in tax avoidance, high-level corruption, unfair competition, collaboration with dictators, and human rights violations. In Vietnam, the alcohol industry, especially the large transnationals, successfully lobbied against a recent draft alcohol law that contained many of the World Health Organization–recommended alcohol policy best buys (Movendi International, 2019a, 2019b).

The arrogance of the industry's economic and political power would be extremely discouraging to the public health community were it not for the opportunities it provides for what can be described as pseudo-stakeholder countermarketing. This term represents the synthesis of concepts that have emerged from recent studies of the alcohol industry. Stakeholder marketing refers to the design and implementation of marketing activities to maximally benefit all stakeholders, including consumers, shareholders, employees, nonprofit organizations and society at large (Smith et al., 2010). Often this takes the form of corporate social responsibility (CSR) initiatives under the assumption that companies can "do well" by "doing good." The problem with the alcohol industry's CSR activities from a public health perspective is that they tend to more effective at promoting brand awareness than they are at doing any good for the health of their consumers (Babor et al., 2019). Thus, much of the industry's CSR can be seen as a form of pseudo-stakeholder marketing. And when the industry lobbies government officials to oppose cancer warning labels by claiming that they have already developed untested "guidance labels," or when they threaten legal action to shut down a research project to test the impact of labels developed by independent experts, they are using their political power to make a statement that is not very conducive to real stakeholder marketing. Public health authorities have been attentive to the lessons learned from the tobacco industry, whose anti-scientific tactics eventually became a self-inflicted counter-marketing campaign when their bad behavior was exposed by investigative journalists and social scientists examining documents obtained through court litigation. The Yukon studies reported here are a good example of how the alcohol industry is capable of creating the same kind of pseudo-stakeholder counter-marketing that broadcasts the very messages they want to suppress.

Three conclusions that cannot be ignored

No single study or program of research conducted in one country is likely to provide definitive answers to critical policy questions about alcohol warning labels. But the articles in this thematic section of the Journal of Studies on Alcohol and Drugs offer a clear set of conclusions that cannot be ignored.

- Alcohol warning labels, when implemented in a clear and visible way, can not only communicate important health information to consumers, but also discourage them from purchasing alcohol.
- Enhanced alcohol labels are noticed and may be an effective population-level strategy for increasing awareness and knowledge of cancer risks and national drinking guidelines, including the kinds of brief intervention messages that health professionals are now expected to communicate to their hazardous drinking patients.
- Additional cancer label intervention studies are needed to refine the messages and study their impact in research programs that are not compromised by industry interference.

Conflict-of-Interest Statement

The author has no conflicts of interest to declare.

Funding Declaration

The author received no funding to support the writing of this editorial.

Thomas F. Babor, ph.d., m.p.h.[a,b,*]
[a]*Editor,* Journal of Studies on Alcohol and Drugs

[b]*Professor, Department of Public Health Sciences*
UConn Health,
Farmington, Connecticut

**babor@uchc.edu*

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Testing Alcohol Labels as a Tool to Communicate Cancer Risk to Drinkers: A Real-World Quasi-Experimental Study

ERIN HOBIN, PH.D.,[a,b,*] ASHINI WEERASINGHE, M.P.H.,[a] KATE VALLANCE, M.A.,[c] DAVID HAMMOND, PH.D.,[d] JONATHAN MCGAVOCK, PH.D.,[e] THOMAS K. GREENFIELD, PH.D.,[f] NOUR SCHOUERI-MYCHASIW, PH.D.,[a] CATHERINE PARADIS, PH.D.,[g] & TIM STOCKWELL, PH.D.[c]

[a]*Public Health Ontario, Toronto, Ontario, Canada*
[b]*Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada*
[c]*Canadian Institute for Substance Use Research, University of Victoria, Victoria, British Columbia, Canada*
[d]*School of Public Health and Health Systems, University of Waterloo, Waterloo, Ontario, Canada*
[e]*Children's Hospital Research Institute of Manitoba, University of Manitoba, Winnipeg, Manitoba, Canada*
[f]*Alcohol Research Group, Public Health Institute, Emeryville, California*
[g]*Canadian Centre for Substance Use and Addiction, Ottawa, Ontario, Canada*

ABSTRACT. Objective: This study tested the initial and continued effects of cancer warning labels on drinkers' recall and knowledge that alcohol can cause cancer. **Method:** A quasi-experiment was conducted to examine changes in the intervention versus comparison site for three outcomes: unprompted and prompted recall of the cancer warning, and knowledge that alcohol can cause cancer. The intervention site applied cancer warning labels to alcohol containers in its liquor store for 1 month, and the two liquor stores in the comparison site did not apply cancer labels. In total, 2,049 unique cohort participants (1,056 male) were recruited at liquor stores in the intervention and comparison sites to participate in surveys 4 months before labels were applied and 2 and 6 months after the cancer label was halted because of alcohol industry interference. Generalized estimating equations tested differences in outcomes between sites over time adjusting for socio-demographics and other covariates. **Results:** Two months after the cancer label, unprompted (+24.2% vs. +0.6%; adjusted odds ratio [AOR] = 32.7, 95% CI [5.4, 197.7]) and prompted (+35.7% vs. +4.1%; AOR = 6.2, 95% CI [3.6, 10.9]) recall increased to a greater extent in the intervention versus comparison site. There was a 10% greater increase in knowledge (+12.1% vs. +11.6%; AOR = 1.1, 95% CI [0.7, 1.5]) 2 months after the cancer label in the intervention versus comparison site. Similar results were found 6 months after the intervention for all three outcomes. **Conclusions:** In a real-world setting, cancer warning labels get noticed and increase knowledge that alcohol can cause cancer. Additional cancer label intervention studies are required that are not compromised by industry interference. (*J. Stud. Alcohol Drugs, 81,* 000–000, 2020)

CANCER IS A LEADING CAUSE of disability and premature death globally (Global Burden of Disease Cancer Collaboration, 2017; Global Burden of Disease 2017 Causes of Death Collaborators, 2018). Estimates suggest that almost 40% of cancer cases are attributable to preventable risk factors, including alcohol (Poirier et al., 2019). Global alcohol consumption has increased 70% since 1990 (Manthey et al., 2019), and 2 billion people currently consume alcohol regularly. In 2012, alcohol caused approximately 480,000 cancer deaths, constituting 5.8% of total cancer deaths worldwide (Praud et al., 2016). Data show cancers are the predominant source of total alcohol-attributable deaths in higher income countries, particularly among those over age 50 (Global Burden of Disease 2016 Alcohol Collaborators, 2018). The ethanol in alcoholic beverages has been classified as a Group 1 carcinogen (the highest category of risk) since 1988 and is confirmed to be causally related to malignant tumors in at least seven sites, including high prevalence and often fatal cancers such as those of the colon and breast (International Agency for Research on Cancer[IARC], 2010a, 2010b). The causal relationship is accepted by expert groups, including the World Cancer Research Fund and the American Society for Clinical Oncology (LoConte et al., 2018; World Cancer Research Fund/American Institute for Cancer Research [AICR], 2007). Recent evidence extends the relationship between alcohol and increased cancer risk beyond heavy consumption to moderate and light drinking and to all types of alcohol including wine, beer, and spirits, concluding that there is no safe level of alcohol consumption (Choi et al., 2018; Global Burden of Disease 2016 Alcohol Collaborators, 2018). Drinking one bottle of wine per week is associated with an increase in absolute lifetime cancer risk

Received: August 12, 2019. Revision: March 4, 2020.

This research was supported by a Health Canada–Substance Use and Addictions Program grant (No. 1718-HQ-000003). The views expressed herein do not necessarily represent the views of Health Canada. Thomas K. Greenfield was supported by National Institute on Alcohol Abuse and Alcoholism Grant No. P50 AA005595. Erin Hobin and Tim Stockwell formulated the research question, designed and conducted the study, and led the preparation of the manuscript. Nour Schoueri-Mychasiw and Kate Vallance helped coordinate data collections, and Ashini Weerasinghe led the data analysis and reviewed drafts of the manuscript. All authors contributed to designing the study, interpreting data, and writing the manuscript.

*Correspondence may be sent to Erin Hobin at Public Health Ontario, 480 University Ave., Suite 300, Toronto, ON, M5G 1V2, Canada, or via email at: erin.hobin@oahpp.ca.

equivalent to smoking 10 cigarettes a week for women and 5 for men (Hydes et al., 2019).

Supporting informed and moderate alcohol use is now a crucial part of a public health strategy to reduce the risk of alcohol-related harms. Common policies to reduce population-level alcohol consumption and minimize harms involve restricting legal and physical access to alcohol. Fewer efforts have been made to inform consumers of alcohol-related health risks, particularly cancer, and this lack of awareness constitutes a significant public health need. A review of studies across 16 countries, for example, found only 13% in some jurisdictions are aware of the link between alcohol and cancer (Scheideler & Klein, 2018). In addition to drinkers not being informed, there are biases in how drinkers perceive alcohol-related risks. Public perceptions of alcohol are that it is less harmful than other drugs, and alcohol is largely not understood to be a carcinogen or is seen to be a risk only at high consumption levels (Buykx et al., 2015; Cheeta et al., 2018; *The Lancet,* 2018). The extent to which drinkers appreciate the magnitude of alcohol as a cancer risk, the more they may feel at risk, attend to low-risk drinking guidelines, and reconsider their drinking behaviors (Rosenberg et al., 2018). Research also shows public support for tightening alcohol control policies is stronger when the alcohol–cancer link is understood (Bates et al., 2018; Buykx et al., 2015; Martin et al., 2018; Weerasinghe et al., 2020).

Health warning labels are supported by the World Health Organization (WHO) for raising consumer awareness about the negative consequences of alcohol (WHO, 2010, 2017). In contrast to other information-based interventions, alcohol labels are unique in that drinkers are exposed to health messages at key points of contact—the point-of-purchase and -pour. Extensive international research examining warning labels on tobacco packages indicates that well-designed warning labels, particularly labels on the front of packages, which are large in size with specific health messages that rotate and with color pictures, influence behavior by gaining consumers' attention, eliciting aversive reactions, and keeping the message in consumers' minds (Brewer et al., 2019; Hammond, 2011; Hiilamo et al., 2014; Noar et al., 2017). Labels are appealing because of their low cost to regulators, unparalleled reach among drinkers, and higher exposure among the heaviest drinkers (Greenfield, 1997). Lab and online studies testing alcohol label messages show that cancer warnings are most effective for educating drinkers about the seriousness of alcohol-related health harms and strengthening intentions to reduce alcohol intake compared with other health messages (Al-Hamdani & Smith, 2015, 2017; Jongenelis, 2018; *The Lancet,* 2018). More than 47 countries now mandate alcohol labels. Most mandate labels with vague statements of risk, or cautioning about the risk of drinking alcohol during pregnancy or when operating a motor vehicle (WHO, 2018). Only two countries currently require labels with a cancer warning. Since 2017, alcohol manufacturers in South Korea are required to choose one of three messages, two of which cite cancer risk. Ireland passed legislation in late 2018 mandating cancer warnings on alcohol product labels. With limited uptake worldwide, the effectiveness of cancer warning labels on alcohol remains largely unstudied (Martin-Moreno et al., 2013).

This study is the first real-world study to test if cancer warning labels on alcohol containers are an effective tool for increasing population awareness that alcohol can cause cancer. More specifically, this study tested the initial and continued effects of cancer warning labels on drinkers' recall of the cancer warning and knowledge that alcohol can cause cancer. In addition, this study describes support for health warning labels on alcohol containers and assesses the association between knowledge and support for labels.

Method

Alcohol label intervention

As shown in Figure 1, the alcohol label intervention consisted of three labels stating (a) a cancer warning with specific references to breast and colon cancers, (b) national drinking guidelines, and (c) standard drink information (four separate labels were developed for wine, spirits, coolers, and beer). Label content, size, and format were informed by evidence as well as consultations with local and international health experts and community stakeholders (Blackwell et al., 2018; Hammond, 2011; Hobin et al., 2018; Martin-Moreno et al., 2013; Noar et al., 2017; Pettigrew et al., 2016; Strahan et al., 2002; Vallance et al., 2018; Wettlaufer, 2018; WHO, 2017). The labels were relatively large to make them easily noticed and read, were full color with a bright yellow background and red border so they stood out on the container, and had messages providing new information. They were rotated to avoid wear. Label messages were provided in Canada's two official languages, English and French. Consistent with evidence for effective labeling (Hammond, 2011; Martin-Moreno et al., 2013), a parallel social marketing and awareness campaign was designed that included in-store signage, handouts, a website, toll-free helpline, and radio spots to augment the labels.

Study design

A pre–post quasi-experimental study with comparison group was designed. The intervention site (Whitehorse, Yukon, Canada) was recruited to apply intervention alcohol labels on all alcohol containers, except select local and single-serve beer and cider, in its one government-owned liquor store for an 8-month period. The comparison site (Yellowknife, Northwest Territories, Canada) consisted of two government-owned liquor stores that continued usual labeling practices. These stores are the only government

FIGURE 1. Intervention alcohol warning labels (actual size 5.0 cm × 3.2 cm): Alcohol containers sold in the liquor store in the intervention site displayed only one of the labels at any one time

monopoly liquor stores and account for almost all legal off-premise alcohol sales in both cities (Government of Northwest Territories, 2017; Government of Yukon, 2017). Yukon and Northwest Territories were recruited to participate in this experiment because they are currently the only jurisdictions in Canada to require any kind of alcohol warning label. Since 1991, they have used after-market labels on alcohol containers to caution consumers about the risk of drinking while pregnant, with an additional warning in Northwest Territories about drinking and operating machinery and general health concerns (Government of Northwest Territories, 2017; Government of Yukon, 2017; Greenfield, 1997).

Timing of data collections

Two waves of surveys were scheduled in the intervention and comparison sites before and after the intervention labels were implemented in the intervention site. Wave 1 surveys were conducted in both sites over a 6-week period starting May 2017, approximately 4 months before the labels were implemented in the intervention site. Wave 2 surveys were scheduled over a 6-week period starting May 2018, 8 months after implementation. Starting November 20, 2017, two of the intervention labels, the cancer warning and national drinking guidelines, were applied to alcohol containers in the liquor store in the intervention site. The standard drink labels were to be introduced shortly thereafter. However, only 1 month into the 8-month alcohol label intervention period, the government for the intervention site halted their participation in the study owing to significant pressure from representatives of Canada's national alcohol producers and stopped applying labels (Austin, 2018; Vallance et al., 2020).

Based on remaining label stock, approximately 47,000 cancer warning labels and 53,000 national drinking guidelines labels were applied to alcohol containers within the 1-month period. As a result of the unexpected interruption, the study design was modified (Figure 2). Wave 2 surveys were conducted starting February 2018, 2 months after the government paused their participation, in order to capture any impact of the shortened intervention. In April 2018, the government resumed their participation in the label intervention, under the condition that the cancer warning label be excluded. Thus, the labels containing the national drinking guidelines were reinstated in the liquor store in the intervention site starting April 12, 2018, and the standard drink labels followed starting May 28, 2018, up to the end of July 31, 2018. A third wave of surveys (Wave 3) was conducted starting June 2018 to the end of the intervention period in July 2018 to assess the impact of the two labels with drinking guidelines and standard drink information as well as the potential continued effect of the omitted cancer warning label. The social marketing campaign website and toll-free number were implemented in November 2017, at the time of the original intervention launch; however, in-store posters, point-of-sale materials, and radio spots were not implemented owing to industry interference. Full details of the alcohol labeling intervention and study design are described in Vallance et al. (2020).

Recruitment and survey procedures

In Wave 1, a prospective cohort of adult drinkers was recruited by trained research assistants as customers exited the liquor stores in the intervention and comparison sites. A standard intercept technique was used of approaching every person who passed a pre-identified landmark in the liquor store. Eligibility for the survey was established through a screening tool. Eligible participants were given study information and a consent form. Consenting participants were instructed to complete the survey on a tablet independently, without assistance. Participants were offered a gift card as remuneration for their time. In Waves 2 and 3, participants

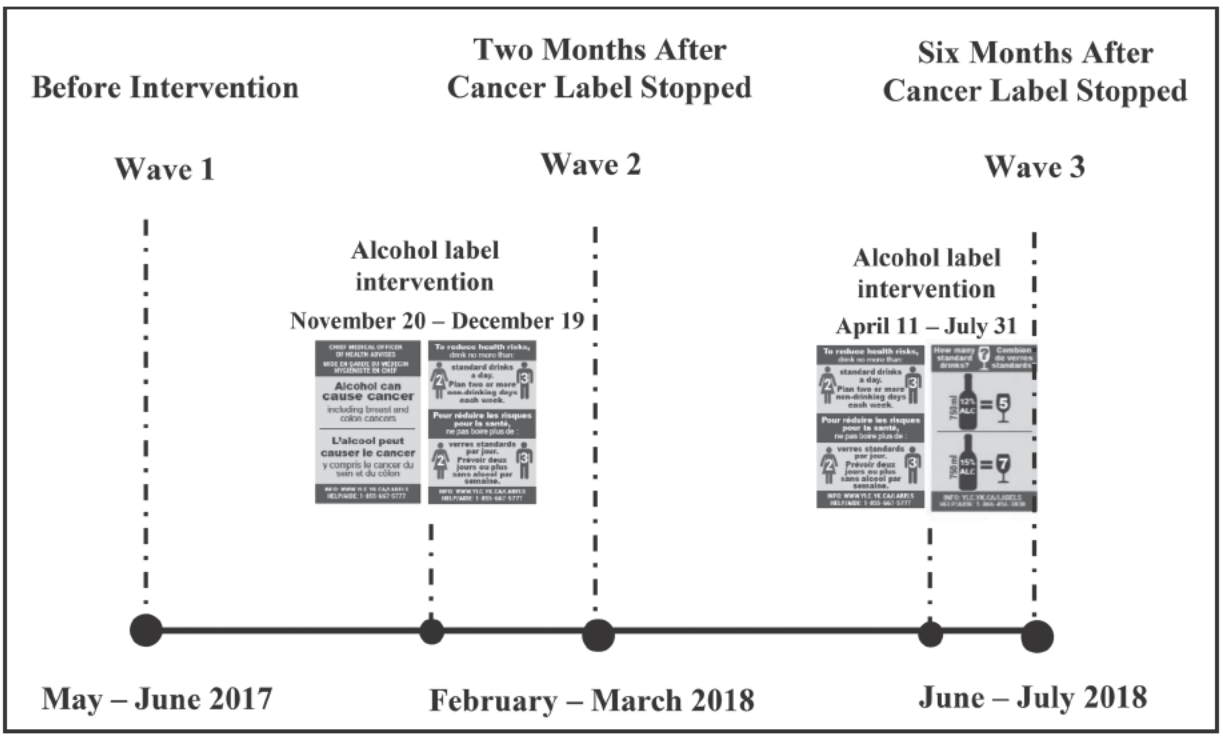

FIGURE 2. Modified study design after alcohol industry interference

who provided their contact information were emailed survey instructions, a unique survey link, and an INTERAC e-transfer as remuneration. In addition, because of attrition in Waves 2 and 3, the sample was replenished using Wave 1 recruitment and survey procedures in the liquor stores in both the intervention and comparison sites. All survey periods continued for 6 weeks, the survey was approximately 18 minutes in length, and survey measures were consistent across waves and sites. All procedures were approved by the Research Ethics Boards at Public Health Ontario (ID 2017-010.04) and the University of Victoria (Protocol 17-161).

Participants

Participants were adults of legal drinking age (≥19), residents of either the intervention or comparison cities, and at the time of recruitment were current drinkers (consumed one or more alcoholic drinks in the past 30 days), purchased alcohol at the liquor store, and did not self-report being pregnant or breastfeeding.

Measures

Noticing labels. To assess noticing alcohol labels, participants were asked if they had seen any warning labels on bottles or cans of beer, wine, distilled spirits, coolers, or ciders. Responses were dichotomized as *noticed* and *did not notice/don't know*. The measure at Wave 1 was anchored with 6 months prior, the measure at Wave 2 from November before follow-up, and Wave 3 from April before follow-up.

Unprompted and prompted recall. Among those who indicated noticing warning labels, participants were first asked an open-ended question to assess what messages they saw on the warning labels on alcohol containers without being prompted. Subsequently, participants were asked if they saw any of the following messages on alcohol containers and asked to check all that apply. Response options included *alcohol and cancer, low-risk drinking guidelines, number of standard drinks in bottles or cans, alcohol may be an addictive drug, alcohol and liver disease, alcohol and trauma, alcohol and fetal alcohol spectrum disorder,* and *drinking alcohol and driving a car or operating machinery.* Both recall measures were anchored similarly to the "noticing labels" measure above. For the unprompted recall measure, a research assistant blinded to experimental conditions coded each response. Any mention of "cancer" was coded as recall of the cancer label. Ambiguous responses were reviewed by and discussed with a second coder to reach consensus.

Knowledge of alcohol as a carcinogen. Knowledge that alcohol can cause cancer was assessed by asking participants, "Based on what you know or believe, can drinking alcohol cause . . . ?" and this item was asked for breast cancer, liver disease, the flu, and [when pregnant] harm to

unborn babies. Response options included "yes," "no," or "don't know," and responses were dichotomized as "yes" versus "no/don't know." Only responses to the cancer item are reported here.

Support for health warning labels on alcohol containers

To assess support for health warning labels on alcohol containers, participants were asked the extent to which they agree or disagree with the statement, "Cans and bottles of alcoholic beverages should be labeled with warnings describing the link between alcohol and diseases, such as cancer." Responses were measured on a 5-point Likert scale (1 = *strongly disagree,* 5 = *strongly agree*) and included "don't know" and "prefer not to say" as options.

Sociodemographic characteristics

Sociodemographic measures included age, sex, ethnicity (White, Aboriginal, and other/don't know/prefer not to say/missing), education (low [completed high school or less], medium [completed trades or college certificate, some university or university certificate below a bachelor's degree], high [university degree or post-graduation], and unknown [don't know/prefer not to say/missing]), and income (low [<CAD$30,000], medium [CAD$30,000–$59,999], high [CAD≥$60,000], and unknown [don't know/prefer not to say/missing]).

Other covariates

Exposure to sources of information on alcohol-related health risks was measured by asking respondents if they had noticed advertising or information that talks about the dangers of drinking alcohol, or encourages people to cut down or stop drinking, in six specific locations (*yes* vs. *no/don't know/prefer not to say*). Health literacy was assessed using the Newest Vital Sign assessment tool (Weiss et al., 2005) and responses were categorized as *limited* (≤1 correct responses), *possibility of limited* (2–3 correct responses), *adequate literacy* (4–6 correct responses), and *unknown* (don't know/prefer not to say/missing). Alcohol use was measured using the quantity/frequency method (Heeb & Gmel, 2005). Participants were asked to indicate how often they drank alcoholic beverages in the past 6 months and how many drinks they usually drank per occasion. Responses were combined to provide a mean number of drinks per week and categorized using Canada's national drinking guidelines as follows: *low* (≤10 for females/15 for males per week), *risky* (11–19/16–29 per week), *high* (≥20/30 per week) (Butt et al., 2011), and *unknown* (don't know/prefer not to say/missing). Last, a time-in-sample variable was created to adjust for participants who participated in one, two, or all three survey waves.

Statistical analysis

Logistic regression models using generalized estimating equations (GEE) were applied to examine the impact of labels on the three main outcomes. GEE models can account for a mix of within-subject correlation that arises from the cohort participants being asked the same questions over multiple survey waves plus the replenishment sample. Difference-in-difference (DID) terms were added to each model to assess the change in outcomes across waves and between sites. The DID terms included an interaction between wave and site, which allowed for a formal test of whether the pattern of change over time in the intervention site was significantly different from the comparison site. Sociodemographic variables and the remaining covariates were included in all models. Education, income, and health literacy were found to be correlated; thus, to improve the stability of the models, only education was used. The exposure to information measures were combined into one variable that indicates if participants were exposed to any source of alcohol information in the media; however, the variable did not make a difference in the results because of the lack of variability across sites, and the final models did not adjust for exposure to media to avoid over-adjusting. "Prefer not to say" and "missing" responses were removed from all outcome measures. As per agreement with the local territorial government partners, ethnicity, defined as White versus other (Aboriginal/other/don't know/prefer not to say/missing), is included in the sample description and adjusted for in the analyses, but not reported in the results.

Support for health warning labels on alcohol containers is reported descriptively, and the overall association between knowledge that alcohol is a carcinogen and support for health warning labels across sites and survey waves is assessed using a GEE model. As previous literature has identified qualitative differences between individuals who respond "yes," "no," and "don't know" to items assessing knowledge that alcohol can cause cancer (Wiseman & Klein, 2019), a sensitivity analysis tested the effect of modeling these responses separately using a GEE model with a multinomial distribution. Last, three-way interactions were tested for each of the three main outcomes across site, wave, and health literacy and alcohol drinking levels. Health literacy was dichotomized as adequate literacy versus all other options, and drinking level was dichotomized as low versus all other options. All analyses were conducted using SAS Version 9.3 (SAS Institute Inc., Cary, NC).

Results

In total, 2,049 unique participants completed at least one of the three surveys. According to AAPOR #4, response rates were 8.9% in the intervention and 8.0% in the comparison sites (American Association for Public Opinion

Table 1. Sample characteristics (at recruitment) by experimental condition

Variable	Intervention site (n = 1,233) n (%)	Comparison site (n = 816) n (%)
Wave of recruitment		
1	505 (41.0)	331 (40.6)
2	491 (39.8)	320 (39.2)
3	237 (19.2)	165 (20.2)
Age, in years, M (SD)***	47.4 (14.6)	41.2 (13.7)
Age categories***		
19–24	77 (6.2)	100 (12.3)
25–44	436 (35.4)	379 (46.5)
≥45	720 (58.4)	337 (41.3)
Ethnicity***		
White	891 (72.3)	481 (59.0)
Aboriginal	219 (17.8)	198 (24.3)
Other	123 (10.0)	137 (16.8)
Sex*		
Female (vs. male)	625 (50.7)	368 (45.1)
Education levels*		
Low (completed high school or less)	250 (25.3)	184 (22.6)
Medium (trades or college certificate, some university or university certificate below bachelor's)	437 (35.4)	292 (35.8)
High (bachelor's degree or higher)	490 (39.7)	285 (34.9)
Unknown (DK, PNS, missing)	56 (4.5)	55 (6.7)
Income levels,[a].**		
Low (<$30,000)	197 (16.0)	87 (10.7)
Medium ($30,000 to <$60,000)	222 (18.0)	128 (15.7)
High (≥$60,000)	698 (56.6)	489 (59.9)
Unknown (DK, PNS, missing)	116 (9.4)	112 (13.7)
Alcohol use levels**		
Low volume (≤10/15 for females/males per week)	912 (74.0)	555 (68.0)
Risky volume (11–19/16–29 per week)	96 (7.8)	50 (6.1)
High volume (≥20/30 per week)	121 (9.8)	105 (12.9)
Unknown (DK, PNS, missing)	104 (8.4)	106 (13.0)
Health literacy levels***		
Limited literacy (score ≤1)	369 (29.9)	287 (35.2)
Possibility of limited literacy (score 2–3)	240 (19.5)	160 (19.6)
Adequate literacy (score 4-6)	563 (45.7)	299 (36.6)
Unknown (DK, PNS, missing)	61 (5.0)	70 (8.6)

Notes: DK = don't know; PNS = prefer not to say. [a]In Canadian dollars.
*$p < .05$; **$p < .01$; ***$p < .001$ for Pearson χ^2 test.

Research, 2011). Overall, 53.2% participants were retained at Wave 2, and 47.5% at Wave 3. Table 1 presents the sample characteristics by site at time of recruitment, and Table 2 indicates the sources of information on the dangers of alcohol in the media by wave and site.

The proportion of respondents who noticed the labels was high across all three survey waves in both the intervention (Wave 1 = 80.4%, Wave 2 = 76.7%, Wave 3 = 80.5%) and comparison (Wave 1 = 87.0%, Wave 2 = 78.5%, Wave 3 = 72.9%) sites.

Unprompted recall of the cancer warning message increased to a greater extent between Wave 1 (before the cancer warning label) and Wave 2 (2 months after the cancer warning label was stopped) in the intervention versus comparison site (+24.2% vs. 0.6%; adjusted odds ratio [AOR] = 32.7, 95% CI [5.4, 197.7]), and between Wave 1 and Wave 3 (6 months after the cancer warning label was stopped) (+12.6% vs. +1.6%; AOR = 8.8, 95% CI [1.6, 49.4]) (Table 3; Figure 3a). Results of prompted recall also increased to a greater extent between Waves 1 and 2 in the intervention versus the comparison site (+35.7% vs. 4.1%; AOR = 6.2, 95% CI [3.6, 10.9]), and between Waves 1 and 3 (+23.7% vs. +4.6%; AOR = 3.5, 95% CI [2.0, 6.2]) (Table 3; Figure 3b).

Knowledge that alcohol can cause cancer was low in Wave 1 in both the intervention (25.6%) and comparison (23.0%) sites, and increased in Waves 2 and 3 in both sites (Figure 3c). Although knowledge of alcohol as a carcinogen increased in both sites, the DID analyses revealed a 10% greater increase in knowledge in the intervention relative to the comparison site between both Waves 1 and 2 (+12.1% vs. +11.6%; AOR = 1.1, 95% CI [0.7, 1.5]) and Waves 1 and 3 (+16.0% vs. 11.4%; AOR = 1.1, 95% CI [0.7, 1.6]; Table 3). Results of the models indicate differences ranging from a 30% decrease, a small negative change, to a 50%–60% increase, a substantial positive change. In the sensitivity analyses, results of DID comparisons evaluating the labels' effect on knowledge of alcohol as a carcinogen between intervention and comparison sites for the responses "yes," "no," and "don't know" separately, indicate similar trends when comparing "yes" versus "no" responses and

TABLE 2. Participant reported sources of advertising and information on the dangers of alcohol in the media (% yes)

	Intervention			Comparison		
	Before intervention	2 months after	6 months after	Before intervention	2 months after	6 months after
Source	Wave 1	Wave 2	Wave 3	Wave 1	Wave 2	Wave 3
Television	45.0%	32.3%	25.3%	48.6%	40.2%	29.6%
Radio	31.1%	35.7%	24.5%	31.7%	32.8%	24.9%
Newspaper	29.9%	29.8%	22.9%	29.6%	27.3%	20.8%
Signs or posters in liquor stores	53.1%	55.6%	59.3%	58.3%	61.7%	60.6%
Signs or posters in restaurants or bars	34.1%	32.1%	38.3%	35.4%	31.9%	26.9%
Internet	27.3%	29.1%	24.5%	28.1%	27.5%	20.8%

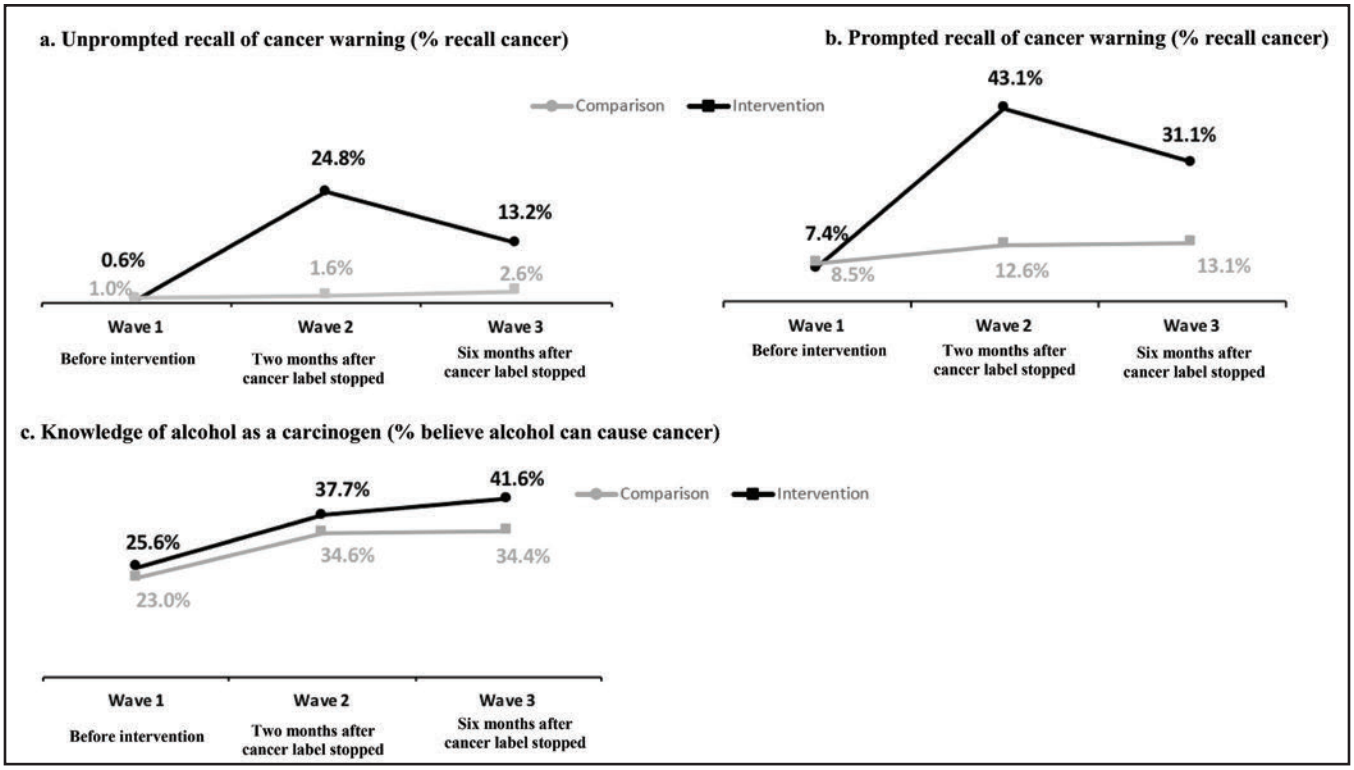

FIGURE 3 (a–c). Percentage of participants recalling cancer warning, unprompted and prompted, and knowledge of alcohol as a carcinogen across survey waves in intervention and comparison sites

"yes" versus "don't know" responses (Supplemental Table A). (Supplemental material is available as an online-only addendum to this article on the journal's website.)

To further confirm the contribution of the cancer warning labels to consumer knowledge, a GEE model with a binomial distribution estimating the relationship between recall, either unprompted or prompted, and knowledge of alcohol as a carcinogen across the three waves was conducted, adjusting for sociodemographics and other covariates, including exposure to sources of information in the media. The results indicated that those who recalled the cancer message had 2.3 greater odds of knowing alcohol can cause cancer (AOR = 2.3, 95% CI [1.9, 2.7]).

Results of the three-way interactions across site, wave, and each of health literacy and drinking level were not statistically significant for prompted and unprompted recall and knowledge that alcohol can cause cancer (Supplemental Table B).

Last, the degree to which participants support health warning labels on alcohol containers is presented in Figure 4, ordered from *strongly disagree* to *strongly agree.* Most participants reported agreeing to strongly agreeing with health warning labels on alcohol containers in the intervention (Wave 1 = 57.4%; Wave 2 = 57.3%; Wave 3 = 61.3%) and comparison (Wave 1 = 53.7%; Wave 2 = 51.6%; Wave 3 = 53.7%) sites. The results also indicated that those who know alcohol can cause cancer are 1.6 times more likely to support health warning labels relative to those who do not

TABLE 3. Results of GEE models for label outcomes: Key comparisons[a,b]

Outcome measure	Comparison	AOR	[95% CI]
Unprompted recall of cancer warning (n = 3,134)	Wave 1: Intervention vs. comparison site	0.6	[0.1, 3.1]
	Wave 2: Intervention vs. comparison site	20.5	[9.4, 44.6]
	Wave 3: Intervention vs. comparison site	5.5	[2.9, 10.6]
	Intervention site: Wave 3 vs. Wave 1	23.3	[7.4, 73.7]
	Intervention site: Wave 2 vs. Wave 1	53.8	[17.0, 170.6]
	Intervention site: Wave 3 vs. Wave 2	0.4	[0.3, 0.6]
	Comparison site: Wave 3 vs. Wave 1	2.6	[0.7, 9.6]
	Comparison site: Wave 2 vs. Wave 1	1.6	[0.4, 6.6]
	Comparison site: Wave 3 vs. Wave 2	1.6	[0.7, 3.9]
	Intervention vs. comparison site: Wave 3 vs. Wave 1	*8.8*	*[1.6, 49.4]*
	Intervention vs. comparison site: Wave 2 vs. Wave 1	*32.7*	*[5.4, 197.7]*
	Intervention vs. comparison site: Wave 3 vs. Wave 2	*0.3*	*[0.1, 0.7]*
Prompted recall of cancer warning (n = 3,251)	Wave 1: Intervention vs. comparison site	0.9	[0.5, 1.5]
	Wave 2: Intervention vs. comparison site	5.6	[4.1, 7.7]
	Wave 3: Intervention vs. comparison site	3.2	[2.3, 4.4]
	Intervention site: Wave 3 vs. Wave 1	5.7	[4.1, 8.1]
	Intervention site: Wave 2 vs. Wave 1	10.0	[7.0, 14.1]
	Intervention site: Wave 3 vs. Wave 2	0.6	[0.5, 0.7]
	Comparison site: Wave 3 vs. Wave 1	1.6	[1.0, 2.5]
	Comparison site: Wave 2 vs. Wave 1	1.6	[1.0, 2.5]
	Comparison site: Wave 3 vs. Wave 2	1.0	[0.7, 1.5]
	Intervention vs. comparison site: Wave 3 vs. Wave 1	*3.5*	*[2.0, 6.2]*
	Intervention vs. comparison site: Wave 2 vs. Wave 1	*6.2*	*[3.6, 10.9]*
	Intervention vs. comparison site: Wave 3 vs. Wave 2	*0.6*	*[0.4, 0.8]*
Knowledge of alcohol as a carcinogen (n = 3,247)	Wave 1: Intervention vs. comparison site	1.2	[0.8, 1.6]
	Wave 2: Intervention vs. comparison site	1.2	[1.0, 1.6]
	Wave 3: Intervention vs. comparison site	1.2	[1.0, 1.6]
	Intervention site: Wave 3 vs. Wave 1	1.9	[1.5,2.4]
	Intervention site: Wave 2 vs. Wave 1	1.7	[1.4, 2.2]
	Intervention site: Wave 3 vs. Wave 2	1.1	[0.9, 1.3]
	Comparison site: Wave 3 vs. Wave 1	1.8	[1.3, 2.4]
	Comparison site: Wave 2 vs. Wave 1	1.6	[1.2, 2.2]
	Comparison site: Wave 3 vs. Wave 2	1.1	[0.9, 1.4]
	Intervention vs. comparison site: Wave 3 vs. Wave 1	*1.1*	*[0.7, 1.6]*
	Intervention vs. comparison site: Wave 2 vs. Wave 1	*1.1*	*[0.7, 1.5]*
	Intervention vs. comparison site: Wave 3 vs. Wave 2	*1.0*	*[0.8, 1.3]*

Notes: GEE = generalized estimating equations; AOR = adjusted odds ratio; CI = confidence interval. [a]All models adjusted for age, ethnicity, sex, education, alcohol use, and time-in-sample; [b]separate logistic models were estimated using GEE for each of the three label outcomes.

know, adjusting for sociodemographics and other covariates (AOR = 1.6, 95% CI [1.38, 1.89]).

[COMP: Figure 4 about here]

Discussion

It is argued by the alcohol industry that drinkers are adequately informed about the health risks of alcohol and that warning labels do not work (Éduc'alcool, 2019; Kane, 2018). Yet, international health experts recommend health warning labels on alcohol as an increasingly popular public health strategy for providing information to consumers about the various health risks of alcohol use (Greenfield, 1997; WHO, 2010, 2017, 2018). This is the first study to experimentally examine the population-level effects of a cancer warning label on alcohol containers in a real-world setting. Label effectiveness is influenced by the extent to which consumers notice, recall, and understand the label information and eventually make the decision to consume the product in a given situation (IARC, 2008). Despite the interrupted and briefer-than-intended application of the cancer warning labels in this study, consumers noticed the labels. Two months after the cancer warning labels, almost 25% of participants exposed to the intervention recalled the cancer warning message unprompted, and recall rose to 43% when prompted. As expected, recall decreased 6 months after the cancer warning labels were removed, demonstrating intervention specificity.

Greater awareness of the cancer risks associated with alcohol is thought to be a potentially effective strategy for strengthening public acceptance of alcohol control measures and awareness of national drinking guidelines (Bates et al., 2018; Buykx et al., 2015; Rosenberg et al., 2018; Weerasinghe et al., 2020). Indeed, the results in the current article indicate a positive association between knowledge and support for alcohol labels. In addition, a separate analysis conducted as part of the larger study and reported in Weerasinghe et al. (2020) suggests that increases in individual-level knowledge that alcohol can cause cancer are associated with

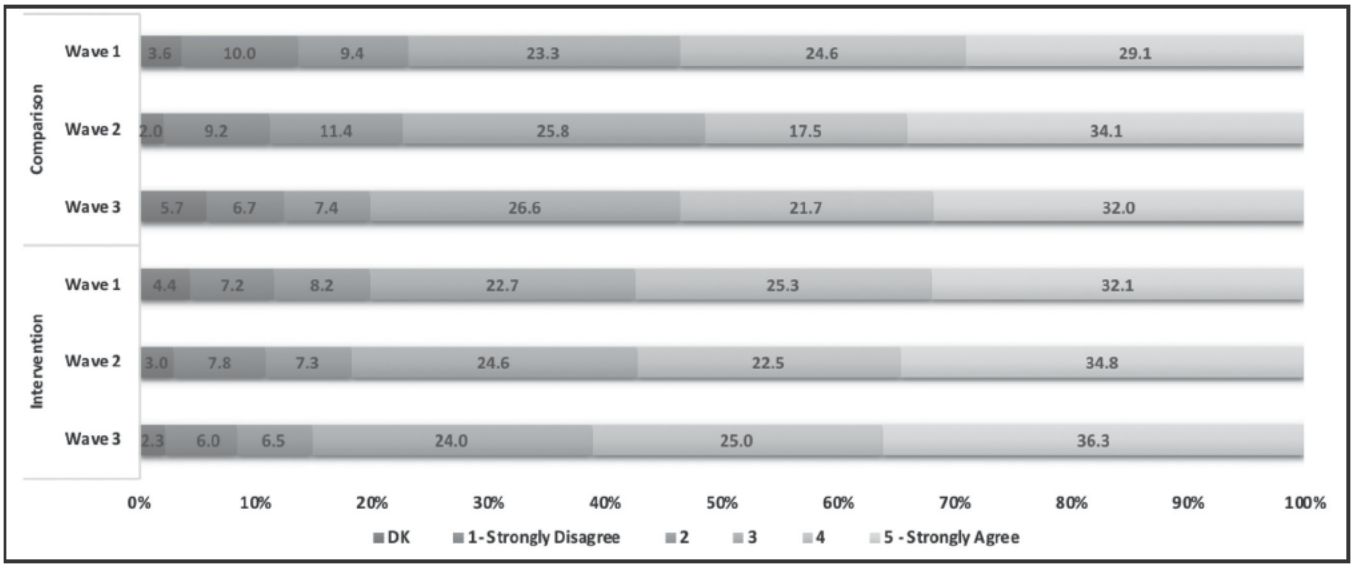

FIGURE 4. Degree of support for health warning labels on alcohol containers across survey waves in intervention and comparison sites (% of participants; n = 2,022 unique participants)

almost two times greater likelihood of supporting minimum unit alcohol pricing policies. In the current article, before the label intervention, knowledge of the alcohol–cancer link was approximately 25% in both sites, low yet consistent with previous estimates in Canada (Public Health Ontario, 2017). Knowledge grew to 41.6% in the intervention site, increasing 12.1% 2 months after, and a further 3.9% 6 months after the warning label was no longer being applied to containers, demonstrating the immediate and continued effects of the cancer labels. This continued effect may be the result of leftover cancer labels on containers still available for purchase in the liquor store or already purchased and served at home or in restaurants. Overall, the 10% greater increase in knowledge in the intervention relative to the comparison site is a modest yet meaningful population-level effect. Results also revealed that drinkers who recalled the cancer label message were 2.3 times more likely to know that alcohol can cause cancer, after controlling for sociodemographic variables, alcohol consumption level, and exposure to sources of information in the media. These findings provide evidence that crucial early processes are required for labels to be an effective means of communicating health information to drinkers.

In this study, differences in knowledge of the alcohol–cancer link between the intervention and comparison sites were attenuated because of the sudden increase in knowledge in the comparison site during the intervention period. The surge in knowledge in the comparison site can likely be explained by the substantial national and international media coverage of the alcohol industry's efforts to stop the alcohol label intervention, specifically the cancer warning label (Austin, 2018; Vallance et al., 2020). The media coverage also may have augmented interest in the label intervention in the intervention site; however, the social marketing and awareness campaign that was originally intended to supplement the alcohol labels in the intervention site, but was not implemented owing to the interruption by the alcohol industry, would have served a similar purpose. This study did include survey measures to control for participant exposure to other sources of alcohol information that may have confounded the effect of the labels during the intervention period; however, there were no measurable differences in these variables between sites, as shown in Table 2, and controlling for these variables in the analyses did not alter the main results. It is plausible that the information measures did not detect differences in media exposure in this study because the measures did not specifically assess media coverage of alcohol labels or the alcohol industry, but instead assessed exposure to advertising or information that talks about the dangers of drinking alcohol, or encourages people to cut down or stop drinking. Additional cancer label intervention studies are required that are not compromised by industry interference.

The impacts of the cancer warning labels on awareness and knowledge observed in this study are comparable to the population-level effects of two mass media alcohol and cancer campaigns in Australia and the United Kingdom, both of which were multicomponent and likely relatively expensive (Dixon et al., 2015; Martin et al., 2018). The evaluations of these two campaigns lack comparison groups, which limits measuring the contribution of secular trends in the absence of the campaigns; nevertheless, these examples demonstrate the unique benefit of labels and underscore the potential cost-effectiveness of warning labels on alcohol containers that could be introduced at little or no cost to governments.

Results of the current real-world experimental study indicate that cancer warning labels can be an effective interven-

tion for communicating information across subpopulations, as we found no evidence that the label intervention differentially affected participants with varying health literacy and drinking levels. However, the results from this single study should be interpreted cautiously because existing lab-based experimental studies, using diverse study designs and methods to test cancer warnings, (a) found associations between outcomes (e.g., knowledge of alcohol-related health risks, self-reported drinking behavior) and participant characteristics (e.g., sex, drinking level; Miller et al., 2016; Pettigrew et al., 2014, 2016), (b) did not examine the differential impacts of cancer warnings by participant characteristics (Al-Hamdani et al., 2015, 2017; Blackwell et al.,2018; Stafford & Salmon, 2017; Wigg et al., 2016), or (c) did not find evidence to suggest differential impacts for a cancer warning by participant characteristics (Jongenelis et al., 2018). Although the U.S. alcohol warning label does not include a cancer warning message, a relatively large real-world evaluation of this label found that label awareness and recall were highest among heavy drinkers, pregnant women, and young adults (Greenfield et al., 1999; Kaskutas & Greenfield, 1992). More research is required to better understand the impact of alcohol warning labels by receiver characteristics as the effectiveness and equity of information-based interventions have been questioned and, in some countries, the concentrations of alcohol-related hospitalizations and mortality are higher among groups of lower socioeconomic status despite reporting intake levels similar to or comparatively less than more affluent groups (Katikireddi et al., 2017; Probst et al., 2014).

Our results also show that health warning labels on alcohol are unlikely to be received negatively among drinkers, with most participants in both sites supporting health warning labels linking alcohol and diseases, specifically cancer, on alcohol containers. Similar outcomes were observed in previous studies, which reported that responses to cancer-related alcohol warning labels were generally positive (Miller et al., 2016; Pettigrew et al., 2014). Further research is needed to determine if repeated exposure to cancer warning labels on alcohol containers over a longer uninterrupted period may strengthen their impact.

Limitations

This study has several limitations. First, the cancer warning label was halted 1 month into the 8-month intervention period with a 2-month lag between labeling and the Wave 2 survey and a 6-month lag for the Wave 3 survey. This briefer-than-intended intervention period and gap in follow-up survey waves may have attenuated the cancer warning labels' influence, and uncertainty remains about their longer term impact. Next, the DID analyses estimating the alcohol label intervention's effect on changes in knowledge between sites over time did not reach levels of conventional statistical significance. This is likely because of the small sample sizes in both sites, which in turn produced wide confidence intervals and less precise estimates. It is reasonable to assume that these first two limitations (shortened intervention period and small sample sizes), in addition to the media contamination in the comparison site discussed above, led to smaller differences in knowledge between the intervention and comparison sites over time and biased the DID results toward the null. Thus, as recommended, the point estimates and upper and lower limits are described in the results, and a range of potential explanations is discussed (Amrhein et al., 2019).

Next, the study cannot provide representative estimates of the population, because participants were recruited from liquor stores in city centers using systematic recruitment methods. However, given that the stores from which the customers were recruited are virtual monopolies for the off-premise sale of alcohol in both experimental sites, they will have been broadly representative of persons purchasing alcohol in those cities. One bias would have been toward heavier drinkers more likely to buy alcohol frequently, an important target group for warning label interventions. Health knowledge can be assessed several ways. This study used only one measure specific to breast cancer to test participants' knowledge of the alcohol–cancer link. Previous studies examining knowledge of alcohol-related cancers often report the lowest levels for breast cancer relative to other types, such as liver and colon (Buykx et al, 2015; Scheideler & Klein, 2018; *The Lancet,* 2018). Future research could use more comprehensive measures with a higher threshold of knowledge by asking respondents to recall alcohol-related diseases unprompted, or to estimate the likelihood of alcohol-related diseases. Last, given that the alcohol label intervention consists of three complementary label messages, it is difficult to attribute the changes in consumer knowledge of the link between alcohol and cancer solely to the cancer warning. It is possible the other two label messages prompted consumers to reconsider their alcohol drinking and potential harms.

Conclusions

Despite the brief duration of the intervention, the study results support the use of cancer warning labels on alcohol containers as a strategy to increase knowledge of alcohol as a cancer risk, a stated goal of international alcohol control efforts (LoConte et al., 2018; WHO, 2010, 2017; World Cancer Research Fund/AICR, 2007). Overall, drinkers exposed to the label intervention recalled the cancer warning message, and the warning label increased knowledge of the alcohol–cancer link. Increases in knowledge that alcohol can cause cancer in the comparison site and, to some degree, in the intervention site likely reflect the considerable public interest in the media coverage of the alcohol industry's actions to disrupt the study and remove the cancer warning label.

The alcohol industry's opposition to cancer warnings on containers, coupled with the broad public support for health warnings on alcohol, highlights the importance of mandatory alcohol labeling to ensure that consumers are adequately informed.

Acknowledgments

The authors acknowledge all of our research assistants who helped with data collections, as well as the liquor control boards, health and social services, and community partners in Yukon and Northwest Territories for their commitment and support in developing and executing this research. Special thanks also go to Mark Petticrew and Melanie Wakefield for their expertise and guidance.

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World Cancer Research Fund/American Institute for Cancer Research.

Examining the Impact of Alcohol Labels on Awareness and Knowledge of National Drinking Guidelines: A Real-World Study in Yukon, Canada

NOUR SCHOUERI-MYCHASIW, PH.D.,[a] ASHINI WEERASINGHE, M.P.H.,[a] KATE VALLANCE, M.A.,[b] TIM STOCKWELL, PH.D.,[b] JINHUI ZHAO, PH.D.,[b] DAVID HAMMOND, PH.D.,[c] JONATHAN MCGAVOCK, PH.D.,[d] THOMAS K. GREENFIELD, PH.D.,[e] CATHERINE PARADIS, PH.D.,[f] & ERIN HOBIN, PH.D.[a,g,*]

[a]*Public Health Ontario, Toronto, Ontario, Canada*
[b]*Canadian Institute for Substance Use Research, University of Victoria, Victoria, British Columbia, Canada*
[c]*School of Public Health and Health Systems, University of Waterloo, Waterloo, Ontario, Canada*
[d]*Children's Hospital Research Institute of Manitoba, University of Manitoba, Winnipeg, Manitoba, Canada*
[e]*Alcohol Research Group, Public Health Institute, Emeryville, California*
[f]*Canadian Centre on Substance Use and Addiction, Ottawa, Ontario, Canada*
[g]*Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada*

ABSTRACT. Objective: Alcohol labels are one strategy for communicating health information to consumers. This study tested the extent to which consumers recalled alcohol labels with national drinking guidelines and examined the impact of labels on awareness and knowledge of the guidelines. **Method:** A quasi-experimental study was conducted in two jurisdictions in northern Canada examining the impact of labels on the following outcomes: unprompted and prompted recall of the drinking guideline label message, awareness of the drinking guidelines, and knowledge of the daily and weekly recommended drink limits. The intervention site applied labels with national drinking guidelines, a cancer warning, and standard drink information to alcohol containers in its liquor store, whereas the comparison site did not apply these labels. In total, 2,049 cohort participants in both sites were recruited to complete surveys before and at two time points after the intervention. Changes in outcomes were examined using generalized estimating equations. **Results:** After the intervention, unprompted and prompted recall of the drinking guideline label message increased more in the intervention versus comparison site (adjusted odds ratio [AOR] = 10.8, 95% CI [0.9, 127.6]; AOR = 7.0, 95% CI [3.3, 14.9], respectively). Awareness of the drinking guidelines increased 2.9 times more in the intervention versus comparison site (AOR = 2.9, 95% CI [2.0, 4.3]). In addition, knowledge of the daily and weekly drink limits increased 1.5 and 1.4 times more in the intervention versus comparison site, respectively (daily: AOR = 1.5, 95% CI [1.0, 2.1]; weekly: AOR = 1.4, 95% CI [1.0, 2.0]). **Conclusions:** Enhanced alcohol labels get noticed and may be an effective population-level strategy for increasing awareness and knowledge of national drinking guidelines. (*J. Stud. Alcohol Drugs, 81,* 000–000 2020)

GLOBALLY, ALCOHOL USE is the seventh leading risk factor for disability and premature death (GBD 2016 Alcohol Collaborators, 2018) and is the leading risk factor among those ages 15–49 (World Health Organization [WHO], 2018a). Alcohol use is linked to more than 200 diseases, including at least seven types of cancer, and causes 3 million deaths per year globally (GBD 2016 Alcohol Collaborators, 2018; Rehm et al., 2017; WHO, 2018a). Recent estimates indicate that the prevalence of alcohol consumption and amounts consumed have increased globally, and will continue to rise (Manthey et al., 2019). Given the current trends, the total direct and indirect costs (e.g., healthcare, lost productivity, criminal justice) of alcohol use in developed countries, including Canada, exceed those from all illicit substances combined and are similar to or, by some estimates, greater than those for tobacco (Canadian Substance Use Costs and Harms Scientific Working Group, 2018). Population-level strategies to moderate alcohol use are therefore critical for improving public health.

National drinking guidelines exist in 37 countries to promote moderation and to reduce alcohol-related harms (Kalinowski & Humphreys, 2016). Drinking guidelines typically provide upper limits on the number of standard drinks that adults should not exceed in a day and/or week. In Canada, the first nationally endorsed drinking guidelines were released in 2011, with the key guidelines recommending no more than 15 standard drinks in a week for men with no more than 3 on most days, and no more than 10 standard drinks in a week for women, with no more than 2 on most days (Butt et al., 2011). A "standard drink" in Canada is defined as 13.45 grams or 17.05 ml of ethanol, and is equivalent to the following: a 341-ml (12 oz.) can of

Received: September 17, 2019. Revision: January 15, 2020.

This research was supported by a Health Canada Substance Use and Addictions Program grant (Grant #1718-HQ-000003). The views expressed herein do not necessarily represent the views of Health Canada. TKG was supported by a NIAAA grant (No. P50 AA005595). The Project Protocol has an International Registered Report Identifier (IRRID): RR2-10.2196/16320.

*Correspondence may be sent to Erin Hobin at Public Health Ontario, 480 University Ave, Suite 300, Toronto, ON, M5G 1V2, Canada, or via email at: erin.hobin@oahpp.ca.

5% beer or cooler, a 142-ml (5 oz.) glass of 12% wine, and 43 ml (1.5 oz.) of 40% distilled alcohol (Butt et al., 2011). More than 23 million adults (78% of the population) in Canada drink alcohol (Statistics Canada, 2018), with 27% regularly exceeding the weekly limits and 39% exceeding the daily limits in 2008–2010, outlined in the guidelines, after adjusting for underreporting (Zhao et al., 2015). If Canadians who currently drink above the guidelines reduced their consumption to the recommended limits and all others maintained their current drinking patterns, overall consumption in Canada would be reduced by at least 50% (Stockwell et al., 2009).

To adhere to drinking guidelines, consumers must first be aware of and understand the recommended limits of alcohol intake. Public awareness and knowledge of drinking guidelines in Canada and internationally are low (Bowden et al., 2014; Buykx et al., 2018; De Visser & Birch, 2012; Livingston, 2012; McNally et al., 2019; Rosenberg et al., 2018). Mass media campaigns have failed to increase awareness and knowledge of these guidelines. For example, an evaluation of a Canadian social marketing campaign found that awareness of Canada's low-risk drinking guidelines was approximately 19% at baseline (McNally et al., 2019), consistent with other estimates in Canada (Charbonneau et al., 2014; Fox, 2018). Awareness of the guidelines improved by 7% after the campaign, but no differences in knowledge of the recommended drink limits were observed (McNally et al., 2019). Strategies that extend beyond media advertising are needed to increase public awareness of national drinking guidelines. Increasing public awareness of national drinking guidelines is important, as recent data from a large population-based sample of Australian adults demonstrates a positive association between knowledge of recommended drink limits and a self-reported reduction in alcohol consumption, particularly among heavier drinkers (Islam et al., 2019).

Alcohol labels on product containers are one strategy for communicating health information to consumers at key points of contact—the point-of-purchase and -pour—and are recommended by national and international health organizations (Australia Department of Health, 2019; CCSA, 2007; UK Department of Health, 2007; WHO, 2017). Product labels are believed to influence behavior by gaining consumers' attention, eliciting aversive reactions, and keeping the message in consumers' minds (Brewer et al., 2019). Labels are appealing because of their relatively low cost to regulators, unparalleled reach among drinkers, and higher exposure among the heaviest drinkers (Greenfield, 1997). Laboratory and online experiments examining the optimal design of alcohol labels suggest that labels including a health warning, standard drink information, and national drinking guidelines could help consumers monitor their drinking and understand the extent to which this differs from the recommended guidelines (Blackwell et al., 2018; Hobin et al., 2018; Rosenberg et al., 2018).

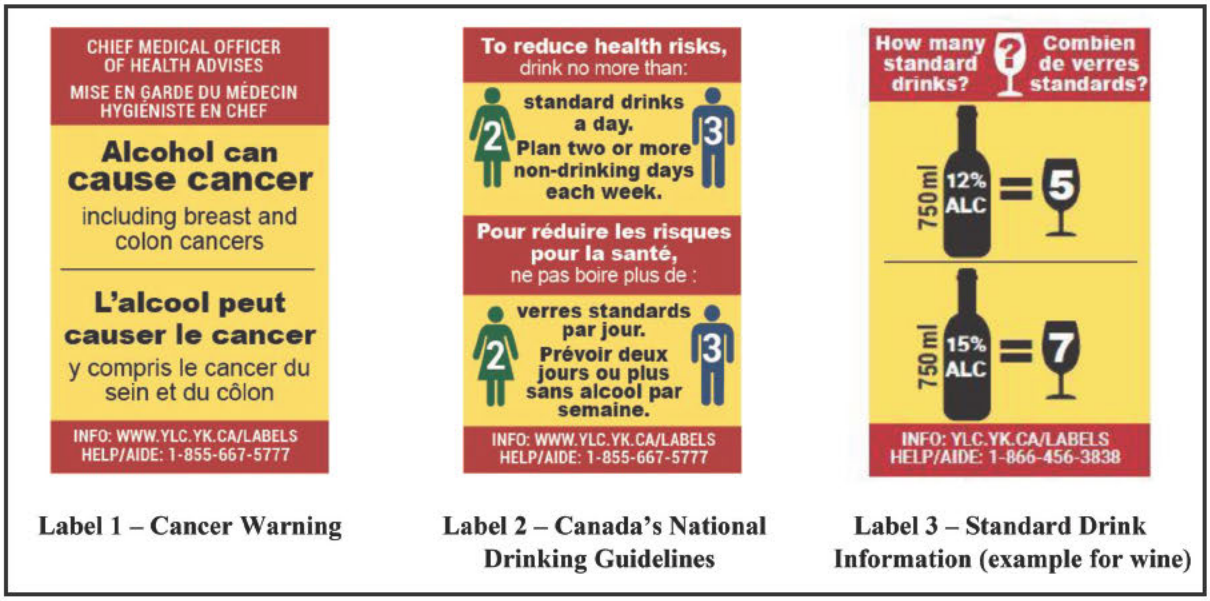
Although Canada does not currently mandate health warning labels on alcohol containers, 47 other countries currently have implemented labels, with the majority requiring warnings cautioning about the risks of drinking while pregnant or while operating a vehicle (WHO, 2018b). Only eight countries mandate standard drink information on labels, and none mandate drinking guidelines (WHO, 2018b). The United Kingdom has a voluntary agreement with the alcohol industry for alcohol labels with pregnancy warnings, unit information, and drinking guidelines; however, recent studies found that these labels are poorly designed and include outdated drinking guideline information (Alcohol Health Alliance UK, 2017; Blackwell et al., 2018; Royal Society for Public Health, 2018). It remains unclear whether well-designed labels are an effective tool for communicating alcohol-related health risks, tracking alcohol consumption, and adhering to recommended drink limits.

This article is one of a series of articles (see Weerasinghe et al., 2020; Hobin et al., in press; Vallance et al., 2020a) from a larger study aiming to test evidence-informed alcohol labels with a cancer warning, national drinking guidelines, and standard drink information. Using an experimental design, in a real-world setting, we tested whether alcohol labels are an effective population-level strategy for supporting more informed and safer alcohol use. The specific objectives of the current article are to (a) determine the extent to which consumers recalled alcohol labels with national drinking guidelines, (b) examine the impact of the alcohol labels on awareness and knowledge of national drinking guidelines, and (c) describe the level of support for alcohol labels with national drinking guidelines.

Method

Alcohol label intervention

The alcohol label intervention included three rotating post-manufacturer labels with (a) a cancer warning, (b) national drinking guidelines, and (c) standard drink information (four separate labels were developed for wine, distilled spirits, coolers, and beer; Figure 1). Label development was informed by previous alcohol and tobacco labeling studies (Greenfield, 1997; Hammond, 2011; Hobin et al., 2018; Pettigrew et al., 2016; Strahan et al., 2002; Vallance et al., 2018) and by consultations with local and international health experts and community stakeholders. The labels were large (5.0 cm × 3.2 cm), used bright colors so they stood out on the containers, provided messages that are largely novel to consumers, and were rotated to avoid wear out (Hammond, 2011; Martin-Moreno et al., 2013). Moreover, the three label messages were designed to complement each other by providing a serious health message to grab consumer attention, and standard drink information and national drinking guidelines to support consumers in tracking consumption



Label 1 – Cancer Warning | **Label 2 – Canada's National Drinking Guidelines** | **Label 3 – Standard Drink Information (example for wine)**

FIGURE 1. Intervention alcohol warning labels (actual size 5.0 cm × 3.2 cm each). The label intervention included three rotating labels: (a) a cancer warning, (b) national drinking guidelines, and (c) standard drink information (four separate labels were developed for wine, spirits, coolers, and beer; wine example shown above). *Note:* Alcohol containers sold in the liquor store in the intervention condition were each labeled with one of the three label options displayed above.

and adhering to recommendations. The labels were printed in Canada's two official languages, English and French, and included a toll-free help line and a website linking to recommendations for minimizing alcohol-related risks. A social marketing campaign consisting of in-store signs, pamphlets, and radio spots was planned to run alongside the labels, as per effective labeling practices (Babor et al., 2010; Thomson et al., 2012; Vallance et al., 2018).

Study design

A real-world quasi-experimental study was conducted among cohort participants recruited in liquor stores in the intervention site (Whitehorse, Yukon, Canada) and the comparison site (Yellowknife, Northwest Territories, Canada). These sites were selected because Yukon and Northwest Territories are the only two jurisdictions in Canada that require post-manufacturer alcohol labels to be applied to most alcohol containers sold in government-run retail liquor stores. Since 1991, labels in both jurisdictions warn consumers about drinking while pregnant, with an additional message in Northwest Territories cautioning against drinking and driving or operating machinery and that alcohol may cause health problems (Government of Northwest Territories, 2017; Government of Yukon, 2016). In addition, the one store in the intervention site and two stores in the comparison site are the only government-run liquor stores in both cities, and between them they account for approximately 50% of alcohol sales in these jurisdictions (Government of Northwest Territories, 2017; Government of Yukon, 2017). The intervention labels were scheduled to replace the original warning labels on all alcohol containers, except single-serve beer and cider (approximately 3% of sales), in the one liquor store in the intervention site for an 8-month period. The two liquor stores in the comparison site continued usual labeling practices (see Vallance et al., 2020a, for a detailed study protocol).

Two waves of surveys were scheduled in the intervention and comparison sites, 4 months before and 8 months after the intervention labels were implemented. The intervention labels with the cancer warning and national drinking guidelines were applied to alcohol containers in the intervention site starting November 20, 2017, with the standard drink label to be introduced shortly after. Liquor store staff were instructed to apply the intervention labels upright and to avoid covering manufacturer labels on the containers.

However, 1 month into the 8-month intervention period, the government in the intervention site paused its participation in the study because of pressure from Canada's alcohol industry and stopped applying labels (Austen, 2018; Vallance et al., 2020a). Based on remaining label stock, approximately 47,000 cancer warning labels and 53,000 national drinking guidelines labels were applied to alcohol containers within the 1-month period. In April 2018, the government resumed its participation, with the caveat that the cancer label be excluded from the label rotation. Thus, the drinking guidelines labels were reinstated starting April 12, 2018, for an additional 3.5 months, and the standard drink labels were reinstated starting May 28, 2018, for 2 months. Approximately 117,000 drinking guidelines labels and 92,000 standard drink labels were applied to alcohol containers between

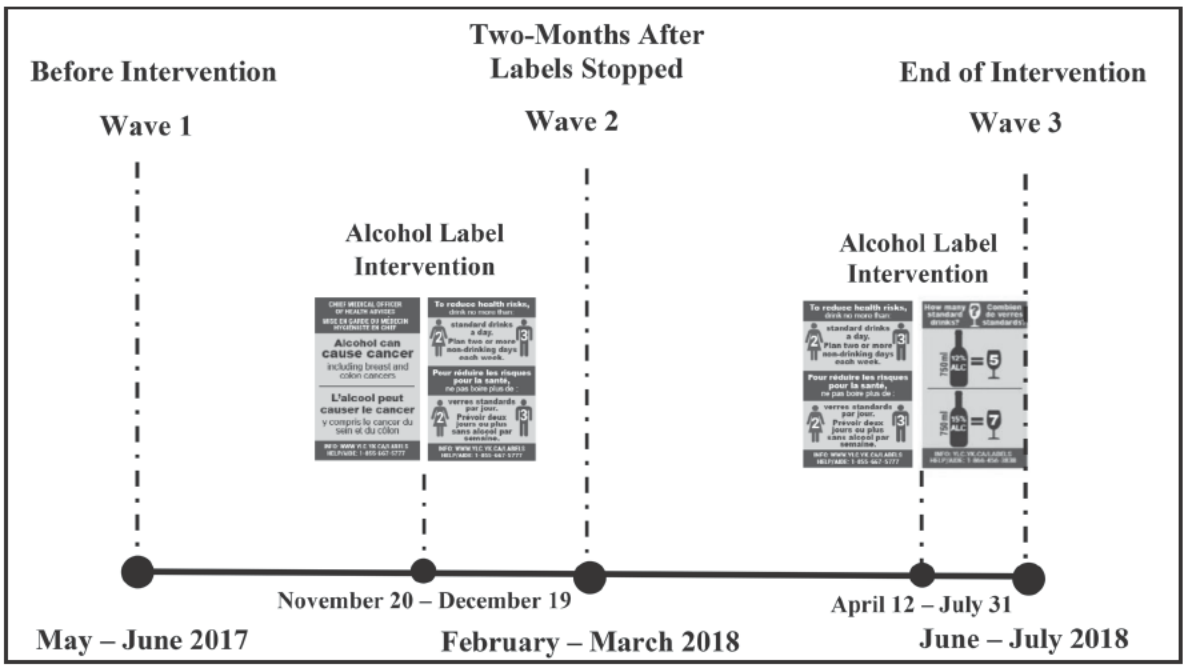


FIGURE 2. Modified study design due to interference from Canada's alcohol industry

April and July 2018. As a result of the interruption in the label intervention, the study design was modified (Figure 2). Wave 2 surveys were conducted starting mid-February 2018, 2 months after the government paused its participation, in order to capture the impact of the shortened intervention. Wave 3 surveys were conducted starting mid-June 2018 to the end of the intervention period in July 2018. The intended promotional campaign was not implemented due to industry interference, with the exception of the project website and a media release at the time of the initial launch of the label intervention in November 2017.

Recruitment and survey procedures

A prospective cohort of adult drinkers was recruited in Wave 1 by trained research assistants (RAs) as they exited the liquor stores in both sites, using a standard intercept technique of approaching every person that passed a pre-identified landmark in the liquor store. Participants were asked to complete a screener on a 10-inch tablet to identify eligibility status. Eligible participants provided consent and completed the Wave 1 survey on the tablet without RA assistance. In Waves 2 and 3, participants who provided their contact information were emailed survey instructions, a unique survey link, and an e-transfer as remuneration. In addition, due to attrition, the sample was replenished using Wave 1 recruitment protocols in both sites (see Vallance et al., 2020a, for the cohort structure). All survey periods lasted approximately 6 weeks, the surveys took approximately 18 minutes to complete, and survey measures were consistent across waves and sites. Study procedures were approved by the Research Ethics Boards at Public Health Ontario (ID 2017-010.04) and the University of Victoria (Protocol 17-161).

Participants

Participants were adults of legal drinking age (≥19), residents of either the intervention or the comparison city, and, at the time of recruitment, were current drinkers (had consumed one or more alcoholic drinks in the past 30 days), had purchased alcohol at the liquor store, and did not self-report being pregnant or breastfeeding.

Measures

Noticing labels. To assess "noticing" the alcohol labels, participants were asked whether they had seen any warning labels on bottles or cans of beer, wine, hard liquor, coolers, or ciders. Responses were dichotomized as "yes" and "no/don't know." The measure at Wave 1 was anchored with 6 months prior, the measure at Wave 2 from November prior to follow-up, and Wave 3 from April prior to follow-up.

Recall. Among those that indicated "noticing," participants were first asked an unprompted open-ended question to indicate what messages they had seen on the warning labels. Subsequently, to assess prompted recall, participants were shown a list of possible label messages and were asked to select all messages that they saw on alcohol containers. Response options included alcohol and cancer, low-risk

drinking guidelines, number of standard drinks in bottles or cans, alcohol may be an addictive drug, alcohol and liver disease, alcohol and trauma, alcohol and fetal alcohol spectrum disorder, and drinking alcohol and driving a car or operating machinery. Both recall measures were anchored similarly to the "noticing labels" measure. For the unprompted recall measure, an RA blinded to experimental conditions coded each response. A second coder reviewed ambiguous responses and discussed them with the first coder to reach consensus. Any reference to drinking guidelines or mention of cancer was coded as recall of national drinking guidelines and recall of the cancer label, respectively.

Awareness of national drinking guidelines. Awareness of the national drinking guidelines was measured by the question, "Were you aware of Canada's Low-Risk Drinking Guidelines before today?" Responses were dichotomized as "yes" and "no/don't know."

Knowledge of sex-specific recommended drink limits. Knowledge of sex-specific daily recommended drink limits was measured by the question, "What is the daily limit of 'standard drinks' recommended for males/females (depending on identified sex) in Canada's Low-Risk Drinking Guidelines?" Participants were asked to enter the number of standard drinks per day. Consistent with the language used in Canada's Low-Risk Drinking Guidelines (Butt et al., 2011) and on the intervention labels, males who reported up to and including three standard drinks and females who reported up to and including two standard drinks were defined as "correct." Similarly, knowledge of sex-specific weekly recommended drink limit was measured by the question, "What is the weekly limit of 'standard drinks' recommended for males/females (depending on identified sex) in Canada's Low-Risk Drinking Guidelines?" Participants were asked to enter the number of standard drinks per week. Males who reported up to and including 15 standard drinks and females who reported up to and including 10 standard drinks were defined as "correct." The responses were dichotomized as "correct" and "incorrect/don't know" for knowledge of drink limits.

Support for labels with national drinking guidelines. Participants were asked if cans and bottles of alcoholic beverages should be labeled with Canada's low-risk drinking guidelines (LRDG). Responses were given on a 5-point Likert scale from 1 = *strongly disagree* to 5 = *strongly agree,* with *don't know* and *prefer not to say* as options.

Sociodemographics. Sociodemographic measures included age, sex, ethnicity (White, Aboriginal, and other/don't know/prefer not to say/missing), education (low [completed high school or less], medium [completed trades or college certificate, some university or university certificate below Bachelor's], high [university degree or post-graduation], and unknown [don't know/prefer not to say/missing]), and income (low [<$30,000], medium [$30,000–$59,999], high [≥$60,000], and unknown [don't know/prefer not to say/missing]). (Income is in Canadian dollars.)

Other covariates. Health literacy was assessed using the Newest Vital Sign assessment tool, a short validated measure to identify health literacy levels (Weiss et al., 2005), and responses were categorized as follows: limited (≤1 correct responses), possibility of limited (2–3 correct responses), adequate literacy (4–6 correct responses), and unknown (don't know/prefer not to say/missing). Alcohol use was measured using the quantity/frequency method (Heeb & Gmel, 2005). Participants were asked to indicate how often they drank alcoholic beverages in the past 6 months, and how many drinks they usually drank per occasion. Responses were combined to provide a mean number of drinks per week and were categorized using Canada's LRDG: low (≤10 for females/15 for males per week), risky (11–19/16–29 per week), high (≥20/30 per week) (Butt et al., 2001), and unknown (don't know/prefer not to say/missing). Last, a time-in-sample variable was created to adjust for participants who participated in one, two, or all three survey waves.

Statistical analysis

Generalized estimating equation (GEE) models using a binomial distribution with logit link function were used to examine the impact of the intervention labels on five outcomes: unprompted and prompted recall of the drinking guidelines label message, awareness of the national drinking guidelines, and knowledge of daily and weekly drink limits. GEE models can account for a mix of within-subject correlation that arises from the cohort participants being asked the same questions over multiple survey waves, in addition to accounting for the replenishment sample (Pepe, 2003). Difference-in-difference (DID) terms were added to each model to assess the change in outcomes across waves and between sites. The DID terms included an interaction between survey wave and site. Sociodemographics and other covariates were included in all models, with ethnicity defined as White vs. other (Aboriginal/other/don't know/prefer not to say/missing). Education, income, and health literacy were found to be correlated; thus, to improve the stability of the models, only education was used. The GEE model estimating unprompted recall of the national drinking guidelines label required the addition of a dummy observation to address non-convergence due to a cell count of 0. "Prefer not to say/missing" responses were excluded from the outcome measures in all models. All analyses were conducted using SAS Version 9.3 (SAS Institute Inc., Cary, NC).

Results

The final sample consisted of 2,049 unique participants, providing 3,277 observations. Response rates in the intervention and comparison sites were 8.9% and 8.0%, respectively (American Association for Public Opinion Research, 2011), with 53.2% of participants retained at Wave 2 and 47.5%

TABLE 1. Sample characteristics by site at time of initial recruitment

Variable	Intervention site (n = 1,233) n (%)	Comparison site (n = 816) n (%)
Wave of recruitment		
1	505 (41.0)	331 (40.6)
2	491 (39.8)	320 (39.2)
3	237 (19.2)	165 (20.2)
Age, *M* (*SD*)***	47.4 (14.6)	41.2 (13.7)
Age categories***		
19–24	77 (6.2)	100 (12.3)
25–44	436 (35.4)	379 (46.5)
≥45	720 (58.4)	337 (41.3)
Ethnicity***		
White	891 (72.3)	481 (59.0)
Aboriginal	219 (17.8)	198 (24.3)
Other	123 (10.0)	137 (16.8)
Sex*		
Female (vs. male)	625 (50.7)	368 (45.1)
Education levels*		
Low (Completed high school or less)	250 (25.3)	184 (22.6)
Medium (Trades or college certificate, some university or university certificate below bachelor)	437 (35.4)	292 (35.8)
High (Bachelor degree or higher)	490 (39.7)	285 (34.9)
Unknown (DK, PNS, missing)	56 (4.5)	55 (6.7)
Income levels**		
Low (<$30,000CAD)	197 (16.0)	87 (10.7)
Medium ($30,000 to <$60,000CAD)	222 (18.0)	128 (15.7)
High (≥$60,000CAD)	698 (56.6)	489 (59.9)
Unknown (DK, PNS, Missing)	116 (9.4)	112 (13.7)
Alcohol use levels**		
Low volume ≤10 for females/15 for males per week	912 (74.0)	555 (68.0)
Risky volume 11–19/16–29 per week	96 (7.8)	50 (6.1)
High volume ≥20/30 per week	121 (9.8)	105 (12.9)
Unknown (DK, PNS, missing)	104 (8.4)	106 (13.0)
Health literacy levels***		
Limited literacy (score ≤1)	369 (29.9)	287 (35.2)
Possibility of limited literacy (score 2–3)	240 (19.5)	160 (19.6)
Adequate literacy (score 4–6)	563 (45.7)	299 (36.6)
Unknown (DK, PNS, Missing)	61 (5.0)	70 (8.6)

Notes: DK = don't know; PNS = prefer not to say.
*$p < .05$; **$p < .001$; ***$p < .0001$ for Pearson ^{2} test.

retained at Wave 3. Participants lost to follow-up between waves were more likely to be younger; be male; have lower education, income, and literacy; consume risky, high, or unknown levels of alcohol; and be in the comparison site. Table 1 presents the sample characteristics of participants by site at time of recruitment. The percentage of participants noticing labels was high in all three waves in both the intervention (Wave 1 = 80.4%; Wave 2 = 76.7%; Wave 3 = 80.5%) and comparison (Wave 1 = 87.0%; Wave 2 = 78.5%; Wave 3 = 72.9%) sites.

Unprompted recall of the drinking guidelines label message increased 3.1 times more between Waves 1 and 2 (+7.3% vs. +0.7%, adjusted odds ratio [AOR] = 3.1, 95% CI [0.3, 32.7]) and 10.8 times more between Waves 1 and 3 (+19.5% vs. +0.8%, AOR = 10.8, 95% CI [0.9, 127.6]; Figure 3a, Table 2) in the intervention versus the comparison site. Results of additional GEE modeling comparisons can be found in Supplemental Table A. (Supplemental material appears as an online-only addendum to this article on the journal's website.)

Prompted recall of the national drinking guidelines label message increased 3.5 times more between Waves 1 and 2 (+13.7% vs. +0.8%, AOR = 3.5, 95% CI [1.7, 7.4]), and 7.0 times more between Waves 1 and 3 (+25.2% vs. +1.1%, AOR = 7.0, 95% CI [3.3, 14.9]; Figure 3b, Table 2) in the intervention site versus the comparison site.

Awareness of the national drinking guidelines in Wave 1, before the alcohol labeling intervention, was 30.8% in the intervention and 35.2% in the comparison site (Figure 3c). The increase in awareness of the national drinking guidelines was 1.9 times greater between Waves 1 and 2 (+20.2% vs. +5.4%, AOR = 1.9, 95% CI [1.3, 2.8]) and 2.9 times greater between Waves 1 and 3 (+36.2% vs. +12.7%, AOR = 2.9, 95% CI [2.0, 4.3]; Figure 3c, Table 2) in the intervention versus the comparison site.

Although knowledge of recommended sex-specific drink

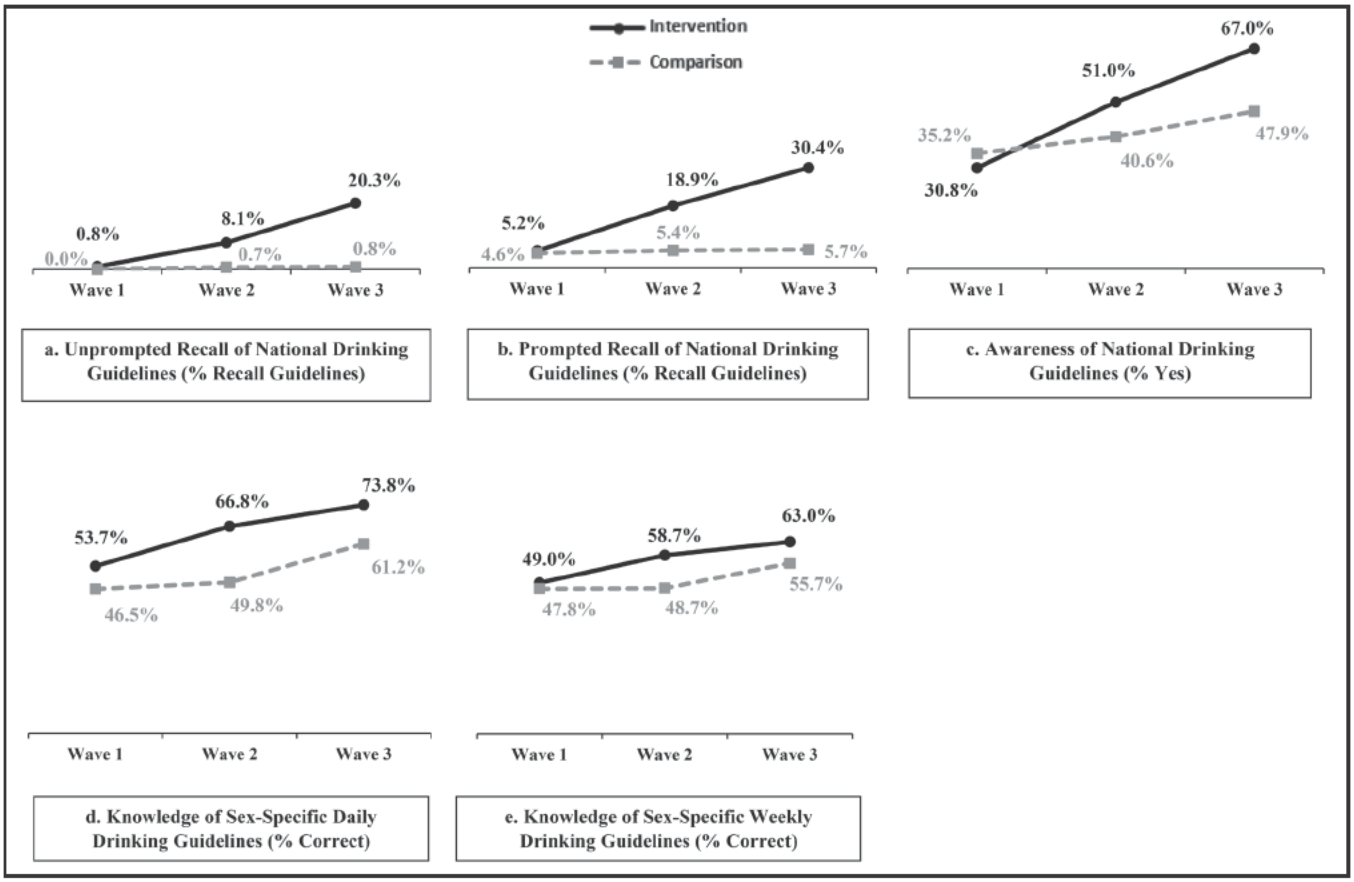


FIGURE 3 (A–E). Impact of intervention alcohol labels on outcomes in intervention and comparison sites (Waves 1 to 3), unadjusted %

limits increased in both sites over the study period, results of the DID analyses showed a 1.5 times greater increase in knowledge of the daily drink limits between Waves 1 and 2 (+13.1% vs. +3.3%, AOR = 1.5, 95% CI [1.0, 2.1]) and 1.5 times greater increase between Waves 1 and 3 (+20.1% vs. +14.7%, AOR = 1.5, 95% CI [1.0, 2.1]; Figure 3d, Table 2) in the intervention versus the comparison site. Similarly, DID results revealed a 1.4 times greater increase in knowledge of the weekly drink limits between Waves 1 and 2 (+9.7% vs. +0.9%, AOR = 1.4, 95% CI [1.0, 2.1]) and a 1.4 times greater increase between Waves 1 and 3 (+14.0% vs. +7.9%, AOR = 1.4, 95% CI [1.0, 2.0]; Figure 3e, Table 2) in the intervention versus the comparison site.

To test the contribution of including a label with a cancer warning alongside a label with the national drinking guidelines, GEE models estimating the relationships between recall of the cancer message, either unprompted or prompted, and awareness and knowledge of drinking guidelines were conducted, adjusting for sociodemographics and other covariates. The results indicated that those who recalled the cancer message were 2.0 times more likely to be aware of the drinking guidelines (AOR = 2.0, 95% CI [1.6, 2.4]), and 1.6 and 1.3 times more likely to know the daily (AOR = 1.6, 95% CI [1.3, 1.9]) and weekly (AOR = 1.3, 95% CI [1.0, 1.5]) drink limits, respectively, compared with those who did not recall the cancer message.

The majority of participants were neutral to strongly supportive of applying labels with national drinking guidelines on alcohol containers in both the intervention (Wave 1 = 71.7%; Wave 2 = 77.3%; Wave 3 = 79.1%) and comparison (Wave 1 = 67.1%; Wave 2 = 68.1%; Wave 3 = 73.2%) sites (Figure 4). See Supplemental Figure A for a visual summary of results.

Discussion

Alcohol drinking guidelines are used internationally to provide evidence-informed recommendations of upper drink limits for low-risk alcohol consumption. To adhere to these drinking guidelines, consumers must be aware of and understand the recommended limits. International research indicates that public awareness and knowledge of drinking guidelines is lower than 50% in most jurisdictions (Bowden et al., 2014; Buykx et al., 2018; De Visser & Birch, 2012; Livingston, 2012; Rosenberg et al., 2018). Experts suggest that providing directional information on how to use alcohol is crucial for the consumer and should accompany the sale of all alcohol products as a public health promotion message

TABLE 2. Results of GEE models for label outcomes—DID comparisons[a,b]

Measure	Comparison	AOR	[95% CI]
Unprompted recall of drinking guidelines label	Intervention vs. comparison site: Wave 3 vs. Wave 1	10.8	[0.9, 127.6]
	Intervention vs. comparison site: Wave 2 vs. Wave 1	3.1	[0.3, 32.71]
	Intervention vs. comparison site: Wave 3 vs. Wave 2	3.5	[0.6, 19.1]
Prompted recall of drinking guidelines label	Intervention vs. comparison site: Wave 3 vs. Wave 1	7.0	[3.3, 14.9]
	Intervention vs. comparison site: Wave 2 vs. Wave 1	3.5	[1.7, 7.4]
	Intervention vs. comparison site: Wave 3 vs. Wave 2	2.0	[1.2, 3.4]
Awareness of drinking guidelines	Intervention vs. comparison site: Wave 3 vs. Wave 1	2.9	[2.0, 4.3]
	Intervention vs. comparison site: Wave 2 vs. Wave 1	1.9	[1.3, 2.8]
	Intervention vs. comparison site: Wave 3 vs. Wave 2	1.5	[1.1, 2.0]
Knowledge of sex-specific daily drinking guidelines	Intervention vs. comparison site: Wave 3 vs. Wave 1	1.5	[1.0, 2.1]
	Intervention vs. comparison site: Wave 2 vs. Wave 1	1.5	[1.0, 2.1]
	Intervention vs. comparison site: Wave 3 vs. Wave 2	1.0	[0.7, 1.4]
Knowledge of sex-specific weekly drinking guidelines	Intervention vs. comparison site: Wave 3 vs. Wave 1	1.4	[1.0, 2.0]
	Intervention vs. comparison site: Wave 2 vs. Wave 1	1.4	[1.0, 2.1]
	Intervention vs. comparison site: Wave 3 vs. Wave 2	1.0	[0.7, 1.3]

Notes: GEE = generalized estimating equation; DID = difference-in-difference; AOR = adjusted odds ratio; CI = confidence interval. [a]All models adjusted for age, ethnicity, sex, education, time-in-sample, and alcohol use; [b]separate logistic models were estimated using GEE for each of the individual measures of warning label effectiveness.

(Cancer Council Australia, 2013). Results of the current study demonstrate that enhanced alcohol labels may be an effective tool for increasing awareness and knowledge of drinking guidelines. Before the labeling intervention, one in three consumers in the current study were aware of Canada's LRDG. Following the intervention, awareness more than doubled in the intervention site, an increase that was more than two times greater among those exposed versus those unexposed to the alcohol labels. This increase in awareness over the study period is consistent with the proportion of participants that recalled the drinking guidelines on the label, either unprompted or prompted, confirming the label's role in boosting participants' awareness of national drinking guidelines in the current study.

Modest increases in knowledge of the daily and weekly drink limits were also observed following exposure to enhanced alcohol labels in the intervention site, both in the shorter term (Waves 1 to 2) and over the full study period (Waves 1 to 3). One explanation for the modest differences in changes in knowledge between sites is that knowledge of the daily and weekly guidelines increased in both the intervention and comparison sites over the study period. Increases among participants in the comparison site not exposed to the label intervention are likely because the study received national and international media coverage following the alcohol industry's interference in the study (Austen, 2018; Joannou, 2018; Vallance et al., 2020a; Vallance et al., 2020b). Although the media largely focused on the cancer warning label, images of the labels with the cancer warning and national drinking guidelines were circulated in the media, and it is possible that the media elicited extra attention to alcohol-related health harms and safer drinking recommendations, including Canada's LRDG. It is worth noting, however, that the intended social marketing campaign was not implemented in the intervention site during the intervention period due to the industry's interference, and the media coverage may have partly replaced the function of the canceled campaign in the intervention site.

Nevertheless, the results of the current study demonstrate the unique benefits of labels for increasing awareness and knowledge of national drinking guidelines. In addition, the study provides evidence that recalling the cancer label message enhanced the intervention impact on LRDG outcomes, highlighting the potential synergistic effects of the rotating labels. Previous population-based interventions that were intended to increase awareness and knowledge of drinking guidelines focused on longer multicomponent information-based campaigns, with various levels of success. Two of

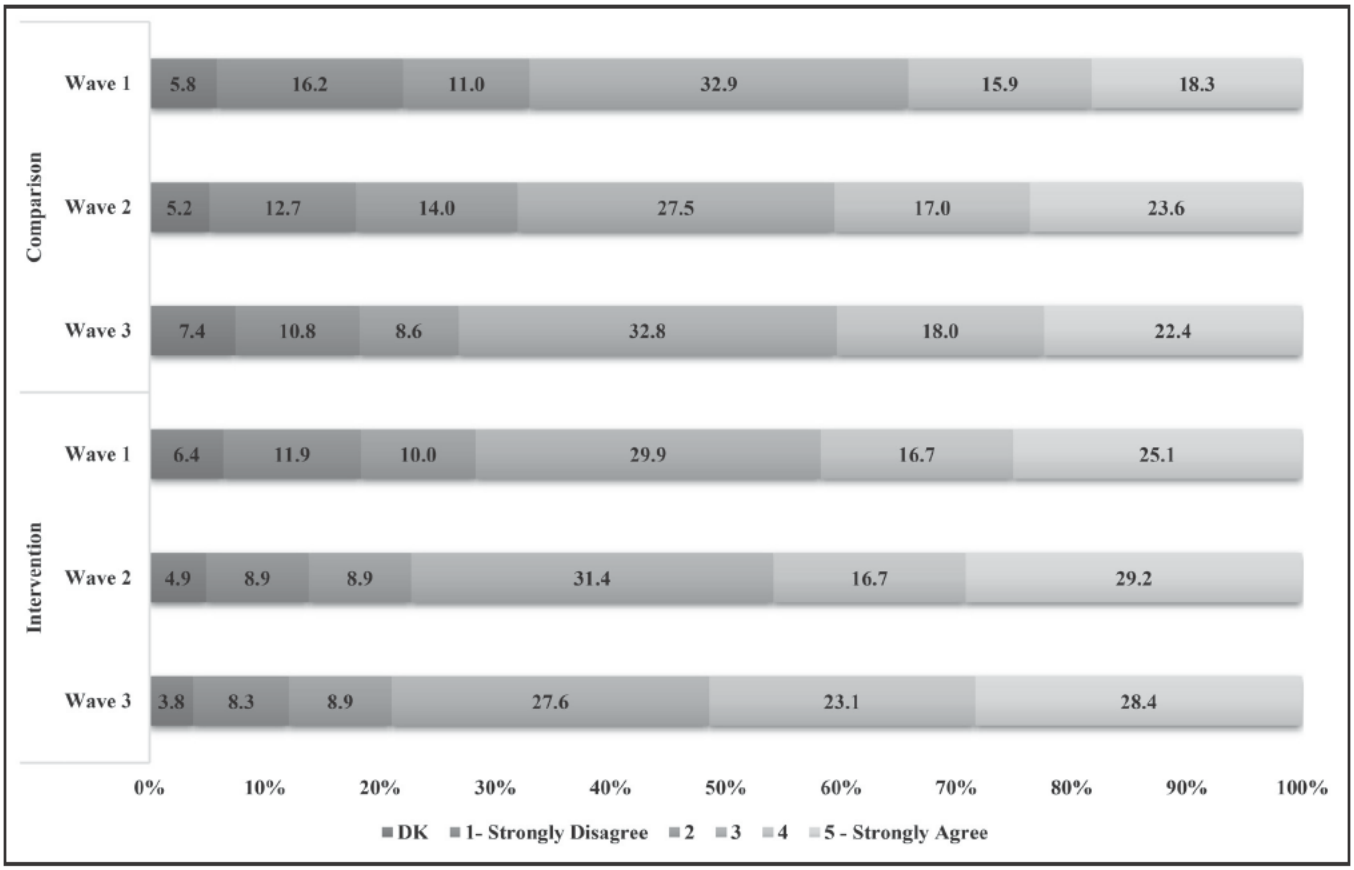


FIGURE 4. Degree of support for national drinking guidelines labels on alcohol containers, unadjusted %. DK = don't know.

these campaigns, one conducted in the Canadian province of Quebec and the other in Denmark, reported increases in knowledge of drink limits following much longer-term and well-resourced campaigns (Éduc'alcool, 2016, 2019; Grønbaek et al, 2001). However, these interventions lacked a comparison group, making it difficult to control for secular influences. Further research is needed to test the impact of an uninterrupted longer-term labeling intervention on awareness and knowledge of drinking guidelines, as well as the impact on actual drinking behavior.

Previous studies have highlighted the association between knowledge of drinking guidelines and lower levels of alcohol use (Bowring et al., 2012; Coomber et al., 2017; Islam et al., 2019), but the underlying mechanisms for this association are not well understood. It is well documented that labels are likely a key component of a comprehensive alcohol strategy to increase consumer awareness of alcohol-related risks and knowledge of safer alcohol use, and ultimately reduce alcohol consumption and harms (Centre for Addiction and Mental Health, 2019; Martin-Moreno et al., 2013; WHO, 2017). Last, the results of the current study show that labels with national drinking guidelines are unlikely to be received negatively among drinkers, as participant support was high in Wave 1 and remained high across the study period in both sites. This is in line with previous research indicating support for drinking guidelines on alcohol labels (Coomber et al., 2017).

The study has several limitations. First, considering that the intervention was interrupted and shortened due to the alcohol industry's interference and the small sample sizes in both sites, the effects of the labels might have been stronger if these limitations had been resolved and the study had been implemented as planned. Next, the study sample was not representative of the site populations, as participants were recruited from liquor stores in city centers using non-probability-based methods, limiting generalizability. In addition, the national media coverage of the alcohol industry's interference in the study may have contaminated the comparison site by exposing information about the study and intervention, particularly the alcohol label messages. Finally, due to very low rates of unprompted recall in the comparison group, DID results lacked precision and produced wide CIs. However, the low rates of recall and awareness of the national drinking guidelines before the alcohol label intervention also provide a strong rationale for enhanced alcohol labels.

Conclusions

Alcohol labels with national drinking guidelines, standard drink information, and a cancer warning may be an effective population-level strategy for increasing awareness of drinking guidelines and knowledge of drink limits, a stated goal of international alcohol control efforts (Australia Department of Health, 2019; CCSA, 2007; UK Department of Health, 2007). This study also supports previous claims that labels with drinking guidelines have high levels of public support. Alcohol labels should aim to maximize population reach and expand on the single pregnancy messages currently used in many jurisdictions.

Acknowledgments

The authors would like to acknowledge all the RAs who helped collect the data, as well as the liquor control boards, health and social services, and community partners in Yukon and Northwest Territories for their commitment and support in developing and executing this research. Special thanks also go to Mark Petticrew and Melanie Wakefield for their expertise and guidance.

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Cancer Warning Labels on Alcohol Containers: A Consumer's Right to Know, a Government's Responsibility to Inform, and an Industry's Power to Thwart

TIM STOCKWELL, PH.D.,[a,*] ROBERT SOLOMON, LL M.,[b] PAULA O'BRIEN, PH.D.,[c] KATE VALLANCE, M.A.,[a] & ERIN HOBIN, PH.D.[d,e]

[a]*Canadian Institute for Substance Use Research, University of Victoria, Victoria, British Columbia, Canada*
[b]*Faculty of Law, Western University, Ontario, Canada*
[c]*Melbourne Law School, University of Melbourne, Victoria, Australia*
[d]*Public Health Ontario, Toronto, Ontario, Canada*
[e]*Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada*

ABSTRACT. Objective: Although the World Health Organization (WHO) declared alcohol a Class 1 carcinogen 30 years ago, few governments have communicated this fact to the public. We illustrate how alcohol industry groups seek to keep their customers in the dark about alcohol-related cancer risks. In Canada, a federallyfunded scientific study examining the introduction of cancer warning labels on containers was shut down following industry interference. We show that the industry complaints about the study had no legal merit. Of 47 WHO member countries with alcohol warning labels, only South Korea requires cancer warnings on alcohol containers. However, industry complaints, supported by sympathetic governments, helped weaken the warning labels' implementation. Ireland has legislated for cancer warnings but faces continuing legal opposition expressed through regional and global bodies. Cancer societies and the public health community have failed to counter industry pressures to minimize consumer awareness of alcohol's cancer risks. Placing cancer warnings on alcohol containers could make a pivotal difference in motivating both drinkers to consume less and regulators to introduce more effective policies to reduce the serious harms of alcohol consumption. (*J. Stud. Alcohol Drugs, 81,* 000–000, 2020)

IT IS ESTIMATED THAT worldwide alcohol is responsible annually for 3 million deaths (Global Burden of Disease 2016 Alcohol Collaborators, 2018), being causally associated with at least 43 major categories of disease or injury identified by more than 400 specific ICD-10 codes (Sherk et al., 2017). The World Health Organization's (WHO) International Agency for Research on Cancer (2010) has recognized since 1987 that alcohol-related cancers contribute significantly to this toll. It is now firmly established that alcohol consumption increases cancer risk in a dose-response fashion with no risk-free level and with causal associations established for breast cancer and various cancers of the digestive tract (e.g., mouth, throat, larynx, esophagus, colon; International Agency for Research on Cancer, 2010). In Canada, it was estimated recently that almost one third of the 15,000 alcohol-attributable deaths in 2014 were related to such cancers (Canadian Substance Use Costs and Harms Scientific Working Group, 2018). The U.S. Centers for Disease Control and Prevention also cites evidence that alcohol causes cancer of the prostate (Zhao et al., 2016). Bagnardi et al. (2015) have found dose-response associations between alcohol use and risk of some 20 cancer types, with many more yet to be formally recognized by WHO's International Agency for Research on Cancer. In this article, we provide examples of how the global alcohol industry works to ensure that the well-established cancer risks posed by its product continue to be overlooked, by both regulators and the public.

In 2017, the American Society of Clinical Oncology (LoConte et al., 2018) published a statement marking 30 years since the WHO first classified ethanol as a Class 1 carcinogen. The American Society of Clinical Oncologyhighlighted a lack of government action to advise the world's two billion alcohol consumers of this risk or to limit their exposure. Many cancer societies have also been remiss in drawing this risk to the public's attention (Amin et al., 2018). Indeed, U.S. public surveys show that a substantial majority of adults have no knowledge or awareness of alcohol's carcinogenicity (LoConte et al., 2018). In a recent household survey in England, only 13% of respondents indicated unprompted knowledge that alcohol increases cancer risk, rising to 32% when prompted(Bates et al., 2018). A survey of liquor store customers in two northern Canadian capital cities found that even prompted awareness of alcohol's cancer risk was present in only one quarter of respondents (Hobin et al., 2020; Vallance et al., 2020b).

Received: December 20, 2019. Revision: January 29, 2020.

This research was supported by a Health Canada–Substance Use and Addictions Program Grant #1718-HQ-00003 and by the Canadian Institute for Substance Use Research, University of Victoria. The views expressed herein do not necessarily represent the views of Health Canada. International Registered Report Identifier (IRRID): RR2-10.2196/16320.

*Correspondence may be sent to Tim Stockwell at the Canadian Institute for Substance Use Research, University of Victoria, P.O. Box 1700 STN CSC, Victoria, BC V8W 2Y2, Canada, or via email at: timstock@uvic.ca.

TABLE 1. Types of warning label requirements in World Health Organization (WHO) member countries

		Health warning types			
Country	WHO member countries *n*	Health warnings *n* (%)	Pregnancy *n* (%)	Underage drinking *n* (%)	Drink driving *n* (%)
Americas	35	13 (37.1)	5 (14.3)	6 (17.1)	5 (14.3)
Africa	46	11 (23.9)	6 (13.0)	14 (30.4)	9 (19.6)
Eastern Mediterranean	21	2 (9.5)	1 (4.8)	1 (4.8)	0 (0.0)
Europe	53	13 (24.5)	13 (24.5)	12 (22.6)	11 (20.8)
Southeast Asia	11	2 (18.2)	0 (0.0)	1 (9.1)	1 (9.1)
Western Pacific	28	6 (21.4)	2 (7.1)	7 (25.0)	5 (17.9)
Total	194	47 (24.2)	27 (13.9)	41 (21.1)	31 (16.0)

Source: WHO Global Information System on Alcohol and Health.

At the time of writing, we are aware of three jurisdictions where cancer warnings on alcohol containers have been or will be introduced: South Korea, the Republic of Ireland (pending), and Yukon (which briefly trialed a cancer warning). At least 47 WHO member countries have some kind of requirements for warning labels (WHO, 2019),although only South Korea currently requires these to mention cancer (Table 1). The U.S. warning label introduced in 1989 refers only to an increased risk of general health problems (Greenfield, 1997). Canada has no requirements for alcohol warning or ingredient labeling, in sharp contrast to both tobacco and cannabis packaging (Figure 1).

In South Korea, Ireland, and Yukon, there were, or continue to be, legal maneuvers by alcohol industry groups to prevent, delay, or water down implementation of the warning messages. The industry's legal arguments have been made using both domestic and international law, with the latter involving concerns being raised in the World Trade Organization by members such as the European Union and the United States. In the present article, we address the nature and merits of the industry's arguments raised and the impact they have had on government labeling policies.

Case study: Yukon alcohol labeling study

In December 2018, the Yukon government in Canada yielded to alcohol industry pressure to halt a Health Canada–funded study of cancer warning labels placed on alcohol con-

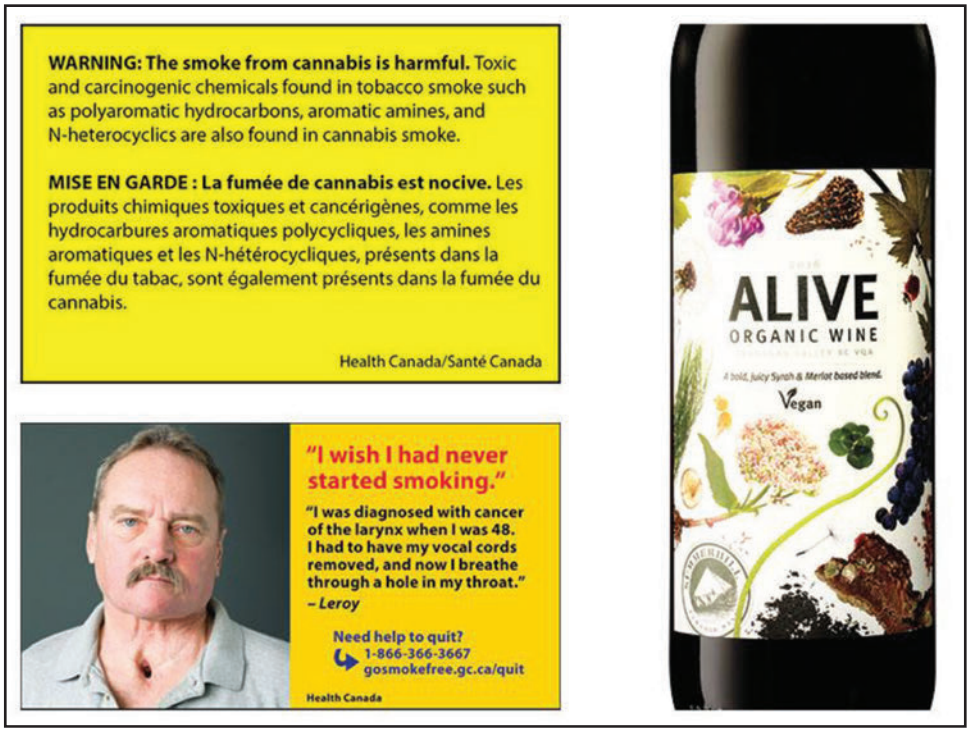

FIGURE 1. A comparison of Canadian labels for tobacco, cannabis, and alcohol products

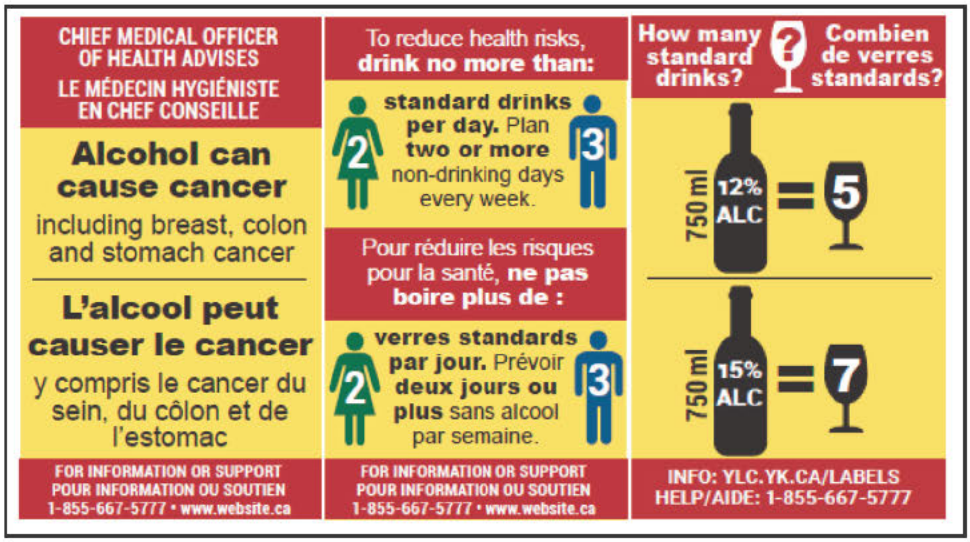

FIGURE 2. Warning labels trialed in Whitehorse, Yukon (5.0 cm × 3.2 cm)

tainers sold in the territory's capital, Whitehorse (*Whitehorse Star,* 2018). *The Globe and Mail* decried the industry action as "Shameful" (Picard, 2018). The study involved an 8-month intervention introducing three types of messages (Figure 2): (a) a warning that alcohol can cause cancer, with specific mention of two prevalent and often fatal cancers in Canada (breast and colon); (b) Canada's national low-risk drinking guidelines (Stockwell et al., 2012); and (c) information about standard drink contents of beverages to support consumers following the national guidelines. The evidence-informed labels were designed according to best practices for effective product warnings, including messages developed after testing prototypes on a panel of 2,000 Canadians (Hobin et al., 2018) and also focus groups of Yukon residents and stakeholders (Vallance et al., 2018). Approximately 47,000 containers were labeled with cancer warnings and 53,000 with national drinking guidelines between November 20, 2017, until the study was quietly halted on December 19, 2017. The three messages were to have been evaluated through analysis of alcohol sales data and surveys of liquor store customers in Whitehorse (intervention site) and Yellowknife, Northwest Territories (comparison site) (Vallance et al., 2020a). Both Yukon and Northwest Territories have placed post-manufacturer warning labels on containers regarding pregnancy risks. The Northwest Territories' labels included additional messages cautioning about impaired driving and general health problems. The labels have been required under a local directive since 1991 with no legal challenges to date (Figure 3). These territories also have the highest per capita alcohol consumption in Canada (Statistics Canada, 2018).

Subsequent to the industry intervention, the Yukon Minister responsible for Liquor publicly announced in February 2018 that the study could proceed provided that the cancer warning label was dropped (*Whitehorse Star,* 2018). He stated that although the evidence for the causal link between drinking and cancer was not in dispute, his government had limited resources and he was concerned about potential legal action by the Canadian alcohol producers. He undertook to raise the matter with Canada's federal health minister and subsequently wrote accordingly. The study restarted without the cancer labels and for a reduced overall intervention period of 4 instead of 8 months (Vallance et al., 2020a). However, even this abbreviated labeling intervention was associated with a significant increase in awareness of alcohol's cancer risk among surveyed liquor store patrons, with increased intentions to reduce consumption, greater support for pricing policies to reduce alcohol harm, and reduced alcohol sales (Hobin et al., 2020).

The research team subsequently received copies of email correspondence between Canadian alcohol industry lobbyists and the Yukon Liquor Corporation that led to the cessation of the cancer warnings. The email correspondence was originally obtained by the *Globe and Mail* through a Freedom of Information request. (Copies of all the original emails so obtained that were sent from alcohol industry representatives to the Yukon government can be viewed at: TK TK). These emails, along with media statements by alcohol industry representatives, a letter of complaint to the University of Victoria from a beer industry lobby group, and communications between the research team and the Yukon Liquor Corporation, revealed several industry claims about the legality of the labeling intervention. We selected three of the claims that were most prominent in our discussions with the Yukon Liquor Corporation and provide analyses below to show that these legal claims were groundless. Instead, our analysis suggests that Canadian governments that sell and/or distribute alcohol are legally obliged to inform consumers of potential health risks.

FIGURE 3. Warning labels implemented in Yukon and Northwest Territories since 1991

Claim 1: Yukon had no legislative authority to place health warnings on the alcohol products it sells

Under the 2002 *Yukon Act* (Canada), Canada's federal parliament transferred authority to the Yukon Legislative Assembly to enact laws in a broad range of fields that largely duplicate the provinces' legislative powers. Canadian provinces have ample legislative authority to undertake a warning label project or enact warning label legislation pursuant to their powers over property and civil rights, public health, and matters of a merely local or private nature ("United Kingdom, Constitution Act, 1867, (U.K.), 30 & 31 Vict., c. 3, at ss. 92(13), (7) and (16)"). Based on these powers alone, Yukon had legislative authority to implement the warning label project or indeed require all alcohol products to include detailed health and safety warnings.

Moreover, the *Yukon Act* expressly gives the Territory additional authority to enact laws regarding "intoxicants" and to control their importation (s. 18(1)(r) and (3)). It is ironic that the industry would raise this issue, considering that Yukon has broader and more direct authority over alcohol than any of Canada's 10 provinces. The industry's claim simply has no merit.

Claim 2: The warning label study violated the alcohol manufacturers' freedom of expression under Section 2(b) of the Canadian Charter of Rights and Freedoms (Charter). ("United Kingdom, Part I of the Constitution Act, 1982, being Schedule B to the Canada Act 1982 (U.K.), 1982, c. 11 [Charter].")

The *Charter* has enshrined freedom of expression and many other rights in Canadian constitutional law. The Constitution "is the supreme law of Canada" and any federal, provincial, or territorial law that is inconsistent with "the Constitution is, to the extent of the inconsistency, of no force or effect" (s. 52). Consequently, the alcohol manufacturers could challenge the warning label study if they could prove that it violated their freedom of expression. However, the rights and freedoms in the *Charter* are not absolute, but rather may be justifiably limited under Section 1 of the *Charter*.

The Territorial Liquor Authority is attaching its own labels to alcohol products that it has purchased from the alcohol manufacturers. This is not a case of compelled speech. The cancer warning is expressly attributed to the Chief Medical Officer of Health. It may be inferred that the low-risk drinking guidelines also reflect the government's views. In these circumstances, there is no infringement of the manufacturers' freedom of expression.

The legal analysis would differ if Yukon required alcohol manufacturers to attach warning labels to their products. The Supreme Court of Canada has indicated that such legislation would likely limitthe alcohol manufacturers' freedom of expression. ("RJR-MacDonald Inc. v. Canada (Attorney General)," 1995). However, the manufacturers would have no remedy under the *Charter* if the government could establish, pursuant to Section 1, that this infringement was a reasonable limit "prescribed by law as can be demonstrably justified in a free and democratic society."

Although commercial speech is protected by Section 2(b), it is not considered to be as important as political and other categories of expression. For example, the Supreme Court of Canada held that federal legislation banning almost all tobacco advertising and sponsorship, and requiring prominent health warnings and graphic images of tobacco-related diseases on all tobacco products constituted a justifiable limit on Section 2(b). Among other things, the Court stated that the commercial expression infringed was of "low value" (Klar, 2012). It is worth noting that the required rotating, full color, graphic images had to occupy at least 50% of the principal display surfaces (this was subsequently increased to 75%).

Claim 3: The Yukon government can be held liable in defamation for claiming that alcohol use can cause cancer

The common law tort action of defamation protects the reputation of individuals, corporations, and businesses from untrue and unjustifiable attacks, but it does not apply to products. Rather, such claims must be brought pursuant to a tort action in "injurious falsehood" ("slander of goods"). To succeed in injurious falsehood, the manufacturers must prove that the statement was factually untrue and that the government made the statement maliciously (i.e., knowing it to be untrue or for an improper purpose).

It is extremely unlikely that the industry could establish either element of this claim. For example, the fact that the industry does not believe that alcohol can cause cancer or believes that there are more effective ways of educating the public is irrelevant. Rather, the manufacturers must prove, on the balance of probabilities, that alcohol cannot cause cancer. Since the scientific literature has been interpreted by international cancer experts as providing definitive proof of alcohol's causal role, such a case could not be proven. There is nothing in the scientific literature suggesting that this could be proven.

The second element of the action would be equally difficult to prove. The cancer warning labels and low-risk guidelines are framed as health cautions or advisories. It is difficult to see how the manufacturers would be able to prove that the health officials responsible for these statements were knowingly lying or were secretly motivated by ill will or spite toward the industry (Klar, 2012).

Conclusions on the legality of alcohol cancer warnings in Yukon and Canada generally

Given that individuals are generally permitted to sue anyone for anything, the industry could sue the Yukon government. Although none of the industry's claims had any merit, the attempt to derail the warning label study raises a fourth legal issue that the Yukon government should seriously consider—namely, its potential civil liability for failing to adequately inform consumers of the risks posed by the alcohol products that it sells.

Canadian manufacturers and suppliers have long had a common law duty to inform consumers of the risks inherent in using their products. They must warn of risks of which they know or ought to know ("Allard v. Manahan (1974), 46 D.L.R. (3d) 614 (B.C.C.A.).," 1974; "Lambert v. Lastoplex Chemicals Co. (1971), 25 D.L.R. (3d) 121 (S.C.C.) [Lambert]," 1972; "O'Fallon v. Inecto Rapid (Canada) Ltd., [1940] 4 D.L.R. 276 (B.C.C.A.)," 1940) and of risks in both the use and foreseeable misuse of their products("Lem v. Barotto Sports Ltd. (1976), 69 D.L.R. (3d) 276 (Alta. C.A.)," 1976; "Walford v. Jacuzzi Canada Ltd. (2007), 87 O.R. (3d) 281 (C.A.)," 2007). Manufacturers are required to be experts in their field and to undertake research, or at least keep current with the existing scientific and industry literature ("Buchan v. Ortho Pharmaceutical (Can.) Ltd. (1986), 35 C.C.L.T. 1 (Ont. C.A.) [Buchan]," 1986). They cannot gloss over or otherwise obscure the risks; nor will a vague, generalized warning be sufficient("Buchan v. Ortho Pharmaceutical (Can.) Ltd. (1986), 35 C.C.L.T. 1 (Ont. C.A.) [Buchan]," 1986; "Lambert v. Lastoplex Chemicals Co. (1971), 25 D.L.R. (3d) 121 (S.C.C.) [Lambert]," 1972).

Several factors will contribute to the high standard of disclosure expected regarding alcohol. First, the Canadian courts have held that the disclosure standards are particularly onerous for products intended for human consumption ("Arendale v. Canada Bread Co, [1941] 2 D.L.R. 41 (Ont. C.A.)," 1941; "Heimler v. Calvert Caterers Ltd. (1975), 8 O.R. (2d) 1 (C.A.),"1975; "Rae and Rae v. T. Eaton Co. (Maritimes) Ltd. (1961), 28 D.L.R. (2d) 522 (N.S.S.C.)," 1961; "Zeppa v. Coca-Cola Ltd., [1955] 5 D.L.R. 187 (Ont. C.A.)," 1955). Second, the required warning or disclosure must be commensurate with the probability and severity of the risks. If either the probability or severity of the risks is high, the manufacturer and supplier will be held to a stringent standard. Third, a higher standard of disclosure is required if the specific risk is not generally known to the public and the product is mass marketed to potentially vulnerable consumers ("Buchan v. Ortho Pharmaceutical (Can.) Ltd. (1986), 35 C.C.L.T. 1 (Ont. C.A.) [Buchan]," 1986; "Lambert v. Lastoplex Chemicals Co. (1971), 25 D.L.R. (3d) 121 (S.C.C.) [Lambert]," 1972).

As a supplier of alcohol, the Yukon Liquor Corporation has a common law duty to adequately inform its customers, and the standard of disclosure is likely to be rigorous, given the probability and severity of the risks associated with binge drinking and heavy habitual consumption. The successful $15 billion Québec class-action suit against three tobacco manufacturers provides ample reason for alcohol manufacturers and suppliers to reassess their potential liability very carefully ("Létourneau c. JTI-MacDonald Corp., 2015 QCCS 2382," 2015). Although this tobacco case is currently being appealed, it is only a matter of time before similar suits are brought against alcohol manufacturers and the provincial and territorial liquor authorities that sell their products.

By challenging Yukon's relatively modest alcohol warning study, the alcohol industry has inadvertently raised legal issues that should galvanize Canada's other provinces and territories to immediately enact comprehensive alcohol warning label legislation.

International trade law, Korea, Ireland and cancer warning labels for alcohol

International trade law has also been used to place pressure on countries wanting to introduce alcohol warning

labels about cancer. In the World Trade Organization's Committee on Technical Barriers to Trade, two cancer warning label proposals have been subject to forceful opposition from major alcohol-producing nations, including the United States, the European Union, Australia, New Zealand, Mexico, Argentina, and Chile.

In 2016, South Korea proposed to enhance its container warnings cautioning about alcohol use and cancer risk. Korea already had warnings in place that stated that "Excessive consumption of alcohol may cause liver cirrhosis or liver cancer." Korea proposed three new labels, two of which mentioned cancer in sites other than the liver. One label read, ". . . Alcohol is [a] carcinogen, so excessive drinking causes liver cancer, gastric adenocarcinoma and so on . . . ." The other read, ". . .excessive drinking cause[s] cancer . . . ." (International Alliance for Responsible Drinking, 2019). The risks of cancer were mentioned in addition to other risks from alcohol, including those relating to drinking during pregnancy (International Alliance for Responsible Drinking, 2019). In 2018, the Republic of Ireland amended its Public Health (Alcohol) Bill with a proposal for alcohol labels to warn of "the direct link between alcohol and fatal cancers" (Public Health [Alcohol] Act 2018[Ireland], 2018).

Both countries have now enacted their proposals, but not before heavy argument against the warnings in the Technical Barriers to TradeCommittee. To be clear, the World Trade Organization's Technical Barriers to Trade Committee is not a formal legal forum but provides a place for robust dialogue and debate between World Trade Organization member states about policy proposals, including those relating to labeling. Member states may choose to modify or maintain their policy proposals after the Technical Barriers to TradeCommittee deliberations, but policies that are not subject to appropriate amendments face the possibility of a formal challenge through the World Trade Organization's dispute resolution system.

The legal issue being raised in the Technical Barriers to Trade Committee is that the South Korean and Irish warnings about cancer are "more trade restrictive than is necessary to fulfil a legitimate objective"(Marrakesh Agreement Establishing the World Trade Organization, 1995). The labels are said to constitute an unnecessary interference with international trade because there is no scientific evidence to support such warnings as an effective public health measure that will make a contribution to addressing alcohol-related harm. Mexico argued against South Korea that the warnings did not provide clear information to the consumer, asserting there is "no scientific evidence establishing such a causal link [between alcohol and cancer], since epidemiological studies pointed to a wide range of cancer risk factors, including family history, genetics, lifestyle and environmental factors" ("Committee on Technical Barriers to Trade. Minutes of the Meeting of 10-11 November 2016," February 17, 2017). Mexico further challenged the South Korean label on the basis that "moderate consumption of alcohol was also regarded as an important part of a healthy lifestyle" in scientific studies ("Committee on Technical Barriers to Trade. Minutes of the Meeting of 10-11 November 2016," February 17, 2017). Australia has just spent 5 years in the World Trade Organization defending its support of tobacco plain packaging, another measure that seeks to control the industry's use of the product package for marketing purposes. However, presumably in protection of its strong wine and beer sectors, Australia has expressed concern that translations of the Korean warnings suggested a "direct link" between cancer and drinking alcohol. They "suggested that the label [should] be drafted in a way that would reflect scientific consensus on the issue" ("Committee on Technical Barriers to Trade. Minutes of the Meeting of 10-11 November 2016," February 17, 2017).

No formal challenge against the South Korean cancer warning labels was initiated. Although the actual wording of the labels did not change, there were several aspects to the initiative that might have been designed to appease alcohol-producing states and their industries. First, South Korea only required producers to use one of the three new warnings on their products and allowed producers to choose the one they preferred. One of the warnings does not mention cancer at all. Presumably, the industry would choose the label that it considers least influential on consumers' drinking behaviors ("Committee on Technical Barriers to Trade. Minutes of the Meeting of 29–30 March 2017," June 2, 2017). Second, South Korea provided a significant transition period. No product that was in the country by February 2018 need bear the new warnings ("Committee on Technical Barriers to Trade. Minutes of the Meeting of 21–22 March 2018," May 22, 2018). Third, South Korea has not included graphics or images with its cancer warnings and has set no presentation or rotation requirements for the warnings. This may have placated the industry (O'Brien, 2018), because, in the absence of such rules, the industry is free to bury the warnings among other label information as is the case with the mandatory U.S. warning label. But it should be noted that South Korea has recently announced graphic tobacco-style warning labels about the risks of drinking and driving (Yonhap, 2018). This may be a first step toward graphics accompanying all of its alcohol warnings.

There is more chance of a World Trade Organization challenge to Ireland's measures. Although the exact content and design of its cancer warnings are still to be determined, there is a requirement for a warning "to inform the public of the direct link between alcohol and fatal cancers." The responsible Minister has the power to prescribe the form of the warnings, including their size, color, and font (Public Health [Alcohol] Act 2018 [Ireland], 2018). The Food Safety Authority of Ireland recently conducted a public consultation in which it called for evidence about the effectiveness of putting cancer warnings on alcoholic beverage containers(Food

Safety Authority of Ireland, 2019). There is so far no report from the public consultation. If industry is unhappy with the features prescribed by the Minister for the cancer labels, a challenge is not unlikely, either through the World Trade Organization or at the EU level as happened with Scotland's alcohol minimum unit price law (MacCulloch, 2017). At the last minute, Ireland ditched a proposal requiring that the warning labels constitute one third of the label space (European Commission, 2018). To protect its cancer labeling regime from formal legal challenge, it will be important that Ireland draw on the evidence about effective warning label design and implementation when establishing its alcohol labeling rules.

Discussion

Initially, it may seem surprising that, 30 years after the world's leading authority on cancer declared ethanol to be a Class 1 carcinogen, so few governments have acted to ensure that consumers are aware of this important fact. In this essay, we have provided some concrete examples of the ways in which powerful alcohol industry groups work hard at the regional, national, and international level to keep their customers in the dark about the cancer risk from alcohol. In Yukon, Canada, a government-funded scientific study to evaluate the potential impact of cancer and other warning labels was shut down following industry complaints and implied legal action. Analyses presented here show that not only did industry's complaints have no legal merit, but that Canadian governments actually expose themselves to potential civil liability by failing to inform consumers of such serious health risks. This is likely to be an issue in any jurisdiction where the government is involved in the sale and/or distribution of alcohol. On the international stage, only South Korea has successfully implemented some form of cancer warning on alcohol containers. However, industry complaints supported by sympathetic World Trade Organization governments appear to have watered these down by allowing producers to choose which of three labels to post. The Republic of Ireland has plans to introduce the most comprehensive and effective set of health messages, including cancer warnings, but faces continuing legal opposition again from industry groups supported by the governments of alcohol-producing countries.

There are clear and obvious reasons why commercial groups with a vested interest in maintaining high levels of alcohol consumption should strive to prevent consumers from being fully aware of serious health risks from their product. Visible, impactful, and evidence-informed health labels designed according to best practices for effective product warnings can be seen as a pivotal public health intervention when it comes to reducing the considerable harms from alcohol consumption. Although evidence for the direct effectiveness of warning labels in reducing consumption has, until recently, been underwhelming (Stockwell, 2006), there are multiple reasons to reevaluate their potential importance. First, until recently, the most studied real-world policy experiment was that of the U.S. warning labels, which can be faulted on multiple grounds: These labels have not been changed in 30 years, they are text only and in small font, the wording is stilted and technical, and they do not have to be prominently placed on containers (Alcoholic Beverage Health Warning Statement, 2008). Second, even if labels alone have no direct impact on consumption, there is new evidence that media awareness campaigns on alcohol's cancer risk can contribute to increased public support for more directly effective policies such as raising prices and limiting availability (Buykx et al., 2016). Third, the emerging evidence from the Yukon study is that even though placing cancer warnings on alcohol containers had to be stopped, after just 47,000 containers were labeled over 30 days, both the survey and sales data indicate significant reductions in alcohol consumption during the intervention relative to comparison sites (Hobin et al., 2020; Zhao et al., 2020). Furthermore, there was evidence that consumers whose awareness of the cancer risk was raised by the intervention were then almost twice as likely to support minimum unit alcohol pricing (Weerasinghe, 2020). These positive outcomes point to the importance of effective label design in terms of visibility, impact, and message salience, all of which were superior to the present U.S. warning labels. All of this said, the consumer's right to know about the content of the products they are consuming does not depend on the evidence of the effectiveness of the label on behavior or intermediary variables.

There is clearly much at stake for the alcohol industry, which motivates them to oppose placing accurate health warning information on their products. To date the industry has clearly been effective in persuading governments to protect its commercial interests over the interests of health and safety. This is especially true in North America, where it was recently reported that, contrary to other cancer societies, only the American and Canadian Cancer Societies fail to state on their websites that alcohol is a Class 1 carcinogen (Amin et al., 2018).

Petticrew et al. (2018) and Pettigrew et al. (2018) have recently documented how the alcohol industry has adopted many of the same tactics that the tobacco industry used a generation ago to deny and distort the evidence of cancer risk associated with its products. Specifically, the following general types of industry tactics were identified, the first two of which were clearly used in the Yukon case: (a) denial/omission: denying, omitting or disputing the evidence that alcohol consumption increases cancer risk; (b) distortion: mentioning cancer, but misrepresenting the risk; and (c) distraction: focusing discussion away from the independent effects of alcohol on common cancers. Each of these tactics was also used throughout the media coverage of the cancer warning issue in both Yukon and Ireland (Vallance et al., 2020c). One consequence of a further 30 years of inaction

could be the prospect of similar multibillion-dollar lawsuits brought against not only alcohol producers but also governments that have been involved in the distribution and retail sale of alcohol.

The evidence on alcohol warning labels clearly needs to be strengthened by conducting more real-world alcohol policy experiments. Ireland in particular has the opportunity to lead the way with evaluations of mandated health warnings that provide clear and impactful information to consumers. Combined with strengthening causal associations between alcohol use and a growing number of cancers, such evidence may be used by public health advocates nationally and internationally to persuade both regional and national governments to better serve their citizens by providing them with essential information to protect their health.

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News Media and the Influence of the Alcohol Industry: An Analysis of Media Coverage of Alcohol Warning Labels With a Cancer Message in Canada and Ireland

KATE VALLANCE, M.A.,[a,*] ALEXANDRIA VINCENT, R.N.,[b] NOUR SCHOUERI-MYCHASIW, PH.D.,[c] TIM STOCKWELL, PH.D.,[a] DAVID HAMMOND, PH.D.,[d] THOMAS K. GREENFIELD, PH.D.,[e] JONATHAN MCGAVOCK, PH.D.,[f] & ERIN HOBIN, PH.D.[c,g]

[a]*Canadian Institute for Substance Use Research, University of Victoria, Victoria, British Columbia, Canada*
[b]*University of Guelph, Guelph, Ontario, Canada*
[c]*Health Promotion, Chronic Disease and Injury Prevention, Public Health Ontario, Toronto, Ontario, Canada*
[d]*School of Public Health & Health Systems, University of Waterloo, Waterloo, Ontario, Canada*
[e]*Alcohol Research Group, Public Health Institute, Emeryville, California*
[f]*Department of Pediatrics and Child Health, Faculty of Health Sciences, University of Manitoba, Manitoba, Canada*
[g]*Dalla Lana School of Public Health, University of Toronto, Ontario, Canada*

ABSTRACT. Objective: Media coverage of alcohol-related policy measures can influence public debate and is often more aligned with interests of the alcohol industry than public health. The purpose of this study was to examine the framing of news coverage of alcohol warning label (AWL) initiatives that included a cancer message on alcohol containers in two different countries. Policy contexts and industry perspectives were also evaluated. **Method:** We identified and systematically reviewed news articles published between 2017–2019 covering an AWL academic study in Yukon, Canada, and labeling provisions in a Public Health (Alcohol) Bill in Ireland. Both included a cancer message. News stories were coded for media type and topic slant; inclusion of alcohol industry perspectives was examined using content analysis. **Results:** Overall, 68.4% of media articles covering the Yukon Study ($n = 38$) and 18.9% covering the Ireland Bill ($n = 37$) were supportive of AWLs with a cancer message. The majority of articles in both sites presented alcohol industry perspectives (Yukon, 65.8%; Ireland, 86.5%), and industry arguments opposing AWLs were similar across both contexts. In articles with statements from industry representatives, the label message was frequently disputed by distorting or denying the evidence that alcohol causes cancer ($n = 33/43$). **Conclusions:** News coverage of AWLs with a cancer message was more supportive in Canada than Ireland, where alcohol industry perspectives were consistently foregrounded. Industry arguments opposing the cancer label bore similarities across contexts, often distorting or denying the evidence. Increasing awareness of industry messaging strategies may generate more critical coverage of industry lobbying activities and increase public support for alcohol policies. (*J. Stud. Alcohol Drugs, 81,* 000–000, 2020)

ALCOHOL CAUSES 3.3 MILLION DEATHS globally each year, with a substantial proportion attributable to cancer, producing significant societal harms and costs to governments and health systems worldwide (Baan et al., 2007; Bagnardi et al., 2015; Burton & Sheron, 2018; International Agency for Research on Cancer, 2010; Klein et al., 2019; Praud et al., 2016; World Health Organization, 2018). Recent projections show an increase in alcohol consumption internationally of up to 17% over the next decade, which will not only affect people consuming alcohol but also increase the exposure to harm of those around them (Karriker-Jaffe et al., 2018; Manthey et al., 2019). There are several population-level control measures (also known as "best buys"; e.g., increased alcohol pricing and taxation, reductions in physical availability, restrictions on marketing and advertising, and impaired driving countermeasures) that can be used as a response, are cost-effective, and have the strongest evidence for reducing alcohol-related harms, including cancer (Alattas et al., 2020; Chisholm et al., 2018; Foster et al., 2019; World Health Organization, 2013).

Governments often face political barriers to introducing alcohol control policies because of public pushback and opposition from powerful alcohol industry lobby groups (Hope, 2006; Li et al., 2017; Moskalewicz et al., 2013; Pechey et al., 2014). Lobbying from industry groups highlights an inherent conflict as a substantial portion of their sector's profits rely on harmful patterns of consumption and low consumer knowledge of cancer risk linked to alcohol (Bhattacharya et al., 2018; Casswell et al., 2016; Connor, 2017). Importantly, increasing public awareness of alcohol-related health risks such as cancer has been shown to improve public support for more restrictive policies (Bates et al., 2018; Buykx et al., 2015; Martin et al., 2018; Weerasinghe et al., 2020). Alcohol warning labels (AWLs) offer one avenue for providing this

Received: November 7, 2019. Revision: January 11, 2020.

This research was supported by Health Canada–Substance Use and Addictions Program #1718-HQ-000003. The views expressed herein do not necessarily represent the views of Health Canada. Thomas K. Greenfield was supported by National Institute on Alcohol Abuse and Alcoholism Grant No. P50 AA005595. International Registered Report Identifier (IRRID): RR2-10.2196/16320.

*Correspondence may be sent to Kate Vallance at the Canadian Institute for Substance Use Research, University of Victoria, P.O. Box 1700 STN CSC, Victoria, BC, Canada V8P 2Y2, or via email at: vallance@uvic.ca.

type of information directly to alcohol consumers—particularly higher volume consumers (Greenfield, 1997). Furthermore, AWLs, including those with a cancer warning, have evidence of public support (Hobin et al., 2018; Maynard et al., 2018; Miller et al., 2016; Pettigrew et al., 2014; Vallance et al., 2018).

News media is a strong influencer of public debate and can often shape public opinion and affect policymaking (Macnamara, 2005; McCombs & Shaw, 1972, 1993). This is especially true in relation to government efforts to introduce control measures designed to improve public health. There is a long history of the tobacco industry (Durrant et al., 2003; Miller et al., 2018)—and, more recently, the alcohol and sugar-sweetened beverage industries (Hilton et al., 2019)—using the media as a platform to promote their vested interests at the expense of public health interventions. The unhealthy commodity industries more generally have shown great adeptness at having their perspectives regularly included in news media coverage, often with the effect of slanting articles in their favor (Azar at al., 2014; Katikireddi & Hilton, 2015; Mercille, 2017). Researchers have identified a "playbook" of scripts and messaging strategies circulated by the unhealthy commodity industries through a variety of media channels—including industry trade magazines and public-facing industry-funded social aspects public relations organizations—designed to influence public opinion, manipulate the news agenda, and influence policymaking (Hilton et al., 2019; Lim et al., 2019; Maani Hessari et al., 2019; McCambridge et al., 2018; Mercille, 2017; Petticrew et al., 2017, 2018a, 2018b; Pettigrew et al., 2018).

The unhealthy commodity industries messaging strategies used by the alcohol industry via these different platforms have been shown to disseminate selective or false evidence and information designed to confuse or misdirect public understanding of health issues or minimize the perceived risk of their product (Lim et al., 2019; Maani Hessari et al., 2019; Petticrew et al., 2017, 2018a, 2018b; Pettigrew et al., 2018). A prime example is the alcohol industry's consistent misrepresentation of the established scientific evidence linking alcohol consumption with an increased risk of cancer. This misrepresentation often takes the form of disputing or denying the link; claiming the cancer risk is related only to heavier consumption; stating the evidence is too complex, insufficient, or debatable; and confusing the issue by claiming alcohol's protective effects (Hilton et al., 2019; Petticrew et al., 2017, 2018a, 2018b).

Alcohol industry messaging strategies specific to news media coverage—many of which were noted during the introduction of minimum unit pricing in Scotland—include questioning the legality of or overemphasizing the economic harms resulting from implementation of proposed control policies and making unsupported claims that the measures are ineffective or are not based on sound evidence (Hilton et al., 2014; Katikireddi & Hilton, 2015; Mercille, 2017). Further, industry media statements will often protest their exclusion from the design of public health interventions and highlight their involvement in voluntary initiatives and corporate social responsibility activities, such as campaigns with vague "responsible drinking" messages. Many will also offer suggestions of other "more appropriate" measures, most of which are industry friendly and/or shown to have little or no impact on alcohol consumption and harms (Babor et al., 2018; Fogarty & Chapman, 2012; Hilton et al., 2014; Katikireddi & Hilton, 2015; Mercille, 2017; Savell et al., 2016).

Although there is a growing body of research identifying tactics commonly used across the unhealthy commodity industries and in response to specific alcohol control measures such as alcohol pricing and marketing and advertising restrictions, to our knowledge there have been limited investigations of news media coverage of AWL policy initiatives (Lemmens et al., 1999) and none specific to AWLs with a cancer message. The purpose of this study was to examine news media coverage of alcohol labeling initiatives that included a cancer warning in Canada and Ireland and analyze the perspectives of the alcohol industry that were included in the articles. Specifically, objectives were to (a) compare the topic slant of mass media news coverage of alcohol industry interference with a cancer warning label that formed part of an academic study in Yukon, Canada ("the Yukon Study"), with coverage of cancer warning label provisions included in Ireland's Public Health (Alcohol) Bill ("the Ireland Bill") and (b) identify similarities and/or differences in the inclusion and content of the alcohol industry's response to AWLs with a cancer message within media coverage across both contexts.

Method

Context

Academic Study in Yukon, Canada ("the Yukon Study"). The authors of this article implemented a study funded by the federal health institution in Canada designed to test the effectiveness of three new evidence-informed AWLs that featured (a) a health message stating alcohol can cause cancer, including breast and colon cancers, (b) national low-risk drinking guidelines, and (c) standard drink information. The new labels formed part of a quasi-experimental study in Whitehorse, Yukon (intervention site) and Yellowknife, Northwest Territories (comparison site), both located in northern Canada (see Vallance et al., 2020, for full study protocol). Both sites had already been applying post-manufacturer text-based AWLs by local directive since 1991 cautioning about the risks of drinking during pregnancy; the Northwest Territories label carries an additional warning similar to that of the mandatory US label (Alcoholic Beverage Health Warning Statement, 2008) about impaired driving

and general health risks. The three new rotating labels were to be applied to alcohol containers in the only government-run liquor store in the intervention site for an 8-month period, whereas the two liquor stores in the comparison site continued usual labeling practices. (Images of all labels can be viewed at alcohollabels.cisur.ca.) The new labels were launched on November 20, 2017, but halted on December 19, 2017, because of alcohol industry interference (Wilt, 2018). The territorial government agreed to resume the study in February 2018 on the condition that the cancer warning label be permanently removed from rotation to avoid potential litigation by the alcohol industry (Joannou, 2018).

Public Health (Alcohol) Bill in Ireland ("the Ireland Bill")

The Public Health (Alcohol) Bill was first introduced into Irish parliament in 2015 as a public health measure to address high rates of alcohol consumption and related harm in the country. The Ireland Bill contained a number of alcohol control provisions, including minimum pricing; structural separation of alcohol from other products in stores; bans on alcohol sponsorship; restrictions on marketing and advertising; and mandatory health messaging on alcohol containers, including a cancer warning (Murray, 2017). The Ireland Bill's progress through parliament was delayed by 2 years as a result of intense lobbying from the alcohol industry. A revised version of the Ireland Bill was passed through the second stage in the lower house of parliament in 2017, dropping the provisions around sponsorship and amending some of the marketing and advertising restrictions (Mercille, 2017). The Ireland Bill passed through the committee stage in the upper house of parliament in March 2018 and amendments were proposed in June 2018, including the removal of the labeling provisions, and discussed in the upper house assembly in September of that year. The Ireland Bill reached the final stage of parliament and was passed into law in October 2018. A commencement order for some of the provisions (not including labeling) was signed on November 1, 2018.

Search parameters and record selection

The search period for news coverage of AWLs related to the Yukon Study was September 1, 2017, to August 15, 2018, covering 3 months before the media release announcing the launch of the new AWLs and 6 months after the media release announcing the study's resumption in February 2018. The search period for news coverage of AWLs related to the Ireland Bill was April 16, 2018, to April 30, 2019, covering the 6 months before and after the Ireland Bill was signed into law in October 2018. These timeframes were selected in accordance with the main media events connected to both contexts; each site had an approximately 1-year search period to ensure feasibility of the study parameters.

Six sets of search strings were developed to identify relevant media coverage of both the Yukon Study and the Ireland Bill (see search strings in Appendix A). (The appendices appear as online-only addenda to this article on the journal's website.) Separate searches for each string were run in Factiva, an electronic media database with comprehensive full-text coverage of both Canadian and European Union sources. Equivalent search strings were run in the web-based search engines Google and Google News, capturing the first 100 hits for each string; no date limits were set because web-based search engines can indicate date only in year segments (e.g., in the past year). A systematic strategy was used to manually determine eligible database and web-based records for inclusion based on PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines (Moher et al., 2009) (Figure 1). All remaining records were then screened for relevance based on title and subsequently assessed for eligibility with a full-text review. The following records were excluded: duplicates by story, articles that did not qualify as mass media or text-based news sources (as determined by the research team), articles that did not/only briefly mentioned the Yukon Study or the labeling provisions of the Ireland Bill, and articles with broken or missing hyperlinks or with registration or paywall barriers.

Coding and analysis

The coding structure to identify media type and topic slant for this analysis was developed based on previous studies (Azar et al., 2014; Mercille, 2017; Miller et al., 2018). Media type was coded by article publication source and included the following categories: (a) hard news, (b) web story, (c) commentary, and (d) blog (see Table 1 for media type definitions). Two of the authors (KV and AV) coded and discussed an initial subsample of articles by media type and subsequently independently coded the full sample with no divergences between coders. Topic slant was coded based on whether the stories' viewpoints were predominantly neutral, supportive, or opposed—or a mix of both supportive and opposed—toward AWLs with a cancer message included in the Yukon Study and the Ireland Bill (see Table 1 for code definitions). The same two authors coded an initial subsample of articles for topic slant ($n = 8$), resulting in a Cohen's κ score of .79, indicative of substantial agreement among coders (McHugh, 2012). Divergences were discussed with the team to achieve consensus, and the codebook was refined before final coding. Using the refined codebook, two of the authors (K.V. and N.S.M.) independently coded the full sample ($n = 75$), resulting in a Cohen's κ score of .90, representing near perfect agreement between coders (McHugh, 2012).

The number of articles was calculated by media type and topic slant, and the coded articles were grouped by calendar month for each of the two sites. The number of articles containing alcohol industry perspectives was then calculated,

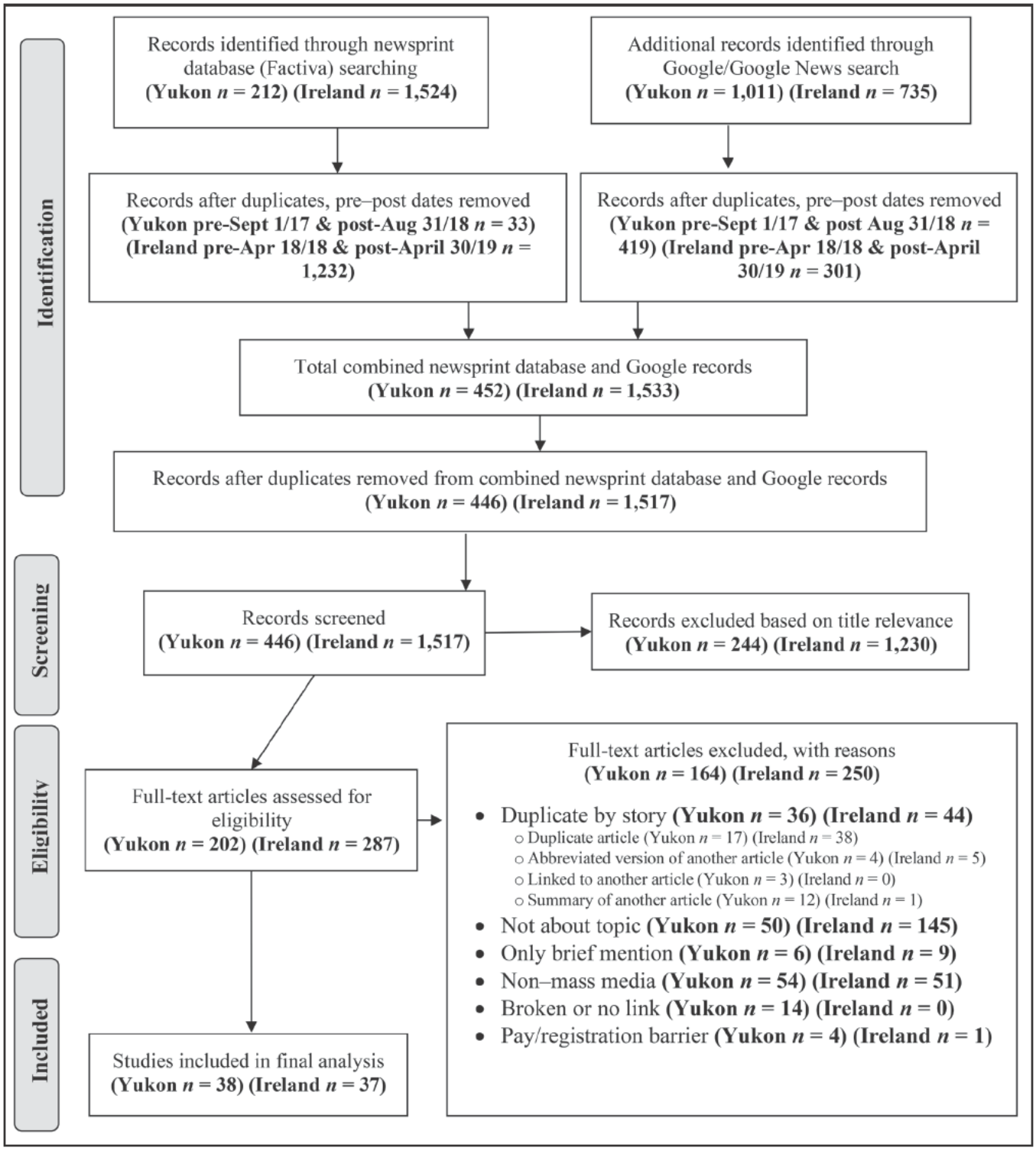

FIGURE 1. PRISMA article eligibility screening flow diagram—Yukon Study & Ireland Bill

Table 1. Definitions of media type and topic slant codes

Media type	Definition
Hard news	Factual articles not written as a comment, opinion, editorial, or letter and published in print or online by either a media group that offers a printed news publication or a wire service
Web story	Articles not written as a commentary and published online by a media group that offers neither a wire service nor a printed news publication
Commentary	Articles written as an editorial, opinion, or letter published in a hard news or web story platform
Blog	Articles published online through a platform such as a personal, organizational, or corporate website that is not primarily a mass media news platform
Code type	**Definition**
Supportive	• Contains a prominent public health perspective that includes information, evidence, or statistics about alcohol-related harms such as increased cancer risk and quotes or statements from health researchers, public health practitioners, or advocates that is mostly supportive toward the cancer label/Yukon Study/Ireland Bill • Contains minimal or no alcohol industry perspectives and any industry content is balanced with public health content
Opposed	• Contains a prominent alcohol industry perspective including quotes or statements from industry representatives or spokespeople that is mostly opposed toward the cancer label/Yukon Study/Ireland Bill • Contains minimal or no public health perspectives and industry content is not balanced by public health content
Mixed	• Contains both public health and alcohol industry perspectives but is not clearly supportive nor opposed toward the cancer label/Yukon Study/Ireland Bill
Neutral	• Contains largely factual information that is neither supportive nor opposed toward the cancer label/Yukon Study/Ireland Bill

and content analysis (Elo & Kyngäs, 2008) was conducted to inductively identify, group, and enumerate the most prominent alcohol industry arguments included in the news coverage. Industry *arguments* were defined as statements or quotes related to the AWLs attributed to specific alcohol industry representatives and spokespeople or related viewpoints attributed to the alcohol industry more broadly. In some cases, articles included multiple distinct industry statements or viewpoints that each contained multiple distinct arguments within; each of these arguments was recorded individually. The number of articles containing *direct* statements or quotes from industry representatives or spokespeople was also calculated, and the proportion of those disputing the evidence linking alcohol and cancer was identified.

Results

Type and overall topic slant of media articles

We identified 38 articles eligible for inclusion related to the Yukon Study (see Appendix B for full list of articles) during the set timeframe. Of those, two thirds (n = 25) were supportive of the Yukon Study and the cancer warning; more than half (n = 21) were published in hard news sources (Appendix C). The publication dates of articles related to the Yukon Study ranged from November 22, 2017, to June 21, 2018, with the majority published in January 2018 following the announcement that application of the study intervention labels at the liquor store had been halted as a result of alcohol industry pressure (Figure 2).

There were 37 eligible articles related to the Ireland Bill during the set timeframe (Appendix B). Of those, less than a quarter (n = 8) were supportive of the labeling provisions in the Bill and the cancer warning; more than half (n = 23) were published in hard news sources (Appendix C). The publication dates of the Ireland Bill articles ranged from April 19, 2018, to January 18, 2019, with nearly half (n = 17) published between August and September 2018 leading up to the proposed labeling amendments (including dropping the labeling provision) being debated in the parliamentary assembly (Figure 3).

Inclusion of alcohol industry perspectives in media articles

Two thirds (n = 25) of the Yukon Study media coverage and more than three quarters (n = 32) of the articles covering the Ireland Bill included the perspectives of the alcohol industry. The main industry actors represented in the Yukon Study coverage were the heads of Canada's three main national alcohol industry trade lobby associations: Beer Canada, Spirits Canada, and the Canadian Vintner's Association. The industry actors represented in the Ireland Bill media coverage were predominantly representatives from lobby groups, including the Alcohol Beverage Foundation of Ireland (ABFI) and the Irish Whiskey Association, as well as a variety of spokespeople from independent breweries and distilleries. Just over one third (n = 14) of the Yukon Study media articles and three quarters (n = 29) of the Ireland Bill articles contained *direct* statements or quotes from alcohol industry representatives or spokespeople.

Main industry arguments opposing AWLs: Distorting the evidence and cancer denialism

The most frequent alcohol industry argument opposing AWL common to the news coverage of both the Yukon Study

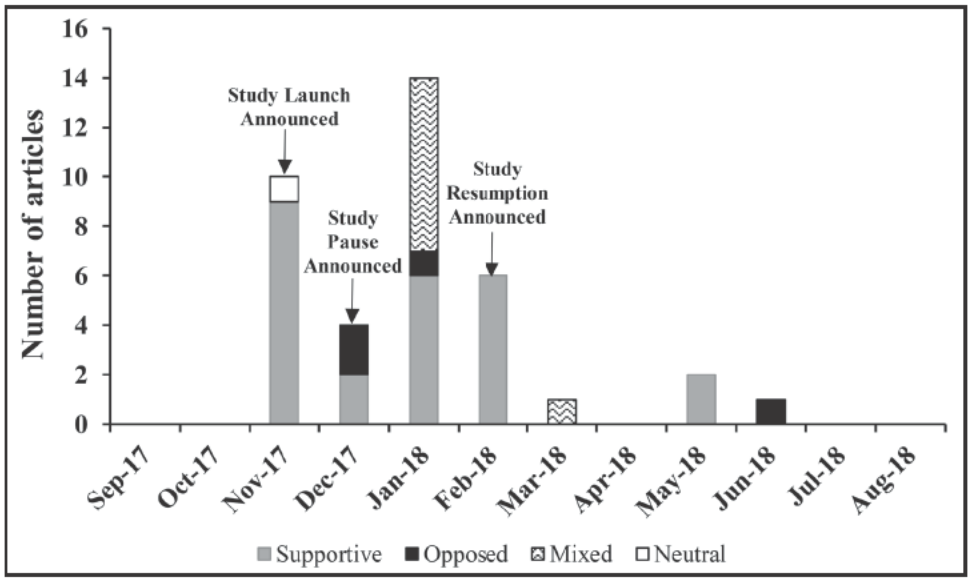

FIGURE 2. Topic slant of media articles 2017–2018, Yukon Study (n = 38)

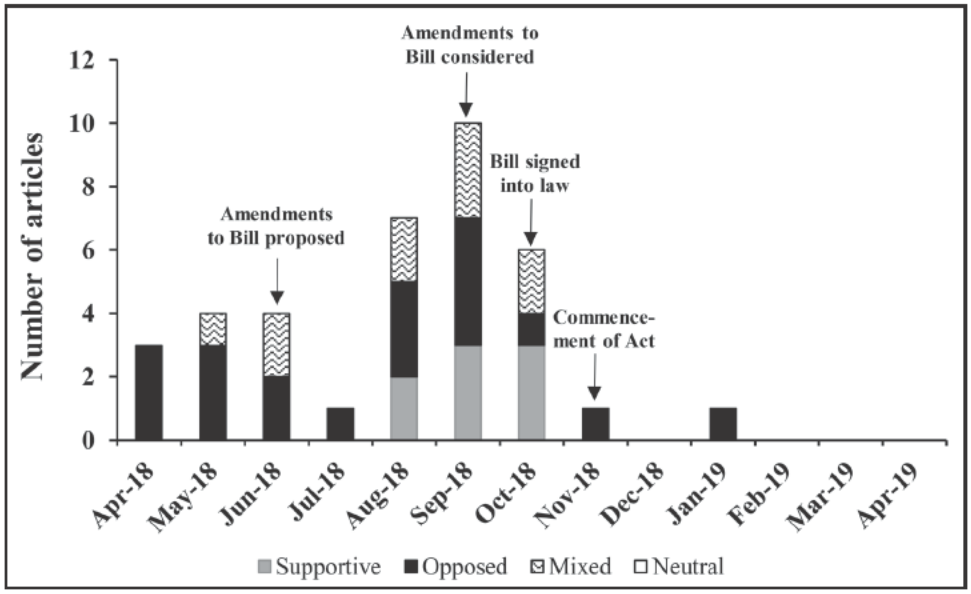

FIGURE 3. Topic slant of media articles 2018–2019, Ireland Bill (n = 37)

and the Ireland Bill was to attack the content and validity of the cancer label message itself (Table 2). Media articles consistently contained industry perspectives that distorted, downplayed, and otherwise obfuscated the evidence linking alcohol and cancer. In many instances, industry arguments claimed the cancer warning was inaccurate, unproven, and based on false or unsound evidence. Arguments also frequently highlighted risk factors for cancer aside from alcohol, stated that the alcohol–cancer evidence was "too complex for a single label," and alluded to alcohol's health benefits. A number of these arguments were often contained within a single statement or quote.

Of the 43 articles that contained *direct* statements or quotes attributed to alcohol industry representatives or spokespeople, nearly half distorted (n = 19/43) and one third denied (n = 14/43) the scientific evidence behind the cancer warning label. Denialism of the alcohol–cancer evidence is highlighted by comments from the president of Beer Canada who stated that: ". . . the (cancer) label they chose to use is inaccurate and misleading" and ". . . to claim that alcohol causes cancer, or can cause cancer, is not accurate . . ." (*National Post,* January 2, 2018). The president of Spirits Canada also indicated that "the content of the label that reads 'alcohol can cause cancer, including breast and colon

Table 2. Industry arguments opposing alcohol warning labels (AWLs) and the cancer warning mentioned in news articles

	Number of mentions	
Industry arguments	**Yukon Study**	**Ireland Bill**
Stating alcohol can cause cancer is inaccurate/misleading/unproven/ incomplete/overreach	18	25
Alcohol and cancer link is too complex for a single label	5	7
AWLs are not effective/there are better/less anti-trade alternative measures that industry supports	7	23
Alcohol has health benefits and AWLs should not just mention risk	5	11
Cancer labels will hurt or disadvantage alcohol industry (and small/craft breweries/distilleries) and will cause stigma/reputational damage	2	38
No legislative authority for applying AWLs and represents trademark infringement	28	3
Industry is being unfairly singled out with AWLs and cancer warning	2	7
Alcohol is not the same as tobacco	4	2
Industry not consulted about AWLs and should have input	4	1
Cancer labels will cause export/trade barriers and impede growth	0	31
Cancer labels are a disproportionate response not required in other countries	0	23
AWLs will be expensive/logistically difficult to implement	0	18
Defamation and damages resulting from applying label stating alcohol can cause cancer	12	0
National drinking guidelines label may increase consumption or encourage impaired driving	7	0
Academic study conducting biased/flawed research	7	0

cancers' is scientifically debatable . . ." and that "we're not very happy with the presentation that drinking alcohol in moderate or light amounts causes cancer. There's really no evidence of causality; there's some correlation evidence" (*Whitehorse Star,* January 5, 2018).

Further distortion and denialism of the evidence is illustrated by ABFI's chief who was quoted as saying: ". . . We are not in support of providing consumers with inaccurate and misleading information that causes confusion and damages business. The association between alcohol and cancer is complex and cannot be adequately explained in a single warning label. One drink does not give you cancer, so it is inaccurate to place a blunt warning on alcohol products to say that alcohol causes cancer . . ." (*Irish Sun,* June 19, 2018). The Irish industry lobby group's chief later stated that "The scientific evidence certainly doesn't warrant the direct link between alcohol and cancer . . . on the contrary low consumption was beneficial to health" (*Euractiv,* October 11, 2018).

Offering "better" alternatives to AWL initiatives

Industry arguments opposing the AWLs in the media coverage of both the Yukon Study and the Ireland Bill also frequently mentioned that there were other more effective and less anti-trade control measures that could be implemented or that industry had already voluntarily initiated (Table 2). The president of Spirits Canada stated that his group: ". . . supported the creation of low-risk drinking guidelines and there are better ways to communicate the risks associated with heavy drinking, including through advertising campaigns and alcohol sellers having conversations with their customers" (*Canadian Press,* January 3, 2018). Similarly, the head of the Irish Whiskey Association suggested that "alternative measures that are less harmful to trade, such as public information campaigns, education initiatives and specific targeted interventions, should be used to help tackle misuse" (*Drinks Industry Ireland,* September 4, 2018). ABFI's Chief further argued: "While we as an industry support the objectives of the Alcohol Bill to tackle harmful and underage drinking in Ireland, we are opposed to cancer warning labels and believe that the objectives of the Alcohol Bill could be achieved through more effective and less trade-restrictive means" (*The Irish Times,* August 2, 2018).

Questioning the legality of the AWLs and the design of the Yukon Study

By far, the most frequent industry arguments specific to the Yukon Study news coverage focused on alcohol industry concerns around the territory's legislative authority for placing "nonauthorized" AWLs on containers, potential trademark infringement resulting from AWLs, and defamation and damages related to the cancer label message. Other arguments centered on assertions that the Yukon Study team was conducting biased and "fatally flawed" research and on the industry's objection to not being consulted about the study or the AWL content and design (Table 2). The industry's expectation to have input was highlighted by comments from the president of the Canadian Vintner's Association

president who indicated, "There isn't opposition to labelling *per say* [sic], but the way that the labels were selected without consultation with industry and without consultation with the National Alcohol Strategy Advisory Committee that has expertise to ensure that the labels are accurate, and beneficial" (*Whitehorse Star,* January 5, 2018).

Putting economic interests and the Irish alcohol industry's reputation first

In Ireland, the industry's arguments against the cancer warning label focused heavily on a wide range of serious economic trade barriers they felt the cancer labels would create within the European Commission and across international markets. Additional arguments claimed that introducing a cancer warning label would severely hurt or disadvantage the Irish alcohol industry, would make Ireland a "global pariah," and was a disproportionate response "required nowhere else in the world" (Table 2). As the head of the Irish Whiskey Association commented in one article, "cancer warnings on alcohol products . . . will cause serious harm to the reputation of the Irish drinks industry . . . yet is unlikely to do anything to combat alcohol misuse or harmful drinking" (*Drinks Industry Ireland,* September 4, 2018). He later stated that the cancer label "imposes an internationally unprecedented stigma on Irish whiskey . . . which our competitors, the Scotch and Bourbon whiskey tourism industry, don't face" (*Irish Examiner,* January 14, 2019).

Discussion

This article explored media coverage of two AWL initiatives that included a cancer message and examined the alcohol industry perspectives presented within the news articles published across two geographical contexts. To our knowledge, very few studies have analyzed news coverage of AWLs, with this being the first specific to cancer warning labels. Media coverage of the Yukon Study in Canada and subsequent alcohol industry interference was largely supportive of the AWL study that included a cancer label. In contrast, news coverage of the cancer labeling provisions proposed in Ireland's Public Health (Alcohol) Bill was primarily negative and consistently foregrounded alcohol industry perspectives. There was only one article across both sites without a topic slant that was opposed, supportive, or a combination of both, suggesting that cancer labels represent a contentious policy measure that has the potential to elicit a strong and targeted media response from the alcohol industry across different geographical and policy contexts.

Perhaps the most important finding in this study is that alcohol industry arguments opposing the cancer warning label across news articles in both countries consistently attempted to undermine and obfuscate the well-established scientific evidence causally linking alcohol consumption to increased cancer risk. This finding is consistent with previous investigations of industry messaging shown to misrepresent the evidence around alcohol and cancer (Maani Hessari & Petticrew, 2018; Maani Hessari et al., 2019; Petticrew et al., 2018a, 2018b; Pettigrew et al., 2018) and use the complexity argument as a strategy to influence public perception and oppose policy measures (Hilton et al., 2019; Pettigrew et al., 2017). The blatant cancer denialism and distortion of the evidence are particularly striking given the breadth of the industry voices included in mainstream media and the documented dissemination of false and misleading information to the public by industry-funded social aspects public relations organizations in Canada and Ireland (Lim et al., 2019; Petticrew et al., 2018a).

Overall, the structure, format, and content of the arguments used by the alcohol industry to oppose AWLs and the cancer label in media coverage of the Yukon Study and the Ireland Bill was consistent with previously identified scripts that form part of the cross-industry playbook of messaging strategies (Hilton et al., 2019; Petticrew et al., 2017). Arguments often incorporated many rationales into a single statement and were repeated consistently, regardless of their veracity, which is a tactic of persuasion identified in media coverage of other alcohol control measures such as minimum unit pricing and marketing and advertising restrictions (Hilton et al., 2014; Katikireddi & Hilton, 2015; Mercille, 2017). Statements by industry representatives that attempted to redirect media messaging away from the AWL measures by claiming they were already making efforts to address harmful alcohol use and suggesting policy alternatives and responses deemed more effective and appropriate were also consistent with previous studies (Babor et al., 2018; Hilton et al., 2014, 2019; Katikireddi & Hilton, 2015; Mercille, 2017; Petticrew et al., 2017; Savell et al., 2016).

In Canada, the partial government monopoly controlling alcohol distribution and sale across most jurisdictions may be impeding development of the powerful industry lobby seen in Ireland (Thomas, 2012). Nevertheless, the national trade associations and industry-funded alcohol education organizations in Canada have historically been included in public health-related policymaking bodies such as the National Alcohol Strategy Advisory Committee (Paradis, 2016), which suggests they do hold measurable political sway. The lack of advance warning given to the Canadian alcohol industry about the academic study testing AWLs, and specifically the cancer label, may have limited their ability to initiate greater inclusion of their perspectives in the news coverage, especially at the time that the new labels were launched. The industry's repeated questioning of the legality of the AWLs is a strategy that has frequently been used to oppose other alcohol control measures (Hilton et al., 2014, 2019), but their implied threats of litigation against the Yukon government, which served to halt the labeling intervention, did not ultimately play to their favor in the news media.

This particular argument may have held less weight given no previous legal challenges had been directed at the Yukon (or neighboring Northwest Territories) government in their nearly 30-year history of applying after-market pregnancy warning labels to alcohol containers (Austen, 2018).

The pronounced inclusion of alcohol industry perspectives in the news coverage of the Ireland Bill is consistent with the broader political environment in which the Irish government's "social partnership model" has given the alcohol industry a powerful voice in opposing public health measures (Hope, 2006; Mercille, 2016). Similar to the current findings, an earlier examination of media articles published when the Ireland Bill was first introduced in 2015 showed that coverage focused substantially on economic rather than public health considerations (Mercille, 2017); economic arguments were also frequently used to oppose minimum pricing measures in Scotland (Hilton et al., 2014). The fairly industry-friendly news coverage of the bill may also point to the relatively recent emergence of a cohesive public health lobby in Ireland (Hope, 2006). The country's Minister for Health, however, has shown increasing evidence of the strength of this public health lobby, successfully shepherding the controversial Ireland Bill through parliament and most recently requesting that media outlets not include information provided by industry-funded social aspects public relations organizations in news stories related to alcohol (Baker, 2019).

In light of these findings, researchers and public health advocates engaging with the media may want to consider pairing the presentation of scientific evidence alongside likely tactics used in industry responses, such as those highlighted in this article, in anticipation of industry efforts to reframe public discourse and derail implementation of effective alcohol control measures (Fogarty & Chapman, 2012). This practice may also serve as an opportunity to increase awareness of the playbook of industry messaging strategies among journalists who are not as familiar with the alcohol policy arena and contribute to a shift toward more evidence-based public discourse and a more public health–friendly media environment.

Limitations

This study has several limitations. Despite some similarities, it is important to acknowledge that the contexts surrounding the two cancer warning label initiatives are quite different, with one forming part of a jurisdiction-specific academic research study and the other forming part of nationally proposed health legislation. The number of articles included in this analysis was relatively small (less than 40 articles per site) and also represents a specific time period; thus, the analysis was not able to capture the full breadth and depth of the media coverage of the Yukon Study and the Ireland Bill. Specific media platforms and search databases were used, and other sources may have yielded additional or alternative perspectives that were not identified here. Last, nuances specific to the Ireland Bill context may have been missed because the authors had more familiarity with the events surrounding the Yukon Study. Future investigations could build on the analysis of alcohol industry arguments in media coverage of AWLs by examining the public health perspectives not analyzed in the current article. In addition, detailed explorations comparing the depiction of two studies by the trade press could provide useful insight. Comparisons with media coverage of Australia's recently mandated pregnancy warning labels are also warranted.

Conclusions

Media coverage of the Yukon Study in Canada was largely supportive of AWLs with a cancer message, whereas coverage of the Ireland Bill was mainly opposed to the cancer labels and consistently foregrounded alcohol industry perspectives. Representatives of the alcohol industry in Canada and Ireland frequently made statements that distorted or unequivocally denied the validity of the labels' evidence-based cancer message. Across all news coverage, industry arguments opposing the cancer label were largely consistent with the cross-industry playbook known to be used to undermine effective public health policies. Engaging with news and other media to increase awareness of the alcohol industry's playbook of messaging strategies may enable public health researchers and advocates to generate more critical coverage of industry lobbying activities and increase public support for alcohol control measures.

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Baseline Assessment of Alcohol-Related Knowledge of and Support for Alcohol Warning Labels Among Alcohol Consumers in Northern Canada and Associations With Key Sociodemographic Characteristics

KATE VALLANCE, M.A.,[a,*] TIM STOCKWELL, PH.D.,[a] JINHUI ZHAO, PH.D.,[a] SIMRAN SHOKAR, M.P.H.,[b] NOUR SCHOUERI-MYCHASIW, PH.D.,[c] DAVID HAMMOND, PH.D.,[d] THOMAS K. GREENFIELD, PH.D.,[e] JONATHAN MCGAVOCK, PH.D.,[f] ASHINI WEERASINGHE, M.P.H.[c] & ERIN HOBIN, PH.D.[c,g]

[a]*Canadian Institute for Substance Use Research, University of Victoria, Victoria, British Columbia, Canada*
[b]*Canadian Agency for Drugs and Technologies in Health, Toronto, Ontario, Canada*
[c]*Health Promotion, Chronic Disease and Injury Prevention, Public Health Ontario, Toronto, Ontario, Canada*
[d]*School of Public Health & Health Systems, University of Waterloo, Waterloo, Ontario, Canada*
[e]*Alcohol Research Group, Public Health Institute, Emeryville, California, United States*
[f]*Department of Pediatrics and Child Health, Faculty of Health Sciences, University of Manitoba, Winnipeg, Manitoba, Canada*
[g]*Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada*

ABSTRACT. Objective: Evidence-informed alcohol warning labels (AWLs) are a promising, well-targeted strategy to increase consumer awareness of health risks. We assessed consumers' baseline knowledge of alcohol-related cancer risk, standard drinks, and low-risk drinking guidelines as well as levels of support for AWLs. We further assessed associations with sociodemographic factors. **Method:** Forming part of a larger study testing new evidence-informed AWLs in a northern Canadian territory compared with a neighboring territory, baseline surveys were completed among liquor store patrons systematically selected in both sites. Chi-square and multivariable logistic regression analyses were performed to assess outcomes. **Results:** In total, 836 liquor store patrons (47.8% female) completed baseline surveys across both sites. Overall, there was low knowledge of alcohol-related cancer risk (24.4%), limited ability to calculate a standard drink (28.9%), and low knowledge of daily (48.9%) and weekly (47.6%) low-risk drinking guideline limits. There was moderate support for AWLs with a health warning (55.4%) and standard drink information (51.0%), and lower support for low-risk drinking guideline labels (38.3%). No sociodemographic characteristics were associated with cancer knowledge. Identifying as female and having adequate health literacy were associated with support for all three AWLs; high alcohol use was associated with not supporting standard drink (adjusted odds ratio = 0.60, 95% CI [0.40, 0.88]) and low-risk drinking guideline (adjusted odds ratio = 0.57, 95% CI [0.38, 0.87]) labels. **Conclusions:** Few consumers in this study had key alcohol-related health knowledge; however, there was moderate support for AWLs as a tool to raise awareness. Implementation of information-based interventions such as evidence-informed AWLs with health messages including alcohol-related cancer risk, standard drink information, and national drinking guidelines is warranted. (*J. Stud. Alcohol Drugs, 81,* 000–000, 2020)

ALCOHOL IS CONSUMED BY more than two billion people worldwide, with global estimates anticipating up to a 17% increase in consumption over the next decade (Manthey et al., 2019). The harms associated with its use are significant, and, in 2016, alcohol contributed to an estimated 3.3 million deaths globally (World Health Organization, 2018), accounting for approximately 4% of all cancer deaths (Global Burden of Disease 2016 Alcohol Collaborators, 2018). In Canada, 78% (22 million) of individuals age 15 years and older reported consuming alcohol in the previous year (Statistics Canada, 2018), and an estimated 15,000 people died of alcohol-attributable causes, one third related to cancer (Zhao et al., 2015). Despite these serious and significant harms, there is low knowledge of alcohol-related health harms, such as increased cancer risk, both internationally and in Canada. Alcohol is often perceived by the public to be less harmful than other controlled substances such as tobacco unless consumed in very high amounts (Buykx et al., 2015; Canadian Cancer Society, 2015; Pettigrew et al., 2016; Rehm et al., 2014; Rundle-Thiele at al., 2013; Wiseman & Klein, 2019), when in fact cancer risk increases even at low levels of alcohol consumption, particularly for breast cancer (Shield et al., 2016). This perception is of even greater consequence when considered in light of Canadian data where 69% of respondents indicated they would decrease their consumption levels if they knew that alcohol increased cancer risk (Canadian Cancer Society, 2015). International studies have found that greater knowledge of alcohol-related

Received: November 22, 2019. Revision: March 5, 2020.

This research was funded by Health Canada–Substance Use and Addictions Program #1718-HQ-000003. The views expressed herein do not necessarily represent the views of Health Canada. Thomas K. Greenfield was supported by National Institute on Alcohol Abuse and Alcohol Grant No. P50 AA005595. International Registered Report Identifier (IRRID): RR2-10.2196/16320.

*Correspondence may be sent to Kate Vallance at the Canadian Institute for Substance Use Research, University of Victoria, P.O. Box 1700 STN CSC, Victoria, BC, Canada, V8P 2Y2, or via email at: vallance@uvic.ca.

harms, particularly cancer risk, is associated with being female, older age, higher socioeconomic status, and *health literacy*—defined as the ability to obtain and understand basic health information to make appropriate health decisions—as well as with lower levels of alcohol use (Buykx et al., 2015, 2016; Macdonald et al., 2011; Robb et al., 2009; Rundle-Thiele et al., 2013; Weiss, 2005).

Tools designed to inform alcohol consumers about minimizing alcohol-related health risks implemented in Canada and elsewhere include low-risk drinking guidelines (LRDG), which recommend daily and weekly consumption limits that are communicated using standard drink measurements (Butt et al., 2011; Kalinowski & Humphreys, 2016). However, to be effective, consumers must not only be aware of national drinking guidelines and the guidelines' recommended limits but also understand how to apply them in relation to their own alcohol consumption, which is not often the case (Bowden et al., 2014; Bowring et al., 2012; De Visser & Birch, 2012; Livingston, 2012; McNally et al., 2019; Rosenberg et al., 2018). Similar to other countries with national drinking guidelines, only approximately one quarter of Canadian adults are aware that the LRDG exist, and more than 39% regularly drink in excess of the weekly and 27% in excess of the daily limits, after adjusting for underreporting (McNally et al., 2019; Statistics Canada, 2012; Zhao et al., 2015). Alcohol containers sold in Canada are mandated to list only percentage alcohol-by-volume information. Thus, the number of standard drinks (in Canada, one standard drink equals 13.45 g of pure alcohol), which is the unit of measurement used to convey Canada's LRDG limits, is not provided on the alcohol container. The disconnect between the LRDG and the information currently listed on alcohol containers is likely one reason Canadian consumers are not aware of the LRDG and are unable to accurately monitor their alcohol consumption and comply with the recommended limits in the guidelines.

Presenting health messages on alcohol warning labels (AWLs) offers one relatively low-cost strategy to provide consumption information and to increase knowledge of alcohol-related risks, because heavier consumers are exposed to AWLs most often (Greenfield, 1997; World Health Organization, 2018). Previous experimental and laboratory-based studies have indicated that not only did AWLs displaying standard drink information and LRDG limits improve consumers' ability to estimate recommended consumption limits (Hobin et al., 2017; Osiowy et al., 2015), but adding labels with cancer warnings also decreased consumers' motivation to drink (Blackwell et al., 2018). Recent real-world evidence using data from subsequent waves of the current study further showed that exposure to such labels increased knowledge of alcohol–cancer risk and daily and weekly LRDG limits, and reduced overall alcohol consumption over time (Hobin et al., 2020; Schoueri-Mychasiw et al., 2020; Weerasinghe et al., 2020; Zhao et al., 2020). Importantly, as knowledge of alcohol-related harms increases, so too does support for AWLs and other effective alcohol control measures shown to reduce alcohol harm, such as increasing minimum pricing and restricting alcohol availability and marketing; women, those who are older, and those who consume less alcohol are more likely to support such policies (Bates et al., 2018; Buykx et al., 2016; Li et al., 2017; Macdonald et al., 2011; Moskalewicz et al., 2013; Pechey et al., 2014; Weerasinghe et al., 2020). Unfortunately, the majority of labels implemented on alcohol containers globally to date do not communicate these types of messages, nor do they follow best practices for effective product label design, such as being larger, being prominently displayed on the container, having full-color graphics or images, and including personally relevant and direct messages that are regularly rotated to prevent wear-out effects (Ferrence et al., 2007; Fong, 2001; Hammond, 2011; Hobin et al., 2018; Vallance et al., 2018).

The current analysis forms part of a larger quasi-experimental study designed to test the real-world effectiveness of new evidence-informed AWLs presenting a cancer warning, national drinking guidelines, and standard drink information in two cities located in the northern Canadian territories, Whitehorse, Yukon, and Yellowknife, Northwest Territories. The aim of this article is to assess baseline levels of alcohol-related knowledge and of support for AWLs among consumers in the experimental sites, as well as associations with key sociodemographic and alcohol drinking factors. Specifically, this article investigates the degree to which participants know that alcohol can cause cancer, the number of standard drinks in an alcohol container, and the sex-specific daily and weekly standard drink limits recommended in Canada's LRDG. The degree of support for labels on alcohol containers with a health warning, standard drink information, and Canada's LRDG is also examined.

Method

Study design

Yukon and Northwest Territories are two northern Canadian territories with similar alcohol distribution systems, population size and demographics, and patterns of alcohol consumption and related harm (higher than the rest of Canada) (Canadian Institute for Health Information, 2017; Canadian Substance Use Costs and Harms Scientific Working Group, 2018; Statistics Canada, 2011a, 2011b, 2018). Further, these two territories are the only jurisdictions in Canada to apply after-market alcohol warning labels by local directive since 1991 (Figures 1a–b) and have well-established labeling procedures (Canadian Institute for Health Information, 2017; Canadian Substance Use Costs and Harms Scientific Working Group, 2018; Statistics Canada, 2011a, 2011b, 2018). A baseline survey was conducted with

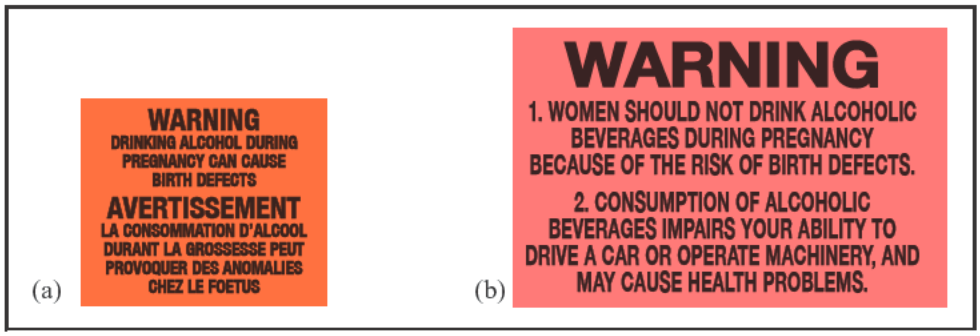

FIGURE 1. Alcohol warning labels on alcohol containers in (a) Yukon (2.3 cm × 2.8 cm) and (b) Northwest Territories (3.0 cm × 5.0 cm) since 1991

systematically selected liquor store patrons in the single government-run liquor store in the capital city of Whitehorse, Yukon (intervention site), and the two government-run stores in Yellowknife, Northwest Territories (comparison site), over a 6-week period in May and June 2017. The surveys formed part of a larger pre–post quasi-experimental study (see Vallance et al., 2020a, for full study protocol) testing the effectiveness of new enhanced evidence-informed AWLs with a cancer warning, national drinking guidelines, and standard drink information. The study was planned for an 8-month intervention in the one government-operated liquor store in the intervention site while usual labeling practices continued in the two government-operated liquor stores in the comparison site (Figures 2a–c).

Baseline survey participants were systematically recruited by trained research assistants (RAs) as they exited the liquor stores in the intervention and comparison sites, using a standard intercept technique of approaching every patron who passed a designated landmark. Surveys were administered on tablets in English and completed by participants independently without RA assistance. Up to two RAs recruited participants from Monday to Saturday (all stores are closed Sundays) between 10 A.M. and 6 P.M. in the intervention site and from 12 P.M. to 8 P.M. in the comparison site, covering comparable peak hours at both sites. Participants were screened for eligibility and had to be 19 years and older (legal drinking age in the two territories), had consumed alcohol in the previous month, had purchased alcohol at the liquor store the day of the initial recruitment, and did not self-report currently being pregnant or breastfeeding. Participants were offered a gift card in recognition of their time. The survey took an average of 18 minutes to complete, and participants were asked for email contact information to allow for email recruitment in subsequent waves of the study over the following year. Participants were recruited from the primary off-sale liquor stores in each city center in order to capture a broadly representative sample of adults purchasing alcohol in each site.

A total of 836 eligible participants were recruited and surveyed at baseline in the intervention (n = 505) and comparison sites (n = 331), with an overall response rate of 9.7% (American Association for Public Opinion Research, 2011). This response rate is consistent with other studies using a similar intercept technique (Hobin et al., 2017; Schneider, 2013; Wiggers et al., 2018). All recruitment and survey measures were consistent across the two sites. This study received ethics approval from the Research Ethics Board at Public Health Ontario (ID 2017-010.04) and the Human Research Ethics Board at the University of Victoria (Protocol 17-161), as well as the relevant research licenses required in Yukon and Northwest Territories.

Measures

Survey measures were adapted from items used in evaluations of the AWL in the United States, in Canadian nutritional labeling practices, and in studies of tobacco warning labels (Greenfield & Kaskutas, 1998; Greenfield et al, 1999; Hammond, 2011; Hobin et al., 2018; Laughery et al., 1993; Pettigrew et al., 2016; Thomas, 2012).

Knowledge that alcohol can cause cancer

To assess knowledge that alcohol can cause cancer, participants were asked, "Based on what you know or believe, can drinking alcohol cause breast cancer/liver disease/the flu/harm to a fetus? Yes/no/don't know"; only responses to the cancer item are reported here. Responses were dichotomized as 0 = *no/don't know* and 1 = *yes;* 5 (0.6%) participants answered "prefer not to say"/missing and were excluded from this analysis.

Knowledge of standard drinks in preferred beverage type

To assess knowledge of standard drink information, participants were asked to report the number of standard drinks in a container of their preferred beverage type. An image of a container of their preferred drink was shown on-screen, and the container label listed the volume in milliliters and the percentage alcohol by volume. The range of

FIGURE 2. Intervention alcohol warning labels: (a) cancer warning, (b) low-risk drinking guidelines, and (c) standard drink information (5.0 cm × 3.0 cm)

correct responses for the number of standard drinks was between 1.26 and 1.54 for beer, 4 and 6 for wine, 16 and 20 for distilled spirits, and 0.9 and 1.1 for ciders, which is 10% above and below the accurate number of standard drinks for each beverage type. Answers were dichotomized to 0 = *incorrect* and 1 = *correct;* 16 (1.9%) participants responded "prefer not to say"/missing and were excluded from this analysis.

Knowledge of sex-specific daily and weekly low-risk drinking guideline limits

To assess knowledge of sex-specific daily and weekly recommended drink limits in Canada's LRDG, participants were asked, "What is the daily (or weekly) limit of 'standard drinks' recommended for males/females (depending on identified sex) in Canada's Low-Risk Drinking Guidelines?" The number of daily or weekly standard drinks was entered as an open-ended item. The range of correct responses for women was two standard drinks or less (0–2) per day and 10 standard drinks or less (0–10) per week, and for men it was three standard drinks or less (0–3) per day and 15 standard drinks or less (0–15) per week. Responses were dichotomized as 0 = *incorrect* and 1 = *correct;* 10 (1.2%) participants responded "prefer not to say"/missing and were excluded from these analyses.

Support for alcohol warning labels with a health message, standard drink information, and low-risk drinking guideline limits

To assess support for AWLs on alcohol containers, participants were asked the degree to which they agree or disagree with the following: "Cans and bottles of alcoholic beverages should be labeled with warnings describing the link between alcohol and diseases, such as cancer"; "Cans and bottles of alcoholic beverages should be labeled with the number of standard drinks per container"; "Cans and bottles of alcoholic beverages should be labeled with low-risk drinking guidelines." Responses for the three support measures included a 5-point Likert scale, which was dichotomized as 0 = *neutral/disagree/strongly disagree/don't know* and 1 = *agree/strongly agree.* Eight participants (0.9%) for health messages and standard drink information and 10 participants (1.2%) for LRDG responded "prefer not to say"/missing and were excluded from these analyses.

Sociodemographic and alcohol drinking characteristics

Sociodemographic measures included age, sex, ethnicity (White, Aboriginal/other, and unknown), highest level of education attained (completed high school or less, and more than high school, and unknown), and annual household income (<CAD$60,000, ≥CAD$60,000, and unknown). (All amounts are in Canadian dollars.) Health literacy was measured using the Newest Vital Sign assessment tool (≤1–3, 4–6, and unknown); ≤1–3 correct responses represents limited/possibility of limited literacy, and 4–6 correct responses represents adequate literacy (Weiss et al., 2005). Pattern of alcohol consumption was measured using the quantity/frequency method (Heeb & Gmel, 2005). Participants were asked to indicate how often they drank alcoholic beverages in the past 6 months and how many drinks they usually drank per occasion. Responses were combined to provide a mean number of drinks per week and were categorized using Canada's LRDG weekly limits (≤10/15 female/male per week, >10/15 female/male per week, and unknown) (Butt et al., 2011).

Statistical analyses

Chi-square analyses (Cody & Smith, 1997) were conducted to assess differences in sociodemographic characteristics by site. To estimate predictors of knowledge that alcohol

Table 1. Sample characteristics of intervention (Yukon) and comparison (Northwest Territories) sites

	Total (n = 836)		Intervention (n = 505)		Comparison (n = 331)		
Variable	n	%	n	%	n	%	χ^2 (p)
Sex							
Male	436	52.15	255	50.50	181	54.68	1.40
Female	400	47.85	250	49.50	150	45.32	(.2359)
Age, in years							
19–44	376	44.98	192	38.02	184	55.59	24.93
≥45	460	55.02	313	61.98	147	44.41	(**.0001**)
Ethnicity							
Other	216	25.84	109	21.58	107	32.33	15.13
White	548	69.86	368	72.87	216	65.26	(**.0005**)
Unknown	36	4.31	28	5.54	8	2.42	
Education							
Completed high school or less	192	22.97	109	21.58	83	25.08	1.37
Above completed high school	623	74.52	382	75.64	241	72.81	(.4447)
Unknown	21	2.51	14	2.77	7	2.11	
Income[a]							
<$60,000	290	34.69	187	37.03	103	31.12	5.90
≥$60,000	465	55.62	264	52.28	201	60.73	(.0522)
Unknown	27	9.69	54	10.69	27	8.16	
Literacy							
≤3 correct responses	478	57.18	280	55.45	198	59.82	2.45
4–6 correct responses	322	38.52	205	40.59	117	35.35	(.2935)
Unknown	36	4.31	20	3.96	16	4.83	
Alcohol use							
≤10/15 for female/male per week	609	72.85	371	73.47	238	71.90	6.48
>10/15 per week	146	17.46	95	18.81	51	15.41	(**.0391**)
Unknown	81	9.69	39	7.72	42	12.69	
Total	836	100.00	505	100.00	331	100.00	

Notes: **Bold** indicates $p < .05$. [a]In Canadian dollars.

can cause cancer, of the correct number of standard drinks in a container, and of the correct daily/weekly LRDG limits, four separate multivariable logistic regression models were conducted. To estimate support for AWLs with a health message, standard drink information, and LRDG, three separate multivariable logistic regression models were conducted. Site as well as sociodemographic and alcohol drinking characteristics were entered as independent variables in all models. Adjusted odds ratios (AORs) and corresponding 95% confidence intervals (CIs) were estimated to quantify associations. Sociodemographic and alcohol drinking variables with "don't know"/"prefer not to say"/missing responses were treated as a separate "unknown" category in the analyses, and AORs and CIs are not presented for this category. As per agreement with the local territorial government partners, ethnicity is included in the sample description and is controlled for in the analyses but is not reported in the results. All analyses were performed using SAS 9.3 (SAS Institute Inc., 2011).

Results

In total, 836 participants completed the baseline survey, with 505 (60.4%) in the intervention site and 331 (39.6%) in the comparison site (Table 1). A higher proportion of participants 45 years and older were in the intervention site compared with the comparison site (62.0% vs. 44.4%, p = .0001). There was a significant difference in ethnicity, with a higher proportion of participants in the intervention than in the comparison site identifying as White (72.9% vs. 65.3%, p = .0005). A higher proportion of participants in the intervention site compared with the comparison site reported alcohol consumption above the recommended weekly LRDG limits (18.8% vs. 15.4%, p = .0391). There were no other significant differences between the two sites by key sociodemographic characteristics. Overall, 400 (47.9%) participants identified as female, 623 (74.5%) had higher than a high school education, 465 (55.6%) reported an annual household income of $60,000 or greater, and 322 (38.5%) participants had adequate health literacy.

Knowledge that alcohol can cause cancer

Overall, 204 (24.4%) participants knew that drinking alcohol can cause cancer, with no significant differences between intervention and comparison sites (Table 2). Of those that knew alcohol causes cancer, 100 (23.2%) were male and 104 (26.1%) were female; there was no significant difference between men and women for this outcome (AOR = 1.18, 95% CI [0.86, 1.63]). Results of the multivariable logistic regression model indicated no significant differences in cancer knowledge across sociodemographic factors.

Table 2. Baseline estimates of adjusted odds ratio (AOR) and corresponding 95% confidence interval (CI) of key knowledge outcomes

	A Know/believe that alcohol causes breast cancer		B Correctly identify no. of SD per container of preferred drink		C Correctly report daily LRDG limits		D Correctly report weekly LRDG limits	
Variables	*n* (%)	AOR [95% CI][a]	*n* (%)	AOR [95% CI][a]	*n* (%)	AOR [95% CI][a]	*n* (%)	AOR [95% CI][a]
Site								
Intervention	128 (25.50)	1.00	161 (32.46)	1.00	262 (52.51)	1.00	244 (48.61)	1.00
Comparison	76 (22.96)	0.89 [0.63, 1.24]	81 (25.00)	0.81 [0.56, 1.15]	147 (44.95)	0.76 [0.56, 1.04]	154 (47.53)	0.91 [0.68, 1.23]
Sex								
Male	100 (23.15)	1.00	78 (18.31)	1.00	219 (50.93)	1.00	206 (47.91)	1.00
Female	104 (26.07)	1.18 [0.86, 1.63]	164 (41.62)	**3.55 [2.55, 4.99]*****	190 (47.98)	0.87 [0.65, 1.17]	192 (48.48)	1.02 [0.76, 1.35]
Age, in years								
19–44	92 (24.60)	1.00	84 (22.83)	1.00	180 (48.65)	1.00	187 (50.82)	1.00
≥45	112 (24.51)	1.00 [0.71, 1.39]	158 (34.96)	**1.79 [1.26, 2.56]****	229 (50.22)	0.86 [0.63, 1.17]	211 (46.07)	**0.73 [0.54, 0.98]***
Education								
≤Completed high school	41 (21.35)	1.00	39 (20.86)	1.00	54 (29.35)	1.00	63 (34.05)	1.00
>Completed high school	157 (25.20)	1.19 [0.76, 1.81]	201 (32.42)	1.03 [0.66, 1.63]	353 (56.84)	**2.17 [1.48, 3.19]*****	332 (53.46)	**1.78 [1.23, 2.58]****
Unknown	6 (28.57)		2 (15.38)		2 (9.52)		3 (15.00)	
Income[b]								
<$60,000	72 (24.83)	1.00	55 (19.16)	1.00	120 (42.11)	1.00	127 (43.72)	1.00
≥$60,000	116 (24.95)	0.98 [0.68, 1.43]	171 (36.85)	**1.78 [1.19, 2.67]****	266 (57.20)	1.27 [0.90, 1.78]	250 (53.88)	1.16 [0.83, 1.62]
Unknown	16 (19.75)		16 (23.19)		23 (30.26)		21 (26.92)	
Health literacy								
≤3 correct responses	118 (23.18)	1.00	92 (19.62)	1.00	196 (41.61)	1.00	205 (43.62)	1.00
4–6 correct responses	86 (26.71)	1.17 [0.83, 1.68]	140 (43.48)	**2.49 [1.74, 3.57]*****	205 (63.66)	**1.65 [1.20, 2.28]****	182 (56.52)	1.23 [0.90, 1.68]
Unknown	7 (19.44)		10 (34.48)		8 (24.24)		11 (32.35)	
Alcohol use								
≤10/15 female/male/week	148 (24.30)	1.00	203 (33.50)	1.00	335 (55.19)	1.00	321 (52.97)	1.00
>10/15 female/male/week	39 (26.71)	1.18 [0.77, 1.81]	32 (22.22)	0.87 [0.55, 1.40]	61 (42.66)	0.77 [0.51, 1.14]	60 (41.38)	0.71 [0.48, 1.05]
Unknown	17 (20.99)		7 (10.00)		13 (17.11)		17 (22.67)	

Notes: Canada's low-risk drinking guidelines recommend no more than 2 standard drinks (SDs) for women/3 for men (daily) and no more than 10 for women/15 for men (weekly). There were 5 participants in Analysis A, 16 in Analysis B, and 10 in Analyses C and D who answered "prefer not to say" or no response and who were excluded from the analyses. The correct SD category ranges were as follows: 1.26–1.54 standard drinks for beers, 4–6 for wine, 16–20 for distilled spirits, and 0.9–1.1 for ciders. Values 10% above and below the accurate number of SDs for wine were used as the "correct" category. **Bold** indicates statistical significance. [a]Estimates adjusted for one another; [b]in Canadian dollars.
*$p < .05$; **$p < .01$; ***$p < .001$.

Knowledge of standard drinks in preferred beverage type

A total of 242 (28.9%) participants correctly reported the number of standard drinks in a container of their preferred beverage type, with no significant differences between sites (Table 2). Regression results indicate that women (AOR = 3.55, 95% CI [2.55, 4.99]), those 45 years and older (AOR = 1.79, 95% CI [1.26, 2.56]), those with an annual household income of $60,000 or greater (AOR = 1.78, 95% CI [1.19, 2.67]), and those with adequate health literacy (AOR = 2.49, 95% CI [1.74, 3.57]) had greater odds, compared with the referent group, of correctly reporting the number of standard drinks in a container of their preferred beverage type.

Knowledge of sex-specific daily and weekly LRDG limits

Overall, 409 (48.9%) participants were able to correctly report the sex-specific daily LRDG limits, and 398 (47.6%) were able to report the sex-specific weekly LRDG limits (Table 2); there were no significant differences between sites. Regression results indicate that participants who reported having more than a high school education (AOR = 2.17, 95% CI [1.48, 3.19]) and with adequate health literacy (AOR = 1.65, 95% CI [1.20, 2.28]) had greater odds, compared with the referent group, of correctly reporting the daily LRDG limits. Participants 45 years and older (AOR = 0.73, 95% CI [0.54, 0.98]) had lower odds, compared with the referent group, of correctly reporting the weekly LRDG limits, and those with more than a high school education (AOR = 1.78, 95% CI [1.23, 2.58]) had greater odds, compared with the referent group, of correctly reporting the weekly LRDG limits.

Support for alcohol warning labels with health message, standard drink information, and low-risk drinking guideline limits

In total, 463 (55.4%) participants agreed or strongly agreed that alcohol containers should be labeled with AWLs including a health warning, 426 (51.0%) participants agreed or strongly agreed containers should be labeled with standard drink information, and 320 (38.3%) participants agreed or strongly agreed containers should be labeled with LRDG limits; there were no significant differences between intervention and comparison sites. Regression results indicate that participants who identified as female (AOR = 1.45,

Table 3. Baseline estimates of adjusted odds ratio (AOR) and corresponding 95% confidence interval (CI) of key support outcomes

	A Agree/strongly agree alcohol containers should be labeled with health warning		B Agree/strongly agree alcohol containers should be labeled with SD information		C Agree/strongly agree alcohol containers should be labeled with LRDG limits	
Variables	*n* (%)	AOR [95% CI][a]	*n* (%)	AOR [95% CI][a]	*n* (%)	AOR [95% CI][a]
Site						
Intervention	286 (57.43)	1.00	261 (52.30)	1.00	208 (41.77)	1.00
Comparison	177 (53.64)	0.93 [0.69, 1.27]	165 (50.15)	1.01 [0.75, 1.38]	112 (34.15)	0.80 [0.59, 1.09]
Sex						
Male	221 (51.16)	1.00	193 (44.78)	1.00	142 (33.10)	1.00
Female	242 (61.11)	**1.45 [1.09, 1.92]***	233 (58.69)	**1.70 [1.27, 2.27]*****	178 (44.84)	**1.55 [1.15, 2.07]****
Age, in years						
19–44	195 (52.42)	1.00	182 (48.40)	1.00	127 (34.42)	1.00
≥45	268 (58.77)	1.34 [0.99, 1.79]	244 (53.04)	1.21 [0.90, 1.64]	193 (42.23)	**1.49 [1.09, 2.02]***
Education						
Completed high school or less	104 (54.17)	1.00	78 (40.84)	1.00	57 (30.00)	1.00
Above completed high school	356 (57.33)	0.96 [0.67, 1.38]	346 (55.63)	**1.44 [1.00, 2.03]***	260 (41.80)	**1.75 [1.18, 2.58]****
Unknown	3 (20.00)		2 (13.33)		3 (21.43)	
Income[b]						
<$60,000	154 (53.29)	1.00	139 (48.26)	1.00	116 (40.28)	1.00
≥$60,000	270 (58.06)	0.96 [0.69, 1.34]	257 (55.27)	0.89 [0.63, 1.24]	176 (37.93)	**0.64 [0.45, 0.90]***
Unknown	39 (52.70)		30 (40.00)		28 (37.84)	
Health literacy						
≤3 correct responses	240 (50.31)	1.00	205 (42.89)	1.00	164 (34.45)	1.00
4–6 correct responses	208 (64.60)	**1.71 [1.25, 2.36]*****	207 (64.29)	**2.02 [1.47, 2.78]*****	146 (45.34)	**1.55 [1.12, 2.14]****
Unknown	15 (51.72)		14 (50.00)		10 (35.71)	
Alcohol use						
≤10/15 female/male per week	352 (58.09)	1.00	344 (56.77)	1.00	254 (41.91)	1.00
>10/15 per week	77 (52.74)	0.91 [0.62, 1.33]	59 (40.41)	**0.60 [0.40, 0.88]****	43 (29.66)	**0.57 [0.38, 0.87]****
Unknown	34 (44.74)		23 (30.26)		23 (30.67)	

Notes: There were 8 participants in Analysis A, 8 in Analysis B, and 8 in Analysis C who answered "prefer not to say" or no response and who were excluded from the analyses. **Bold** indicates statistical significance. [a]Estimates adjusted for one another; [b]in Canadian dollars.
*$p < .05$; **$p < .01$; ***$p < .001$.

95% CI [1.09, 1.92]) and with adequate health literacy (AOR = 1.71, 95% CI [1.25, 2.36]) had greater odds, compared with the referent group, of supporting labeling containers with a health warning (Table 3). Similarly, participants who identified as female (AOR = 1.70, 95% CI [1.27, 2.27]), those with more than a high school education (AOR = 1.44, 95% CI [1.00, 2.03]), and those with adequate health literacy (AOR = 2.02, 95% CI [1.47, 2.78]) had greater odds, compared with the referent group, of supporting labeling containers with standard drink information. Participants who reported consuming above the weekly LRDG limits (AOR = 0.60, 95% CI [0.40, 0.88]) had lower odds, compared with the referent group, of supporting labeling containers with standard drink information (Table 3). Participants who identified as female (AOR = 1.55, 95% CI [1.15, 2.07]), those 45 years and older (AOR = 1.49, 95% CI [1.09, 2.02]), those with more than a high school education (AOR = 1.75, 95% CI [1.18, 2.58]), and those with adequate health literacy (AOR = 1.55, 95% CI [1.12, 2.14]) had greater odds, compared with the referent group, of supporting labeling containers with LRDG limits. Participants with an annual household income of $60,000 or greater (AOR = 0.64, 95% CI [0.45, 0.90]) and who reported consuming above the weekly LRDG limits (AOR = 0.57, 95% CI [0.38, 0.87]) had lower odds, compared with the referent group, of supporting labeling containers with LRDG limits (Table 3).

Discussion

This study assessed baseline knowledge of alcohol-related health information and support for AWLs as well as the associations between these outcomes and key sociodemographic characteristics among liquor store patrons in two northern Canadian territories. Overall, there were no significant differences in the main outcomes between participants in Whitehorse and Yellowknife at baseline, indicating that the cities were suitably matched as intervention and comparison sites. Further, this population had relatively low levels of alcohol-related knowledge, which provides justification for the broader study testing the impact of labels with messages related to alcohol and cancer risk, national drinking guidelines, and standard drink information across jurisdictions.

Roughly a quarter of the sample knew that alcohol can cause cancer, which is comparable to the relatively low awareness levels found in previous national and international studies (Buykx et al., 2016; Canadian Cancer Society, 2015; Rundle-Thiele et al., 2013; Scheideler & Klein, 2018; Wiseman & Klein, 2019) and which is anticipated given

ongoing alcohol industry efforts to keep this information from the public (Petticrew et al., 2018a, 2018b; Vallance et al., 2020b). There were no sociodemographic factors associated with knowing that alcohol is a carcinogen, suggesting that, regardless of age, sex, socioeconomic status, or pattern of alcohol consumption, awareness of this serious alcohol-related health risk remains consistently unknown. Considering the large proportion of Canadians who have indicated that knowledge of alcohol-cancer risk would decrease their consumption (Canadian Cancer Society, 2015), this information is important for consumers to make more informed choices and could potentially contribute to a shift in drinking patterns.

Similar to the findings of previous Canadian studies (McNally et al., 2019; Osiowy et al., 2015; Hobin et al., 2018), less than a third of the overall sample was able to correctly estimate the number of standard drinks in a container of their preferred alcoholic beverage when only volume and percentage alcohol-by-volume information were presented on the label. Women and older participants, as well as those with higher income and health literacy levels, were better able to calculate standard drinks using this limited label information. This outcome further highlights that presenting only percentage alcohol-by-volume information on alcohol labels may unduly disempower more vulnerable and higher consuming groups from accurately tracking their consumption and preventing or reducing harms.

Also consistent with previous research (McNally et al., 2019; Osiowy et al., 2015; Hobin et al., 2018), a comparably low proportion of participants—less than half overall—accurately reported the sex-specific daily and weekly limits recommended in Canada's LRDG. Knowledge of both sets of drink limits was greater among those with higher education levels, and for the daily limits it was greater among those also with higher health literacy—again suggesting that there is a need for more consistent and accessible exposure to national guidelines. Taken together, these results support previous recommendations (Osiowy et al., 2015; Hobin et al., 2018; Wettlaufer, 2018) to provide both standard drink and sex-specific drink limit information on alcohol container labels to improve all consumers' ability to estimate not only their total consumption but also their consumption in relation to national drinking guidelines. Providing this combination in an accessible format on alcohol containers would expose a broader range of alcohol consumers—including high-volume drinkers (Greenfield, 1997)—to this information.

Broad support for labeling alcohol containers with a health warning such as cancer risk and standard drink and LRDG information was moderate among this population, with more than half of drinkers supporting labels with a health warning and standard drink information. These findings are in line with Canadian and international research showing that the public supports providing this type of label information—and especially cancer warnings—on alcohol containers (Bates et al., 2018; Buykx et al., 2015; Hobin et al., 2018; Miller et al., 2016; Osiowy et al., 2015; Pettigrew et al., 2014; Thomson et al., 2012; Vallance et al., 2018). Overall support for labeling alcohol containers with the three different types of messages was highest among women and those with higher health literacy levels, which are similar characteristics noted in support for most alcohol policies (Bates et al., 2018; Buykx et al., 2016; Li et al., 2017; Moskalewicz et al., 2013; Pechey et al., 2014; Rundle-Thiele, 2013). Despite the consistent acceptability of labels among this sample and across different jurisdictions and population groups, implementation of evidence-informed labels remains low internationally. This discrepancy points to other barriers to their introduction—including commercial vested interests of keeping consumers in the dark about alcohol-related harms such as cancer risk and lobbying by powerful alcohol industry groups—rather than a lack of public support (Casswell et al., 2016; Connor, 2017; Bhattacharya et al., 2018; Vallance et al., 2020b).

Reporting alcohol consumption levels above the recommended weekly LRDG limits was associated with lower levels of support for both standard drink and LRDG labels, which is consistent with previous research finding that those with higher consumption levels are less supportive of alcohol policies (Bates et al., 2018; Li et al., 2017; Macdonald et al., 2011; Moskalewicz et al., 2013; Pechey et al., 2014; Wilkinson et al., 2009). Interestingly, higher alcohol consumption was not associated with a lower likelihood of supporting labels with a health warning such as cancer risk—which may suggest that consumers would not object to these types of labels regardless of their alcohol consumption patterns. Although displaying LRDG information on labels received less support in this sample and elsewhere (Li et al., 2017), the potentially synergistic effect on consumers' ability to more accurately monitor their consumption when combined with standard drink measurements warrants their inclusion (Bates et al., 2018).

Limitations

Study limitations include a low response rate common to this type of intercept recruitment technique (Hobin et al., 2017; Schneider, 2013; Wiggers et al., 2018) and participant recruitment from liquor stores in the city centers using nonprobability methods. The sample was therefore not representative of site populations, which limits generalizability. However, the distributions of age, sex, and ethnicity of the sample are similar to those in the sample of drinkers in the 2014 Canadian Community Health Survey (Statistics Canada, 2014). Therefore, the sample can be considered a representative sample of people who drink alcohols in Yukon and Northwest Territories. The use of self-report surveys may also be subject to response bias. In addition, only one prompted measure specific to breast cancer was used to test

knowledge of alcohol's carcinogenicity. Future research could include both prompted and unprompted measures assessing knowledge of risk for multiple cancer types.

Conclusion

This study identified low baseline levels of knowledge of alcohol-related harm, such as cancer risk, limited ability to calculate number of standard drinks in containers using currently mandated labeling information, and low knowledge of Canada's LRDG limits. There was support for AWLs that included a health message such as cancer risk, standard drink information, and national low-risk drinking guidelines. Implementation of evidence-based AWLs is warranted and is likely to receive public support as a tool to increase awareness of alcohol related-risks and to support Canadian consumers in the North and elsewhere to make more informed and safer alcohol choices.

Acknowledgments

The authors acknowledge all of our RAs who helped with data collections, as well as the liquor control boards, health and social services, and especially the community partners in Yukon and Northwest Territories for their commitment and support in developing and executing this research. Special thanks also go to Mark Petticrew and Melanie Wakefield.

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The Effects of Alcohol Warning Labels on Population Alcohol Consumption: An Interrupted Time Series Analysis of Alcohol Sales in Yukon, Canada

JINHUI ZHAO, PH.D.,[a,*,†] TIM STOCKWELL, PH.D.,[a,†] KATE VALLANCE, M.A.,[a] & ERIN HOBIN, PH.D.[b,c]

[a]*Canadian Institute for Substance Use Research, University of Victoria, Victoria, British Columbia, Canada*
[b]*Public Health Ontario, Toronto, Ontario, Canada*
[c]*Dalla Lana School of Public Health, University of Toronto, Toronto, Ontario, Canada*

ABSTRACT. Objective: There is limited evidence that alcohol warning labels (AWLs) affect population alcohol consumption. New evidence-informed AWLs were introduced in the sole government-run liquor store in Whitehorse, Yukon, that included a cancer warning (Ca), low-risk drinking guidelines (LRDGs) and standard drink (SD) messages. These temporarily replaced previous pregnancy warning labels. We test if the intervention was associated with reduced alcohol consumption. **Method:** An interrupted time series study was designed to evaluate the effects of the AWLs on consumption for 28 months before and 14 months after starting the intervention. Neighboring regions of Yukon and Northwest Territories served as control sites. About 300,000 labels were applied to 98% of alcohol containers sold in Whitehorse during the intervention. Multilevel regression analyses of per capita alcohol sales data for people age 15 years and older were performed to examine consumption levels in the intervention and control sites before, during, and after the AWLs were introduced. Models were adjusted for demographic and economic characteristics over time and region. **Results:** Total per capita retail alcohol sales in Whitehorse decreased by 6.31% (t test $p < .001$) during the intervention. Per capita sales of labeled products decreased by 6.59% (t test $p < .001$), whereas sales of unlabeled products increased by 6.91% (t test $p < .05$). There was a still larger reduction occurring after the intervention when pregnancy warning labels were reintroduced (-9.97% and 10.29%, t test $p < .001$). **Conclusions:** Applying new AWLs was associated with reduced population alcohol consumption. The results are consistent with an accumulating impact of the addition of varying and highly visible labels with impactful messages. (*J. Stud. Alcohol Drugs, 81,* 000–000, 2020)

VARIOUS ALCOHOL POLICIES have been developed in jurisdictions worldwide with the aim of reducing the harmful use of alcohol, alcohol attributable diseases and associated social burdens (Babor et al., 2010; World Health Organization, 2018). One such measure is the application of alcohol warning labels (AWLs) on containers of alcoholic beverages (World Health Organization, 2014, 2018) to provide consumers with information about harms related to alcohol use (e.g., birth defects when pregnant women drink, impaired driving, and general health risks).

Earlier reviews concluded there is only weak evidence that AWLs can affect population drinking behavior (Babor et al., 2010; Stockwell, 2006). Other analyses emphasize the consumer's "right to know" potential risks of such a commonly consumed product as alcohol (e.g., cancer) and the need to provide advice on reducing these risks via low-risk drinking guidelines (LRDGs; Hobin et al., 2018; Vallance et al., 2018). There is a growing literature on the characteristics of effective warning labels (Blackwell et al., 2018; Martin-Moreno et al., 2013) stressing the importance of message clarity, salience, and variation as well as appropriate use of size, color, placement, and graphic design of the labels. The present study seeks to examine whether the experimental introduction of labels designed to meet these exacting criteria would have a measurable impact on population-level alcohol consumption. The remote area of Whitehorse—the capital and main population center in Yukon, a northern Canadian territory—was selected as the intervention site where alcohol for off-premise consumption is sold almost exclusively in a single government-run liquor store. This analysis is one part of a larger project evaluating this intervention that also incorporated three waves of surveys of liquor store customers in Whitehorse and also Yellowknife, the capital and main population center in neighboring Northwest Territories (NWT; Hobin et al., 2020; Vallance et al., 2020a).

Based on a randomized controlled trial and focus group study, the present research team developed a series of AWL messages designed to be rotated for an accumulating effect (Hobin et al., 2018; Vallance et al., 2018). First, a cancer warning message was developed based on evidence that Canadians generally have very low awareness of the potential risks of different cancers from consuming alcohol (Miller et al., 2016). The warning message specifically mentioned two of the most common cancers in Canada, including Yukon,

Received: September 4, 2019. Revision: March 6, 2020.

The study was funded by Health Canada–Substance Use and Addictions Program #1718-HQ-000003. The views expressed herein do not necessarily represent the views of Health Canada. The Project Protocol has an International Registered Report Identifier (IRRID): RR2-10.2196/16320.

*Correspondence may be sent to Jinhui Zhao at the Canadian Institute for Substance Use Research, University Victoria, P.O. Box 1700 STN CSC, Victoria, BC V8Y 2E4, Canada, or via email at: zhaoj@uvic.ca. †Joint first authors. All authors made contributions to the conception and design of the study as well as data collections and requests. Jinhui Zhao and Tim Stockwell analyzed the data and drafted the manuscript. All authors reviewed the manuscript critically for intellectual content and gave final approval of the version to be submitted.

namely cancers of the breast and colon. The second message was designed to support consumers wishing to reduce their risk of serious diseases by providing information about Canada's LRDGs (Stockwell et al., 2012). The third label message provided information about how the number of standard drinks (SDs) in regular size alcohol containers varied with different alcohol strengths.

Drinking guidelines provide recommended upper limits on the number of SDs individuals drink per day or per week in order to minimize their risk of related harms; however, many individuals have trouble determining how many SDs they are consuming, making it difficult to follow the guidelines (Kerr & Stockwell, 2012). An SD is a fixed quantity or unit of alcohol, which in Canada is defined as 17.05 ml or 13.45 g of pure alcohol (Butt et al., 2011). A Canadian study conducted among liquor store customers found that less than a third had heard of Canada's LRDGs or could define an SD of their preferred beverage type (Osiowy et al., 2015). This study also showed that consumers still have less ability to identify the number of SDs in alcohol beverage containers of either unusually high or low percent alcohol content by volume. Some have suggested that LRDG and SD labels might encourage certain drinkers to increase their consumption (Jones & Gregory, 2009). Alcohol health warnings are mandated in a number of countries (International Alliance for Responsible Drinking, 2019), but there remains limited research that has specifically investigated their effectiveness.

There is no federal requirement for alcohol warning labels in Canada, but, since 1991, both Yukon and NWT have required post-manufacture labels ("Drinking alcohol during pregnancy can cause birth effects" in Yukon, plus impaired driving and general health warnings [ID] in NWT) (Stockwell et al., 2019). Two recent national studies have confirmed that the economic costs and health harms from alcohol are substantially higher in both Yukon and NWT than in the rest of the Canada (Canadian Institute for Health Information, 2019; Canadian Substance Use Costs and Harms Scientific Working Group, 2018). In November 2011, the federal, provincial, and territorial health ministers received Canada's LRDGs (Canadian Centre on Substance Abuse, 2018). These recommend that women do not exceed 10 SDs per week or 2 per day on average and that men should have no more than 15 per week or 3 per day on average (Butt et al., 2011; Stockwell et al., 2012). Studies based on national surveys conducted in 2008–2010 found substantial noncompliance with daily and weekly LRDG limits after adjustment for underreporting (Zhao et al., 2015).

The present study was designed to test the hypothesis that the introduction of the new evidence-informed AWLs would be associated with a reduction in population-level alcohol consumption in the intervention site compared with preintervention and also with two separate neighboring region control sites that retained long-standing health warnings about pregnancy and/or impaired driving.

Method

Alcohol warning labels in Yukon

Since 1991, point-of-sale AWLs with "Warning: drinking alcohol during pregnancy can cause birth defects" in English and French (Canada's two official languages) have been put on alcohol containers in Yukon (actual size: 3.0 cm × 2.0 cm) and AWLs with "Warning: 1. Women should not drink alcoholic beverages during pregnancy because of the risk of birth defects (BD) and 2. Consumption of alcoholic beverages impairs your ability to drive a car or operate machinery, and may cause health problems" in NWT (actual size: 3.0 cm × 5.0 cm). The Yukon BD label was replaced by the newly designed AWLs in the Whitehorse liquor store from November 20, 2017, to July 31, 2018. The AWLs affixed on alcohol containers were large (actual size: 5.0 cm × 3.2 cm), were full color (as shown in Chart 1), and displayed (a) a health message linking alcohol and cancer (Ca), (b) Canada's LRDGs, and (c) SD information. Either the Ca warning "Alcohol can cause cancer including breast and colon cancers" or the LRDG messages were put on all containers from November 20 to December 19, 2017. The labeling of these messages ceased thereafter as a result of complaints made by Canadian alcohol industry bodies that the labels were "defaming" their products. The Ca label was never reintroduced, but from April 11 until July 31, 2018, the LRDG labels were reintroduced as well as the SD labels from May 28 until July 31, 2018.The types of products to which labels were applied and the timing of their application is summarized in Box 1. The BD labels were applied consistently in both the other areas of Yukon and in NWT (along with an ID message and general health concerns message) during the entire period. The BD labels were also reintroduced in Whitehorse starting in August 2018.

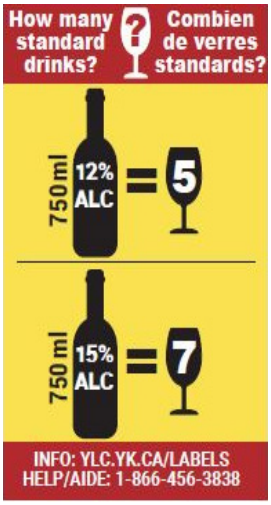
Design

An interrupted time series study (McDowall et al., 1976) was designed to investigate whether the various AWLs were associated with reduced per capita alcohol consumption during the study period. Consumption during the AWL period was compared with consumption during the period without the intervention labels and when only the BD/ID labels were put on product containers.

Data sources

We were provided with monthly retail alcohol sales data for the whole of Yukon to calculate monthly per capita al-

CHART 1. Point-of-sale warning labels placed on alcohol containers in different alcohol monopoly liquor stores in Yukon and Northwest Territories (NWT) at different times between January 2015 and July 2018

Label content				
Whitehorse City in Yukon (n = 1)	• Jul. 2015–Nov. 19, 2017 • Aug.–Dec. 2018	• Nov. 20–Dec 19, 2017	• Nov. 20–Dec. 19, 2017 • Apr. 11–Jul. 31, 2018	• May 28–Jul. 31, 2018
Rural areas in Yukon (n = 5)	• Jul. 2015–Dec. 2018	None	None	None
NWT (n = 1)	• Jul. 2015–Dec. 2018	None	None	None

cohol consumption for people age 15 and older (estimated as monthly SDs per adults age ≥ 15 years) with Whitehorse and the additional five surrounding areas each acting as comparison areas. Socioeconomic and demographic data by areas and times in Yukon were obtained to produce per capita alcohol consumption estimates and socioeconomic variables in order to examine and control for their potential confounding effects (Gruenewald & Ponicki, 1995; Gruenewald et al., 1995; Holder & Parker, 1992; Sloan et al., 1994; Stockwell et al., 2011). The analysis included the estimated retail alcohol sales in NWT as an additional control.

Alcohol sales data

Monthly alcohol sales data for each liquor store were obtained from the Yukon Liquor Corporation, which regulates the distribution, purchase, and sale of alcoholic beverages in Yukon. The data were structured by products, container sizes, and alcohol strengths in each area from July 2015 to December 2018. Total monthly alcohol sales data in NWT were obtained from a public website (NWT Bureau of Statistics, 2019). Mean SDs per people age 15 years and older were calculated and estimated using the monthly sales of alcohol converted to pure alcohol in SDs (sold volumes × alcohol strength × 1,000 / 17.05; one SD = 17.05 ml) for different categories of labeled and unlabeled products (Box 1). Monthly per capita SDs of total retail sales in NWT from 2015 to 2018 were estimated based on the total monthly sales in NWT and the monthly retail sales in Yukon.

Population data

We obtained population estimates for June 30 of each year from 2014 to 2018 by age groups in areas in Yukon (www.sewp.gov.yk.ca/home) and for the Indigenous population by area (www.eco.gov.yk.ca/stats/archives.html#social). Population data in NWT were obtained from Statistics Canada and used to estimate per capita alcohol consumption (Statistics Canada, 2019a). We used the spline method (DeBoor, 1981; McNeil et al., 1977) to estimate monthly total population, population age 15 and older, and the Indigenous populations for the study period. The data were used to calculate monthly per capita alcohol consumption as the main outcome variable. Percentages of the population ages 20–29, male, and Indigenous population were considered as covariates included in the analysis.

Income and customer price index data

We obtained annual personal income tax data from the Canada Revenue Agency for each of the six areas in Yukon and NWT (Canada Revenue Agency, 2012, 2013, 2014, 2015, 2016, 2017; Yukon Bureau of Statistics, 2013). Monthly customer price index (CPI) data for Yukon and NWT were

Box 1. Timeline for placement of different alcohol warning labels across six government monopoly liquor stores in Yukon serving six separate areas

Area	Year	Months	Labels placed by product category:[a]			Unlabeled products: <200 ml, single beers[b] (D)
			Wine 750 ml, spirit 750 ml, beer 355 ml, cooler 2 L (A)	Spirit>750 ml, fortified wine, liqueurs, others (B)	Local products (excl. beer 650 ml) (C)	
NWT	2015–2018	1–12	BD/ID	BD/ID	BD/ID	
Dawson City	2015–2018	1–12	BD	BD	BD	
Faro	2015–2018	1–12	BD	BD	BD	
Haines Junction	2015–2018	1–12	BD	BD	BD	
Mayo	2015–2018	1–12	BD	BD	BD	
Watson Lake	2015–2018	1–12	BD	BD	BD	
Whitehorse	2015–2016	1–12	BD	BD	BD	
Whitehorse	2017	1–10	BD	BD	BD	
Whitehorse	2017	11	Ca/LRDG	Ca/LRDG	Ca/LRDG	
Whitehorse	2017	12	Ca/LRDG	Ca/LRDG	Ca/LRDG	
Whitehorse	2018	1	*Ca/LRDG*[c]	*Ca/LRDG*[c]	*Ca/LRDG*[c]	
Whitehorse	2018	2	*Ca/LRDG*[c]	*Ca/LRDG*[c]	*Ca/LRDG*[c]	
Whitehorse	2018	3	*LRDG*[c]	*LRDG*[c]	*LRDG*[c]	
Whitehorse	2018	4	LRDG	LRDG	*LRDG*[c]	
Whitehorse	2018	5	SD	LRDG	*LRDG*[c]	
Whitehorse	2018	6	SD	LRDG	*LRDG*[c]	
Whitehorse	2018	7	SD	LRDG	*LRDG*[c]	
Whitehorse	2018	8	BD+*SD*[c]	BD+*LRDG*[c]	BD+*LRDG*[c]	
Whitehorse	2018	9	BD+*SD*[c]	BD+*LRDG*[c]	BD+*LRDG*[c]	
Whitehorse	2018	10	BD+*SD*[c]	BD+*LRDG*[c]	BD+*LRDG*[c]	
Whitehorse	2018	11	BD+*SD*[c]	BD+*LRDG*[c]	BD+*LRDG*[c]	

[a]Labels types: BD = birth defect; BD/ID = birth defect (BD) and impaired driving and general health concern message labels (ID) used in Northwest Territories July 2015–December 2018; Ca = cancer; LRDG = low-risk drinking guidelines; SD = standard drink. [b]Unlabeled alcohol products included 650 ml or larger beer bottles made by local producers, alcohol containers smaller than 200 ml and single beers. [c]Italics added for periods in which no labels were added to new products but they would have remained on products labeled earlier but not sold.

obtained from Statistics Canada (Statistics Canada, 2019b). Average income in Canadian dollars was estimated by total tax income of all tax returns divided by the number of tax returns in each year for each area in Yukon and for NWT with adjustment for monthly CPI.

Land data

We obtained land data at 2016 census subdivisions in Yukon and NWT from Statistics Canada (Statistics Canada, 2017) to estimate population density in each of the six areas in Yukon and in NWT. The monthly population density was estimated by monthly total population in each area in Yukon and in NWT divided by land area in square kilometers.

Statistical analysis

The monthly number of SDs per adult were calculated and analyzed using the monthly retail sales of alcohol beverages converted to pure alcohol in SDs (sold volumes × alcohol strength × 1000 / 17.05, one SD = 17.05 ml or 13.45 g in Canada) divided by monthly population age 15 years and older. The per capita SDs were calculated and analyzed by total product sales (A, B, C, and D in Box 1), total labeled alcohol sales in government liquor stores (A, B, and C), the sales of products (A) with Ca/LRDG/LRDG/SD labels, the sales of products (B) with Ca/LRDG/LRDG labels, local products (C) with Ca/LRDG labels, and unlabeled products (D). Bivariate analysis was performed to examine potential confounding effects of covariates and thus should be included in multivariate regression analyses for control. Bivariate linear regression analysis was used to examine the area, year, and seasonal differences in the consumption, and F test was used to test a significant relationship. Bivariate linear regression was performed to examine the relationships between per capita SDs and population density, average income, and percentages of the population age 15 and older who were Indigenous, ages 20–29 years, and male.

The potential confounding effects were thus identified and included in multivariate regression analyses to control for the effects. We considered covariates with a bivariate relationship to alcohol sales with a p less than .20 as candidates for inclusion in the multivariate regression analyses of the consumption (Hosmer & Lemeshow, 2000). We also considered the change-in-estimate, that is, whether crude and adjusted estimates differed by 10% (Maldonado & Greenland, 1993). We detected the effects and multicollinearity by exploring the correlation matrix and using the Variance Inflation Factor (VIF) and Tolerance (Allison, 2012; Schreiber-Gregory, 2017). The potential effect of collinearity of a covariate was considered when the covariate had a high correlation (coefficient of .8 or higher) with any other covariates and/or the Tolerance value fell below .1 and the VIF value was greater than 10 (Allison, 2012; Schreiber-Gregory, 2017).

The VIF value of the average income variable is greater than 10 (17), but we still included this covariate in the models because inclusion/exclusion of the income variable did not change the effect estimates of the labeling intervention (Allison, 2012; Schreiber-Gregory, 2017). Durbin–Watson (DW) statistics were calculated for testing autocorrelation average effect (Durbin & Watson, 1951), and "sandwich estimation" was used to test and correct for heteroskedasticity (White, 1980). We also examined modified effects of region and time by using interaction terms of area-label and time-label in the models and did not identify significant effects of area or time (t test $p > .9000$); thus, no modified effects were hypothesized or presented in the study.

We then used mixed or multilevel models (Laird & Ware, 1982; Littell et al., 2006; Raffalovich & Chung, 2014), which provide straightforward but flexible methods for assessing regional and temporal dynamics of longitudinal panels of data to model the pooled monthly alcohol consumption. The multilevel model estimated the percentage immediate change (×100%) of per capita drinks for the same month when the AWLs were put on the containers of alcohol beverage products after controlling for potential confounding effects of covariates and the data themselves, including temporal and regional autoregressive effects and time trend and seasonality.

Mixed models permit tests of fixed effects through either maximum likelihood or restricted maximum likelihood estimation. These methods are superior to traditional repeated-measures analysis of variance because they allow simultaneous inference about regional and temporal factors using fixed and random effects and also apply to a variety of covariance (correlation) structures. Thus, more appropriate covariance data structures can be analyzed. We initially included area- and time-specific variables as random effect variables to examine and control for heterogeneity effect if there was an area- or time-specific heterogeneity. We included the area-specific variable as a random effect to control for the area autoregressive effect in multilevel regression models because the time-specific effect was not significant (Ayyangar, 2007; Raffalovich & Chung, 2014). We also produced effect estimates using minimum variance quadratic unbiased estimation (MIVQUE) of covariance parameters to test heterogeneous quadratic trend effects (Littell et al., 2006). While the tests found no differences in the effect estimates using the REML and MIVQUE methods, the study presented the effect estimates using the REML method. We included regional and temporal autocorrelation effects in all models. Log transformations were applied when necessary to correct for significantly skewed distributions and to make the variance stationary for dependent variables. The seasonal index method was used to de-seasonalize monthly per capita alcohol consumption to remove the effect of seasonality of alcohol consumption (Anderson et al., 1996). Adjustments for temporal autocorrelation were made if it was detected by the DW statistic (Durbin & Watson, 1951). A covariate was created to differentiate between Yukon areas (rural area and Whitehorse) and NWT so as to control for regional effects.

We conducted all statistical analyses using SAS Version 9.3 (SAS Institute Inc., Cary, NC), and the SAS PROC MIXED procedure was used to model the data and produce the effect estimates (Kleinschmidt et al., 2001; Littell et al., 2006). Further details of the equation of multilevel models and SAS codes can be found in Appendix I. (The supplemental appendix appears as an online-only addendum to this article on the journal's website.)

Results

Patterns and predictors of Yukon alcohol sales

Liquor store total sales accounted for 65.2% of all recorded sales, and liquor store retail sales accounted for 90% of liquor store total sales in Yukon and NWT during the study period, of which 98% received some kind of new intervention label during the study period. Table 1 presents estimates of the mean number of SDs of alcoholic beverages sold per person age 15 and older per month in each of the six area liquor stores in Yukon (one each in Whitehorse and five outlying areas) and the whole territory of NWT during the study period (i.e., between 2015 and 2018). There were significant differences in the estimates of total sales, sales of labeled and unlabeled products, and subtypes of sales across these areas (all F test ps $< .0001$). There was a significantly increased trend in the unlabeled sales over time during the study period (t test $p < .01$). The intervention site had the lowest per capita consumption for age 15 and older of 33.08 SDs per month relative to the other five areas in Yukon but close to that in NWT.

There were significant differences in each category of sales by season (F test ps $< .001$), with more estimated consumption in all product categories during the spring and summer months. Figure 1 shows the trends and seasonal

changes in these categories of monthly sales data. DW tests revealed significant first-order temporal autocorrelation for mean monthly total sales, labeled sales, and unlabeled sales (all *p*s of DW test < .0001).

Bivariate linear regression was used to examine the relationship between estimated mean monthly per capita consumption in people age 15 and older, income, and various sociodemographic variables (Table A1 in Appendix II). The level of alcohol consumption for labeled products was higher where there were more males (*t* test $p = .0001$), more young adults ages 20–29 (*t* test $p = .1849$), more Indigenous residents (*t* test $p = .0022$), greater population density (*t* test $p = .0001$), and lower average income (*t* test $p = .0001$). The multicollinearity analyses showed that there was no threat of multicollinearity (no coefficients of .8 or higher in the correlation matrix, a VIF less than 10, or a Tolerance value of .1) (Schreiber-Gregory, 2017). The VIF value of the income variable was 17, but inclusion/exclusion of this covariate in the models did not substantially change the effect estimates of the labeling intervention; thus, the income variable was still included in multivariate regression analyses (Allison, 2012). As a consequence, these variables were treated as potential confounders in the following multivariate mixed models.

Changes in alcohol consumption before, during, and after the labeling intervention

Table 2 presents estimated percentage changes in mean monthly per capita SDs sold during the planned intervention (i.e., from November 2017 until July 2018) compared with periods and control sites where only the BD labels (or BD and ID labels) were applied, while adjusting for temporal, regional, and demographic variations. In the model for total alcohol sales, there was an estimated reduction in per capita alcohol sales of 6.31% (*t* test $p < .0001$) during the newly designed AWL period in Whitehorse. During the post-intervention months (August through December 2018), a still larger reduction of 9.97% (*t* test $p = .0001$) was estimated. An exactly parallel trend was observed for the model used only for labeled products while controlling for sales of unlabeled products, although with a slightly higher effect size (-6.59%, *t* test $p < .0001$) during the intervention period and a larger effect size afterward (-10.29%, *t* test $p < .0001$). The third model applied only to unlabeled products found significant (6.91%, *t* test $p < .05$) and marked increases (9.16%, *t* test $p = .0946$) in consumption during the intervention and post-intervention periods.

Table 3 presents models similar to those presented in Table 2 but with the intervention period broken into three phases: (i) 2 months during which the initial combination of approximately 96,000 Ca and LRDG labels were applied to most alcoholic products in the Whitehorse liquor store for 30 days, (ii) the period after the intervention was halted as a result of industry interference and when no new labels were added (3 months), and (iii) a 4-month period during which most alcohol containers sold in Whitehorse were labeled with either an SD or LRDG label (approximately 200,000 containers). Gradually increasing reductions in total and labeled alcohol sales were observed over time, with the smallest during the initial 1-month period (i) (-2.28% for total retail sales, *t* test $p < .0001$) and the largest during the LRDG/SD labeling and post-intervention periods (iii). Marked and significant increases were observed in per capita sales of unlabeled products since the initial labeling intervention took effect in November 2017.

Table A2 (Appendix II) presents three more models equivalent to those in Table 3 but with subsets of alcohol sales data containing either products that received the LRDG labels or the SD labels between April and July 2018. The table also presents the sale of local products excluding beers (D in Box 1). Very similar patterns of reduced alcohol sales were observed.

Figure 2 presents the adjusted estimates of monthly SDs of total sales in Whitehorse and Yukon rural areas combined and in NWT from 2015 to 2018. The alcohol sales showed a decreased trend in Whitehorse after the newly designed AWLs were introduced in November 2017, whereas alcohol sales tended to increase slightly in Yukon rural areas and no changes in NWT.

We performed sensitivity tests to examine the robustness of the observed changes under different assumptions and degrees of control for alcohol sales in control regions without the new labeling intervention (Table 4). The first model (Model 1) compares per capita alcohol sales in Whitehorse during the intervention period with the baseline Whitehorse sales during which only the BD label was applied. The second model uses all monthly sales for both the five area liquor stores in Yukon outside of Whitehorse and the Whitehorse liquor store when only the BD label was applied as a comparison. The third model repeats the second one but includes monthly alcohol sales in NWT as a further control. As can be seen, very similar effect sizes are observed in each model with reductions of approximately 6% during the intervention period and between 9% and 10% after intervention. Model 4 presents the effect estimates for Yukon rural area alcohol sales during the Whitehorse labeling (November 2017–July 2018) and post-labeling periods (August–December 2018) versus before (July 2015–October 2017). The analysis included NWT data for adjustment. There were no significant increases (2.81% and 1.37%, respectively) in the alcohol sales in rural areas during the Whitehorse labeling intervention and post-intervention periods compared with that before the labeling intervention period. Model 5 presents the effect estimates for both Yukon rural area and NWT alcohol sales during the Whitehorse labeling (November 2017–July 2018) and post-intervention periods (August–December 2018) versus before (July 2015–October 2017) in Yukon rural areas

TABLE 1. Mean monthly per capita consumption in standard drinks by labeled[a] and unlabeled[b] alcohol products (total retail sales sold) in Whitehorse, rural areas of Yukon, and Northwest Territories for 2015–2018

	Labeled products		Unlabeled products		Total retail sales	
Variable	*M*	(*SD*)	*M*	(*SD*)	*M*	(*SD*)
Community						
NWT	34.55	(4.22)	0.86	(0.16)	35.41	(4.33)
Dawson City	61.53	(25.88)	1.80	(0.94)	63.33	(26.74)
Faro	50.66	(7.53)	0.67	(0.25)	51.33	(7.64)
Haines Junction	40.52	(7.67)	0.85	(0.28)	41.37	(7.84)
Mayo	56.90	(10.79)	0.72	(0.42)	57.62	(11.10)
Watson Lake	68.68	(16.09)	0.77	(0.22)	69.45	(16.20)
Whitehorse	32.21	(6.33)	0.86	(0.17)	33.08	(6.46)
F test *p*	.0001		.0001		.0001	
Year						
2015	52.57	(18.20)	0.75	(0.40)	53.32	(18.39)
2016	48.39	(17.63)	0.90	(0.44)	49.29	(17.88)
2017	49.01	(19.05)	0.95	(0.58)	49.96	(19.37)
2018	48.86	(18.73)	1.04	(0.68)	49.90	(19.15)
F test *p*	.6567		.0394		.7023	
t test *p* for trend	.4685		.0047		.5291	
Season						
Jan.–Mar.	37.28	(9.71)	0.67	(0.27)	37.96	(9.69)
Apr.–Jun.	53.84	(20.69)	1.15	(0.71)	54.99	(21.07)
Jul.–Sep.	57.85	(20.83)	1.12	(0.68)	58.97	(21.26)
Oct.–Dec.	46.34	(12.75)	0.78	(0.25)	47.12	(12.72)
F test *p*	.0001		.0001		.0001	

Notes: NWT = Northwest Territories. [a]Labeled products included those with cancer/low-risk drinking guidelines, standard drinks only, low-risk drinking guidelines only (Box 1). [b]Unlabeled products included 650 ml beer bottles by local producers, alcohol container < 200 ml, and single beers without any labels including birth defects.

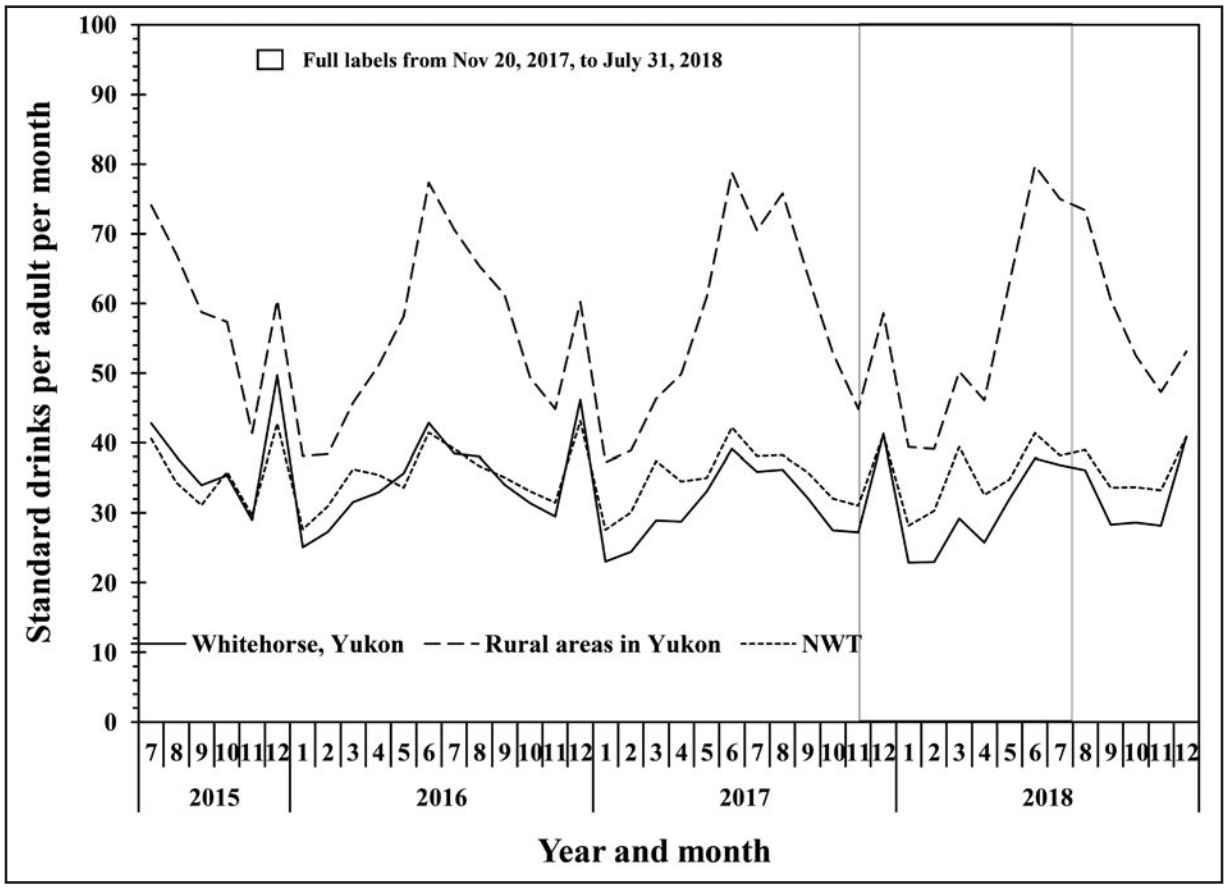


FIGURE 1. Mean number of standard drinks consumed per person age 15 years and older per month from liquor store sales in Whitehorse, rural areas of Yukon, and in Northwest Territories (NWT) during the study period

TABLE 2. Estimated percentage changes in mean number of standard drinks consumed per adult per month for total, labeled, and unlabeled liquor store alcohol sales in Whitehorse during the full labeling period and after the labeling intervention period compared with baseline

Labels[a]	Time period[b]	Drinks/month/adult[d]			
		% change[c]	*M*	[95% CI]	*t* test *p*
Model 1: Total alcohol sales					
Baseline (all areas) (BD/ID)	Jul. 2015–Oct. 2017	0.00	45.35	[44.47, 46.24]	ref.
Intervention (Ca/LRDG/SD)	Nov. 2017–Jul. 2018	**-6.31**	**42.48**	**[41.37, 43.62]**	**.0001**
Post-intervention Whitehorse (BD)	Aug. 2018–Dec. 2018	**-9.97**	**40.83**	**[39.17, 42.56]**	**.0001**
Model 2: Total sales of labeled products					
Baseline (all areas) (BD/ID)	Jul. 2015–Oct. 2017	0.00	44.47	[43.61, 45.34]	ref.
Intervention (Ca/LRDG/SD)	Nov. 2017–Jul. 2018	**-6.59**	**41.53**	**[40.43, 42.67]**	**.0001**
Post-intervention Whitehorse (BD)	Aug. 2018–Dec. 2018	**-10.29**	**39.89**	**[38.25, 41.60]**	**.0001**
Model 3: Total sales of unlabeled product					
Baseline (all areas) (BD/ID)	Jul. 2015–Oct. 2017	0.00	0.82	[0.69, 0.98]	ref.
Intervention (Ca/LRDG/SD)	Nov. 2017–Jul. 2018	**+6.91**	**0.88**	**[0.72, 1.08]**	**.0182**
Post-intervention Whitehorse (BD)	Aug. 2018–Dec. 2018	+9.16	0.90	[0.74, 1.10]	.0946

Notes: **Bold indicates statistical significance.** Ref. = reference. [a]BD/ID = birth defect (BD) in Yukon plus impaired driving and general health concern message (ID) in Northwest Territories; Ca = cancer, LRDG = low-risk drinking guideline; SD = standard drink. [b]"Baseline" sales include the pre-intervention period in Whitehorse plus all sales in outer regions of the Yukon in which birth defect (BD) and Northwest Territories in which BD+ID were labels added throughout study period. [c]Percentage change in monthly per capita standard drinks ([d]) for labeling intervention period versus baseline (BD/ID). [d]Mean estimates adjusted for time trend, seasonality (seasonal index method), regional and temporal regressive effects, average personal income, percentage population ages 20–29 years old, percentage males in population, percentage Indigenous population and the regional variable (rural areas and Whitehorse in Yukon and Northwest Territories). A weighting variable was used to adjust for various number of days per month. The models for labeled alcohol sales were further adjusted for unlabeled beverage sales and vice versa.

and NWT. There were also no significant increases (2.25% and 0.24%, respectively) in the alcohol sales in rural areas and NWT during the Whitehorse labeling intervention and post-intervention periods compared with that before the labeling intervention period.

Discussion

An accumulating reduction in per capita alcohol sales from liquor stores was observed in the intervention site of Whitehorse in comparison variously with the baseline period in Whitehorse, with per capita sales in five outlying control regions in Yukon, and also after adjustment for total per capita monthly alcohol sales in neighboring NWT. These statistically significant reductions were estimated in models that adjusted for a number of economic and demographic predictors of the level of alcohol consumption in different regions. It is noteworthy that in this remote area of Canada, per capita alcohol consumption estimated from sales was significantly higher in the outlying, control regions in Yukon, regions that also had a higher proportion of males, young adults, persons with low income, and non-Indigenous people. It is also important to note that significant reductions in consumption were observed only in relation to alcohol products that received the manual application of some 300,000 bright yellow and red intervention warning labels and not among products that were not labeled. In fact, there were significant increases in the consumption of unlabeled products in Whitehorse during the intervention. These products could not be labeled because they were from local or small producers, the containers were too small, or it was otherwise impractical to add labels (e.g., single containers of beer were exempt). They represented only 3% of sales. Although it is possible that factors other than the absence of labels may account for this finding, the pattern of results is consistent with some customers selecting unlabeled products to avoid seeing the series of stark warning and health messages.

The central question raised by these results is whether it is plausible to attribute the observed reductions in per capita alcohol sales to the labeling intervention. Against this interpretation is the scant evidence of changes in population consumption as a result of the much-studied introduction of U.S. warning labels in 1989 (Greenfield, 1997). Furthermore, the greatest reduction in monthly sales was observed after the application of LRDG and SD labels to product containers was completed at the end of July 2018 (Hobin et al., 2020). In favor of the hypothesis that the labeling intervention had a causal role, these labels were strikingly different from their U.S. predecessors. They were developed over 4 years, during which the literature on what constitutes effective warning labels was carefully reviewed and both a randomized experiment and a focus group study were conducted (Hobin et al., 2018; Vallance et al., 2018) to identify effective content and presentation. Thus, the labels presented messages for which there was low awareness at baseline (Vallance et al., 2020b) but that both local stakeholders and drinkers judged to be important information for consumers, that is, warnings of serious health risks for conditions prevalent in Yukon (e.g., colon and breast cancer), LRDGs (Stockwell et al., 2012), and information about the number of SDs in alcohol containers to enable consumers to follow the guidelines (Osiowy et al., 2015). The label design also followed best practices by using multiple colors, adequate size, and inclusion of images as well as text. Furthermore, a case could be made that the

Table 3. Estimated percentage changes in mean number of standard drinks per adult per month for total, labeled and unlabeled alcohol sales in Yukon during the period of Ca+LRDG/LRDG+SD labels and after the labeling intervention period compared with baseline

		Drinks/month/adult[d]			
Labels[a]	Time period[b]	% change[c]	*M*	[95% CI]	*t* test *p*
Mean	95%	CI			
Model 1: Total alcohol sales					
Baseline (All areas) (BD/ID)	Jul. 2015–Oct. 2017	0.00	44.94	[44.05, 45.84]	ref.
(i) Ca/LRDG	Nov. 2017–Dec. 2017	**-2.28**	**43.91**	**[42.90, 44.93]**	**.0001**
(ii) No new labels added	Jan. 2018–Mar. 2018	**-4.21**	**43.04**	**[41.60, 44.54]**	**.0001**
(iii) LRDG+SD	Apr. 2018–Jul. 2018	**-11.35**	**39.83**	**[38.54, 41.28]**	**.0001**
Post-intervention Whitehorse (BD)	Aug. 2018–Dec. 2018	**-11.85**	**39.61**	**[38.30, 40.99]**	**.0001**
Model 2: Total sales of labeled products					
Baseline (All areas) (BD)	Jul. 2015–Oct. 2017	0.00	44.07	[43.32, 44.84]	ref.
(i) Ca/LRDG	Nov. 2017–Dec. 2017	**-2.41**	**43.01**	**[42.16, 43.88]**	**.0001**
(ii) No new labels added	Jan. 2018–Mar. 2018	**-4.46**	**42.11**	**[40.82, 43.43]**	**.0001**
(iii) LRDG+SD	Apr. 2018–Jul. 2018	**-11.79**	**38.87**	**[37.71, 40.08]**	**.0001**
Post-intervention Whitehorse (BD)	Aug. 2018–Dec. 2018	**-12.20**	**38.69**	**[37.55, 39.88]**	**.0001**
Model 3: Total sales of unlabeled product					
Baseline (All areas) (BD/ID)	Jul. 2015–Oct. 2017	0.00	0.70	[0.65, 0.75]	ref.
(i) Ca/LRDG	Nov. 2017–Dec. 2017	+2.68	0.72	[0.67, 0.77]	.6778
(ii) No new labels added	Jan. 2018–Mar. 2018	+6.38	0.74	[0.65, 0.85]	.4157
(iii) LRDG+SD	Apr. 2018–Jul. 2018	+14.32	0.80	[0.69, 0.93]	.0258
Post-intervention Whitehorse (BD)	Aug. 2018–Dec. 2018	+15.64	0.81	[0.70, 0.94]	.1457

Notes: **Bold indicates statistical significance.**CI = confidence interval; ref. = reference. [a]BD = birth defect (BD) in Yukon and plus impaired driving and general health concern message (ID) in Northwest Territories; Ca = cancer, LRDG = low-risk drinking guideline; SD = standard drink. [b]Percentage change in monthly per capita standard drinks ([d]) for labeling intervention period versus baseline (BD/ID)). [c]Mean estimates for total sales adjusted for time trend, seasonality, regional and temporal regressive effects, average personal income, percentage of population ages 20–29 years old, percentage of males to total population, percentage of Indigenous population; mean estimates for labeled alcohol sales further adjusted for unlabeled beverage sales and mean estimates for unlabeled alcohol sales further adjusted for labeled beverage sales. A weighting variable was used to adjust for various number of days per month. A regional variable was included to control for the difference between Yukon (rural areas and Whitehorse) and Northwest Territories.

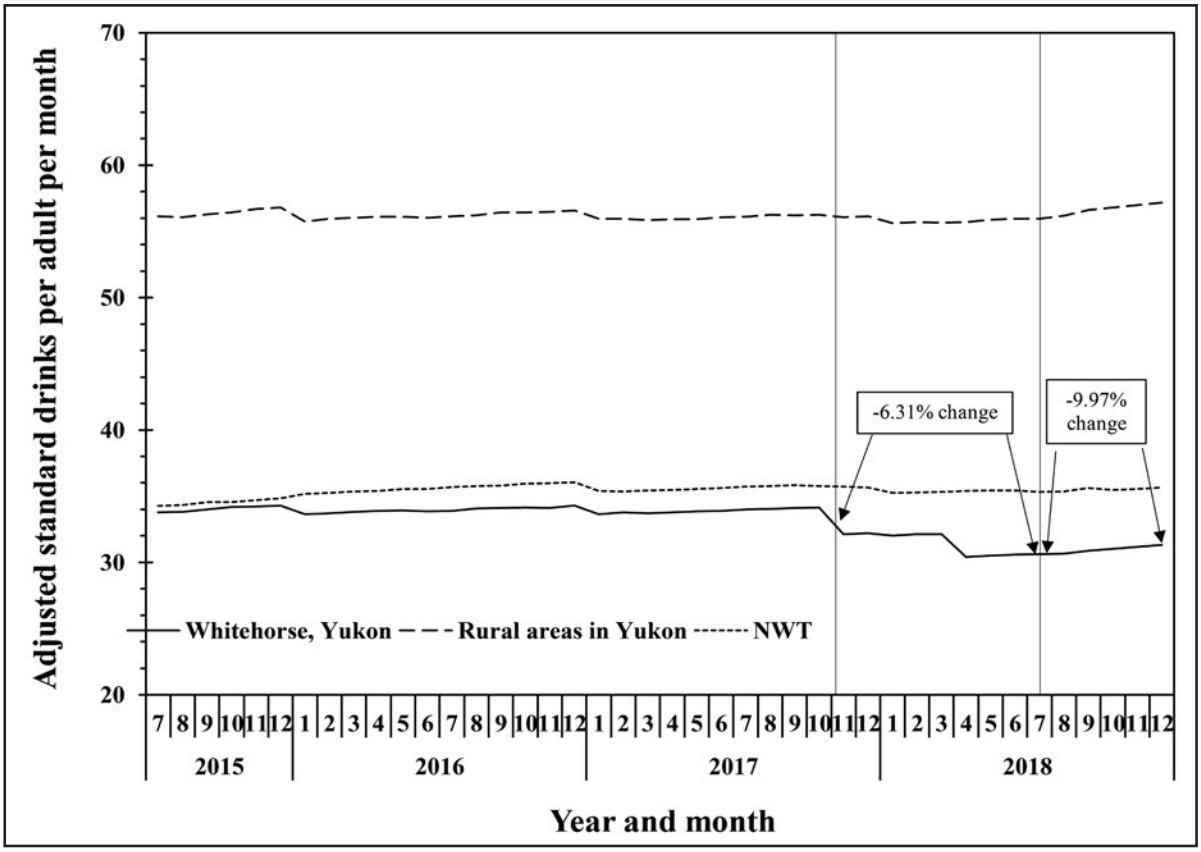


Figure 2. Adjusted mean number of standard drinks consumed per person age 15 years and older per month from liquor store sales in Whitehorse, rural areas of Yukon, and Northwest Territories (NWT) during the study period

TABLE 4. Estimated percentage changes in mean number of standard drinks per adult per month for total, labeled and unlabeled alcohol sales in Whitehorse during and after the labeling intervention period compared with baseline in Whitehorse, Yukon, and NWT

		Drinks/month/adult[d]			
Labels[a]	Time period[b]	% change[c]	*M*	[95% CI]	*t* test *p*
Model 1: Pre-intervention Whitehorse alcohol sales only as reference period (analysis included rural areas but no NWT data)					
Baseline (BD)	Jul. 2015–Oct. 2017	0.00	51.99	[48.74, 55.45]	ref.
Intervention (Ca/LRDG/SD)	Nov. 2017–Jul. 2018	**-6.55**	**48.59**	**[45.20, 52.22]**	**.0001**
Post-intervention (BD/AWLs)	Aug. 2018–Dec. 2018	**-10.56**	**46.50**	**[43.24, 50.01]**	**.0001**
Model 2: Yukon-wide alcohol sales with BD only labels periods and regions as reference (no NWT data)					
Baseline (BD)	Jul. 2015–Oct. 2017	0.00	51.22	[50.80, 51.64]	ref.
Intervention (Ca/LRDG/SD)	Nov. 2017–Jul. 2018	**-6.27**	**48.01**	**[47.06, 48.98]**	**.0001**
Post-Intervention (BD/AWLs)	Aug. 2018–Dec. 2018	**-10.20**	**46.00**	**[44.80, 47.22]**	**.0001**
Model 3: Yukon-wide alcohol sales (Model 2) + adjustment for NWT sales (retail sales in NWT)					
Baseline (BD/ID)	Jul. 2015–Oct. 2017	0.00	45.81	[44.27, 47.41]	ref.
Intervention (Ca/LRDG/SD)	Nov. 2017–Jul. 2018	**-6.20**	**42.97**	**[41.68, 44.30]**	**.0001**
Post-intervention (BD/ID/AWL)	Aug. 2018–Dec. 2018	**-9.33**	**41.54**	**[40.08, 43.04]**	**.0005**
Model 4: Yukon rural alcohol sales during the Whitehorse labeling (Nov. 2017–Jul. 2018) and post-labeling periods (Aug.–Dec. 2018) versus before (Jul. 2015–Oct. 2017)					
Baseline (BD/ID)	Jul. 2015–Oct. 2017	0.00	55.16	[54.42, 55.91]	ref.
Intervention (Ca/LRDG/SD)	Nov. 2017–Jul. 2018	2.81	56.71	[54.91, 58.57]	.1918
Post-intervention (BD/ID/AWLs)	Aug. 2018–Dec. 2018	1.37	55.91	[52.33, 59.74]	.7095
Model 5: Yukon rural alcohol sales during the Whitehorse labeling (Nov. 2017–Jul. 2018) and post-labeling periods (Aug.-Dec. 2018) versus before (Jul. 2015–Oct. 2017) and NWT alcohol sales (Jul. 2015 – Dec. 2018)					
Baseline (BD/ID)	Jul. 2015–Oct. 2017	0.00	45.76	[44.06, 47.52]	ref.
Intervention (Ca/LRDG/SD)	Nov. 2017–Jul. 2018	2.25	46.79	[44.12, 49.62]	.2628
Post-intervention (BD/ID/AWL)	Aug. 2018–Dec. 2018	0.24	45.87	[43.77, 48.07]	.9502

Notes: **Bold indicates statistical significance.** NWT = Northwest Territories; CI = confidence interval; ref. = reference category. [a]BD/ID = birth defect (BD) warning; ID = impaired driving and general health warning in NWT; Ca = cancer; LRDG = low-risk drinking guidelines; SD = standard drink; AWLs = alcohol warning labels (Ca/LRDG/SD). [b]"Baseline" sales for Models 2 and 3 include the pre-intervention period in Whitehorse plus all sales in outer regions of the Yukon when BD labels were added throughout the study period. [c]Percentage change in monthly per capita standard drinks ([d]) for labeling intervention period versus baseline (BD or BD/ID). [d]Mean estimates were adjusted for time trend, seasonality, regional and temporal regressive effects, average personal income, % population ages 20–29 years old, % males in population, % Indigenous population, and region in Model 3 (Yukon rural areas, Whitehorse, and NWT). A weighting variable was used to adjust for varying number of days per month.

effect size of the reductions in per capita sales reflected the intensity of the intervention. Thus, the smallest effect size (about 3%) occurred at the outset when about 100,000 of the new cancer and LRDG labels were applied to most containers for just 30 days.

Over the following 3 months, when the reduction in sales was 5%, there was intense media coverage of the study (Hobin et al., 2020; Vallance et al., 2020c), which could have served to reinforce the labeling messages and intensify their effect even though no new labels were added. There would nonetheless have been a decreasing number of containers in the Whitehorse store still labeled with the Ca and LRDG messages. During the third 4-month phase, approximately 200,000 LRDG and SD labels were applied, and there was an effect size of approximately 7%. The post-intervention phase included a change in labeling (i.e., the return of the small BD label that had been placed on alcohol containers for more than 25 years until the beginning of this study in November 2017). Previous studies showed that health messages or warnings need to be sufficiently large as to be readily legible for consumers of all ages, be colorful and concise, contain graphic images, and be varied over time to maintain their salience to consumers (Al-Hamdani & Smith, 2017; Wigg & Stafford, 2016). The change in the warning label back to the BD label at this point itself could have created more discussion and attention to health aspects of alcohol consumption. Last, significant increases in per capita sales were observed in models examining unlabeled products, indicating a measure of specificity for the effect of the intervention warning labels.

Alcohol warning labels allow consumers to make more informed choices about what they drink and warn consumers of the potential dangers and health risks from products (Deutsche Hauptstelle für Suchtfragene, 2008; Wilkinson & Room, 2009). In providing such information, warning labels also deliver a clear message to consumers that alcohol is not an ordinary commodity (Babor et al., 2010; Deutsche Hauptstelle für Suchtfragene, 2008). After seeing the new

label messages, shoppers may have stopped purchasing alcoholic beverages or decided to purchase fewer alcohol products than planned, and therefore the total or some types of products sales could be reduced during the study period.

It is important, however, to acknowledge both the advantages and limitations of the use of sales data to estimate the impacts of a policy intervention. We followed international best practices to estimate local per capita alcohol consumption, estimating total recorded sales from official sources and expressing these as a rate for the proportions of local residents age 15 and older (Stockwell & Chikritzhs, 2000; Stockwell et al., 2018). Because Yukon has a government monopoly on the sale and distribution of alcohol, the monthly data provided on recorded sales provide an excellent and accurate record of off-premise sales across all the regions included. However, these would not include sources of unrecorded alcohol consumption such as homemade and travelers' imports, although these are likely to be small, especially because Yukon is a fairly remote area.

A further weakness in these sales data is that the per capita estimates do not control for the volume of tourism; it is entirely conceivable that the results are confounded somehow by unusual variations across regions in Yukon—although this was partly addressed by the adjustments made for seasonal variation in the sales data and by the use of controls for consumption in the five outlying areas of Yukon and in NWT. Another limitation is that this was an ecological study in which the data are measures averaged over individuals and, therefore, may not reflect individual-level associations and may be sensitive to changes in unit aggregation (Rothman & Greenland, 1998). However, the inherent qualities of the ecological design for epidemiological and policy analysis can be valuable for investigating potential population-wide effects (Cohen, 1994; Susser, 1994). The effect of the labeling intervention may also be lagged. This study did not examine any lagged effects of the labeling intervention on the consumption because of the short period observed after the labeling was implemented. However, the observed large effect for the post-intervention phase would be consistent with such an interpretation. Last, the confounding effect of other social policies or factors may exist in Whitehorse. One candidate is the legalization of cannabis that occurred Canada-wide and was implemented on October 17, 2018 (Department of Justice, 2018), when the first government-run online and retail store selling cannabis opened in Whitehorse, midway through the post-intervention period. However, in separate analyses, no differences were observed in alcohol sales from before to after October 17, 2018.

Conclusion

We found that the introduction of new AWLs displayed on the containers of alcohol products sold in a major Yukon liquor store was associated with significantly reduced per capita alcohol consumption. The accumulating effect size over time can be interpreted as being consistent with a causal effect of the labeling intervention, especially as an opposite change was observed for unlabeled products and no reductions were seen in two separate control regions within and outside Yukon where there were no changes in labeling practices. The results are also broadly consistent with those from the self-report survey data collected before, during and after the labeling interventions (Hobin et al., 2020).

Acknowledgment

We thank the Yukon Liquor Corporation for providing the sales data for this study.

Conflict-of-Interest Statement

Tim Stockwell received research funds and travel expenses from both the Swedish and Finnish government alcohol monopolies in the past 4 years. Other authors declare no conflicts of interest.

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Yukon Liquor Corporation and Health & Social Services
PO Box 2703, Whitehorse, Yukon Y1A 2C6

October 1, 2020

Honourable Minister Patty Hajdu

Email address: HC.Minister.MinistreSC@Canada.ca VIA EMAIL

Dear Minister Patty Hajdu,

Re: Northern Territories Alcohol Label Study

We are writing to urge Health Canada to take the lead in providing guidance to Canadian jurisdictions regarding the topic of alcohol warning labels. As you are aware, the Northern Territories Alcohol Label study was conducted in 2017-2018 in the Yukon and the Northwest Territories. The study researchers recently published articles in the Journal of Studies on Alcohol and Drugs and submitted a final report to Health Canada.

The Northern Territories Alcohol Label Study is described as "ground-breaking" by Thomas F. Babor, editor of the Journal of Studies on Alcohol and Drugs, a reputable journal in which the researchers published several articles this spring. In his comments about the series of articles, Babor asserts that *"No single study or program of research conducted in one country is likely to provide definitive answers to critical policy questions about alcohol warning labels."* 74(1)(a)

Given that additional research would assist in refining messages, that we are aware of serious health risks when alcohol is not consumed responsibly, and given industry's interest in the matter, we believe that leadership regarding the critical policy questions about alcohol warning labels would best come from the national level. We welcome the ongoing strategic work taking place at the national level and ask that alcohol warning labels be considered in these strategies and other national initiatives, with clear guidance for Canadian jurisdictions.

Please feel free to reach out to us if you would like to discuss our experience with the study or if you have any questions. We look forward to hearing from you on the matter.

Sincerely

John Streicker
Minister responsible for the Yukon Liquor Corporation

Pauline Frost
Minister of Health and Social Services

Yukon Liquor Corporation
PO Box 2703, Whitehorse, Yukon Y1A 2C6

July 13, 2020

Honourable Minister Patty Hajdu

Email address: patty.hajdu@parl.gc.ca VIA EMAIL

Dear Minister Patty Hajdu,

Re: Northern Territories Alcohol Label Study

In May 2020, the University of Victoria and Public Health Ontario released a series of publications about the Northern Territories Alcohol Label study conducted in 2017-2018, and their final report was recently submitted to Health Canada.

Starting in November 2017, researchers applied alcohol warning labels at the liquor store in Whitehorse that included a cancer warning, low-risk drinking guidelines, and standard drink messages. These study labels temporarily replaced previous pregnancy warning labels. Researchers surveyed individuals in Whitehorse (and Yellowknife, where labelling practices remained unchanged) and tested whether the intervention changed attitudes, behaviours and beliefs with regard to alcohol consumption.

In December 2017 the Government of Yukon paused the label study. National alcohol producers expressed concerns about the study and in particular, concerns regarding the use of the cancer label.
74(1)(a)
The project resumed two months later with modifications, no longer including the cancer warning label and focussing more on low risk drinking guidelines.

Here are some of the results of the study:

- *Prior to the new labels, consumer awareness of alcohol's cancer risk, of Canada's national drinking guidelines, and of the number of standard drinks in containers was low.*
- *After the new labels were introduced in the main liquor store in Whitehorse, consumer awareness of alcohol's cancer risk and Canada's national drinking guidelines increased in Whitehorse compared to Yellowknife, where no new labels had been added.*

- *Consumers who became aware that alcohol can cause cancer were twice as likely to express support for policies to increase the price of cheap alcohol as those who were unaware of the alcohol-cancer link.*
- *Analysis of the sales data showed that average alcohol consumption in Whitehorse decreased by 6 per cent during the study period compared to NWT and neighbouring regions in Yukon.*
- *Average consumption of alcohol sold in labelled alcohol containers decreased by 7 per cent while average consumption of alcohol from the many fewer unlabeled containers increased by 7 per cent.*

I believe that the conversation regarding the risks of cancer and the topic of alcohol labelling should be addressed at the national level. I would be very willing to work with you to initiate that national conversation. I understand that there is ongoing work on the Canadian Drugs and Substances Strategy as well as the National Alcohol Strategy, and I encourage Health Canada to take the lead on considering this issue through these strategies and other national initiatives.

Sincerely,

John Streicker
Minister responsible for the Yukon Liquor Corporation

(small producer)

Susan.Russell

From: Patch.Groenewegen
Sent: Tuesday, February 26, 2019 3:27 PM
To: Anita.Bhullar
Cc: Susan.Russell
Subject: FW: Alcohol Label Study - quick question

Follow Up Flag: Follow up
Due By: Monday, March 25, 2019 7:30 AM
Flag Status: Flagged

Anita / Susan,

Today I had a call with Tim about the data, who has requested that we can somehow show / address:

- Between April to July – what was exempt from labelling
- What is our definition of small producer (and any associated SKUs)
- What is the size definition for bomber (as they were also excluded).

This just adds to our list of items to coral and detail on this file.

Thanks,
Patch

From: Patch.Groenewegen
Sent: Tuesday, February 26, 2019 9:36 AM
To: 'Tim Stockwell' <timstock@uvic.ca>; Erin.Hobin@oahpp.ca; Brad.Rowett <Brad.Rowett@gov.yk.ca>
Cc: Kate Vallance <vallance@uvic.ca>; Nour.Schoueri-Mychasiw@oahpp.ca; Jinhui Zhao <zhaoj@uvic.ca>
Subject: RE: Alcohol Label Study - quick question

Good day Tim,

I will look into the status of our label study data misc., and I hope we can get back to you soon.

Thanks for your patience.
Patch

From: Tim Stockwell <timstock@uvic.ca>
Sent: Monday, February 25, 2019 2:05 PM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>; Erin.Hobin@oahpp.ca; Brad.Rowett <Brad.Rowett@gov.yk.ca>
Cc: Kate Vallance <vallance@uvic.ca>; Nour.Schoueri-Mychasiw@oahpp.ca; Jinhui Zhao <zhaoj@uvic.ca>
Subject: Re: Alcohol Label Study - quick question

Hi Patch

I just called Susan Russell to enquire about the sales data request she was preparing and got a message that she is away until the middle of March.

She had messaged me about 10 days ago to say she was working on the request and that we should have had it by last week. Could you please advise if it is still on track?
I had phoned her to check out a specific thing which you may be up to help with. We need to identify which products did not get the labels in the sales data set. In relation to the small producers who were exempt from the labels applied between April and July 2018, is it easier for us to be given a list of these or for them to be identified within the dataset? I'm thinking the latter might be too difficult and time-consuming and the list would be easiest. It might be easier still if the name of the product was added to the file so that we could identify them ourselves if you gave us just a list of names of small producers?
Thanks for your advice
Best wishes
Tim

From: "Patch.Groenewegen@gov.yk.ca" <Patch.Groenewegen@gov.yk.ca>
Date: Monday, 25 February 2019 at 13:00
To: Erin Hobin <Erin.Hobin@oahpp.ca>, "Brad.Rowett@gov.yk.ca" <Brad.Rowett@gov.yk.ca>
Cc: Tim Stockwell <timstock@uvic.ca>, Kate Vallance <vallance@uvic.ca>, "Nour.Schoueri-Mychasiw@oahpp.ca" <Nour.Schoueri-Mychasiw@oahpp.ca>
Subject: RE: Alcohol Label Study - quick question

Please see Brad and Patch answers below ...

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: Wednesday, February 13, 2019 11:04 AM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>; Brad.Rowett <Brad.Rowett@gov.yk.ca>
Cc: Tim Stockwell (timstock@uvic.ca) <timstock@uvic.ca>; Kate Vallance (vallance@uvic.ca) <vallance@uvic.ca>; Nour Schoueri-Mychasiw <Nour.Schoueri-Mychasiw@oahpp.ca>
Subject: Alcohol Label Study - quick question
Importance: High

Hi Patch and Brad,

Can you please confirm three items:

1. Drinking guideline and standard drink labels stopped being applied to alcohol containers in the Whitehorse liquor store after July 31, 2018; yes – stopped applying both
2. Previous labels cautioning about drinking when pregnant resumed starting August 1, 2018; and, yes – resumed applying our original labels on this date.

3. Drinking guideline and standard drink labels on containers in the Whitehorse liquor store were covered by pregnancy warning label starting August 1, 2018? No – we did not apply our original labels over study labels. We left all study labels on, we did not mask over, and we fronted those products with study labels so they circulated out before new products with original labels.

Thank you,

Erin

From: Tim Stockwell [mailto:timstock@uvic.ca]
Sent: February-13-19 1:41 PM
To: Jinhui Zhao; Erin Hobin; Kate Vallance
Subject: Re: Zhao Abstract of 2019 KBS_EHcomments

Hi all
I think we need to get confirmation as to whether they covered up the labels or just let them be until they were sold after July 1. We should also use data for the last five months of 2018 – at least, if not more. There are various hypotheses we can test using different timelines, intervention points and assumptions about decay in the extent of exposure to labels.
Cheers
Tim

From: Jinhui Zhao <zhaoj@uvic.ca>
Date: Wednesday, 13 February 2019 at 09:42
To: Erin Hobin <Erin.Hobin@oahpp.ca>, Kate Vallance <vallance@uvic.ca>, Tim Stockwell <timstock@uvic.ca>
Subject: RE: Zhao Abstract of 2019 KBS_EHcomments

Excellent! Thanks so much Kate and Erin.
Jinhui

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: Wednesday, February 13, 2019 9:33 AM
To: Kate Vallance <vallance@uvic.ca>; Jinhui Zhao <zhaoj@uvic.ca>; Tim Stockwell <timstock@uvic.ca>
Subject: RE: Zhao Abstract of 2019 KBS_EHcomments

This is fabulous! Thanks so much, Kate.

Please note that the educational campaign launched by YLC started July 31, 2018. Patch sent me samples of the educational materials. I am not clear the exact # of or description of materials, or how or for how long the materials were distributed to consumers.

I wonder if we should use July 31, 2018 as an end date for the analysis of the alcohol sales data?

From: Kate Vallance [mailto:vallance@uvic.ca]
Sent: February-13-19 12:27 PM
To: Jinhui Zhao; Erin Hobin; Tim Stockwell
Subject: RE: Zhao Abstract of 2019 KBS_EHcomments

Hi all,

Sorry for the delay in replying. I have made a couple of edits to Erin's timeline and attached a labeling schedule from YLC that lists which containers got which labels. Jinhui, should we confirm with YLC whether they left the study labels on the containers after July 31st or covered them up? We may also want to confirm if/when they started re-applying their original label. I believe they did launch a few parts of the educational campaign that may have gone beyond July 31st so we might want to ask Patch about that too as it contained messaging from the study labels.

Intervention timing:

- Cancer and Canada's national drinking guideline labels on all containers (~100,000 labels total) – **Nov 20 – Dec 19 2017** (except local beer bombers and minis).
- Pause in the intervention with no new labels applied; remaining cancer labels covered with LRDG labels on **Feb 15th, 2018**
- Canada's national drinking guidelines applied **starting April 11**; Standard Drink labels applied **starting May 28th**. No study labels applied after **July 31, 2018** (see attached schedule for container types)

Hope that helps!

Kate

From: Jinhui Zhao <zhaoj@uvic.ca>
Sent: Sunday, February 10, 2019 10:33 AM
To: Erin Hobin <Erin.Hobin@oahpp.ca>; Tim Stockwell <timstock@uvic.ca>; Kate Vallance <vallance@uvic.ca>
Subject: Re: Zhao Abstract of 2019 KBS_EHcomments

Thanks so much Erin.

Several specific analyses can be performed including investigating the effects of the intervention alcohol labels on the consumption overall, by types of beverages, and products with labels and without labels - shifts in alcohol purchases (e.g., from higher to lower strength beverage categories) as advised.

All the best,

Jinhui

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: February 9, 2019 7:11 AM
To: Jinhui Zhao; Tim Stockwell; Kate Vallance
Subject: RE: Zhao Abstract of 2019 KBS_EHcomments

Hi Jinhui,

Thank you for sharing your abstract – apologies that the timing of the label intervention is so messy!!

In summary, the intervention timing is:

- Cancer and Canada's national drinking guideline labels on all containers (~100,000 labels total) – **Nov 20 – Dec 19 2017**
- Pause in the intervention with cancer labels even possibly being covered up.
- Canada's national drinking guidelines and Standard Drink labels to beer, wine, and spirits on most containers but some exceptions – **April 11 – July 31 2018**

We do have some crude measures of label coverage in June and July 2018 from environmental scan data collected by Research Assistants in the Whitehorse liquor store.

Lastly, in addition to examining any overall changes in alcohol sales, I think Tim's suggestion about examining shifts in alcohol purchases (e.g., from higher to lower strength beverage categories) would be valuable.

Thank you for your time and expertise. We are very grateful to have you working with us on this research.

All the best,
Erin

From: Jinhui Zhao [mailto:zhaoj@uvic.ca]
Sent: February-08-19 9:15 PM
To: Tim Stockwell; Erin Hobin; Kate Vallance
Subject: RE: Zhao Abstract of 2019 KBS_EHcomments

Many Thanks Tim.
Jinhui

From: Tim Stockwell <timstock@uvic.ca>
Sent: Friday, February 08, 2019 10:24 AM
To: Jinhui Zhao <zhaoj@uvic.ca>; Erin Hobin <Erin.Hobin@oahpp.ca>; Kate Vallance <vallance@uvic.ca>
Subject: Re: Zhao Abstract of 2019 KBS_EHcomments

Hi Jinhui

One quick thing about the timing of the labelling intervention. The cancer labels were placed from November 20 till December 19 (Kate please confirm got this exactly right) and then no more. We think they may have even been covered over from sometime in January (again Kate please confirm). The low-risk drinking guideline label was also introduced over that period then in addition was added periodically to containers between April 1 and July 31. During the latter, standard drink labels were also added to beer, wine and spirits. There is a list of exceptions over the last period to receiving these labels and we need to get an exact list of the products that were exempt from Yukon but I'm waiting to get the revised date set from.

I think it is good to control for population and CPI changes in a time series analysis but I think the main outcome should be sailors in different categories of beverage as well as in total. It will be remarkable if we detect an impact on per capita consumption but we might detect shifts between beverage types over time e.g. shifts away from stronger drinks or even in favour of stronger drinks when the standard drink labels were introduced, shifts away from beverage types with labels towards those without (so we need the exact list). I will try to look at the evaluation plan soon.

Cheers

Tim

From: Jinhui Zhao <zhaoj@uvic.ca>
Date: Friday, 8 February 2019 at 10:05
To: Erin Hobin <Erin.Hobin@oahpp.ca>, Kate Vallance <vallance@uvic.ca>, Tim Stockwell <timstock@uvic.ca>
Subject: RE: Zhao Abstract of 2019 KBS_EHcomments

Hi all:

38(1)(o)(i)

Can we know the individual products with the labels put on?

Many thanks.

Jinhui

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: Monday, February 04, 2019 11:34 AM
To: Kate Vallance <vallance@uvic.ca>; Jinhui Zhao <zhaoj@uvic.ca>; Tim Stockwell <timstock@uvic.ca>
Subject: RE: Zhao Abstract of 2019 KBS_EHcomments

Hi again,

This is great.

Tim, just for further clarification, did we receive the alcohol sales data from Yellowknife?

Best,
Erin

From: Kate Vallance [mailto:vallance@uvic.ca]
Sent: January-30-19 8:37 PM
To: Jinhui Zhao; Erin Hobin; Tim Stockwell
Subject: RE: Zhao Abstract of 2019 KBS_EHcomments

Okay, thanks for clarifying! In our other papers and abstracts related to this labels study "control" always means the Yellowknife site. I guess in this case "control" means the other 5 liquor stores outside Whitehorse?

From: Jinhui Zhao <zhaoj@uvic.ca>
Sent: Wednesday, January 30, 2019 5:32 PM
To: Kate Vallance <vallance@uvic.ca>; Erin Hobin <Erin.Hobin@oahpp.ca>; Tim Stockwell <timstock@uvic.ca>
Subject: RE: Zhao Abstract of 2019 KBS_EHcomments

Many thanks Kate. Regarding comments on inclusion for Yellowknife as a control site: so far we just obtained the data from Yukon of Whitehorse with labels and in other five sites without labels. Therefore the abstract does not mention about the Yellowknife – maybe if we can obtain the data from Yellowknife later on and we can make a comparison with Yellowknife – that could provide a strong evidence if the study find a significant impact of the labeling on the alcohol consumption.
Cheers!
Jinhui

From: Kate Vallance <vallance@uvic.ca>
Sent: Wednesday, January 30, 2019 5:13 PM
To: Jinhui Zhao <zhaoj@uvic.ca>; Erin Hobin <Erin.Hobin@oahpp.ca>; Tim Stockwell <timstock@uvic.ca>
Subject: RE: Zhao Abstract of 2019 KBS_EHcomments

Hi Jinhui,

This will be such an excellent paper! I have made some minor edits.

Well done!

Thanks,
Kate

From: Jinhui Zhao <zhaoj@uvic.ca>
Sent: Wednesday, January 30, 2019 3:46 PM
To: Erin Hobin <Erin.Hobin@oahpp.ca>; Tim Stockwell <timstock@uvic.ca>
Cc: Kate Vallance <vallance@uvic.ca>
Subject: RE: Zhao Abstract of 2019 KBS_EHcomments

Thanks so much Erin.
Cheers!
Jinhui

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: Wednesday, January 30, 2019 12:11 PM
To: Tim Stockwell <timstock@uvic.ca>; Jinhui Zhao <zhaoj@uvic.ca>
Cc: Kate Vallance <vallance@uvic.ca>
Subject: Zhao Abstract of 2019 KBS_EHcomments

Hi Jinhui,

Thank you for sharing the abstract – it is beautiful! Very excited about these analyses.

Please find attached to this email my very minor suggestions.

All the best,

Patch.Groenewegen

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: Wednesday, August 28, 2019 7:39 AM
To: Patch.Groenewegen; Brendan.Hanley
Subject: Alcohol Label Study: Examining label impact on awareness and knowledge of national drinking guidelines
Attachments: LRDG Knowledge and Awareness_082819_EHcomments.docx; Paper 3 - LRDG Knowledge and Awareness - FIGURES_080919.docx; Paper 3 - LRDG Knowledge and Awareness - TABLES.docx

Hi Patch and Brendan,

Please find attached to this email a full draft of Nour's paper examining the impact of alcohol labels on consumer awareness and knowledge of national drinking guidelines. This paper will be submitted to the Journal of Studies on Alcohol and Drugs.

Please provide review and provide feedback before **Wednesday, September 11th**. Please also let me know if you have questions or would like to discuss.

Enjoy the last few weeks of summer – sighhhh.

Erin

Hobin 0370

Patch.Groenewegen

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: Wednesday, August 28, 2019 10:12 AM
To: Patch.Groenewegen
Subject: RE: Issues of Substance Conference in Ottawa

Hi Patch,

Thanks for the email. I understand and best of luck with implementing the liquor act.

The results of the alcohol label study are pretty amazing so I anticipate we will have a very large audience. Do you have any feedback you want to provide that I can include on your behalf?

Erin

From: Patch.Groenewegen@gov.yk.ca [mailto:Patch.Groenewegen@gov.yk.ca]
Sent: August 28, 2019 1:04 PM
To: Erin Hobin <Erin.Hobin@oahpp.ca>
Subject: RE: Issues of Substance Conference in Ottawa

Hey Erin,
I am not sure anyone can attend; we are tabling the liquor act this fall, of which I am lead, and we are stretched quite thin. Furthermore no one else remains, other than me, who was part of this whole project.
Patch

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: Wednesday, August 28, 2019 9:46 AM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>
Subject: RE: Issues of Substance Conference in Ottawa

Hi Patch,

Sorry to hear you're unable to join us in Ottawa. Is there someone else you can recommend to represent Whitehorse? It will be ideal to have Yukon's perspective on the panel.

Thanks,
Erin

From: Patch.Groenewegen@gov.yk.ca [mailto:Patch.Groenewegen@gov.yk.ca]
Sent: August 28, 2019 12:07 PM
To: Erin Hobin <Erin.Hobin@oahpp.ca>
Subject: RE: Issues of Substance Conference in Ottawa

Hello Erin,
I will not be able to join.
Hope you are well.
Patch

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: Wednesday, July 31, 2019 1:08 PM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>
Subject: RE: Issues of Substance Conference in Ottawa

Hi again Patch,

Sorry to email again about the conference in Ottawa. I'm hoping you're still interested in attending and participating, but if not, I understand.

Looking forward to hearing from you soon.

Erin

From: Erin Hobin
Sent: July 12, 2019 1:56 PM
To: 'Patch.Groenewegen@gov.yk.ca' <Patch.Groenewegen@gov.yk.ca>
Subject: Issues of Substance Conference in Ottawa

Hi Patch – happy Friday.

Are you still interested and available to possibly attend a conference in Ottawa in late November 2019?

We are hoping to host a panel session to present the results of the labelling study as well as discuss the practical considerations with alcohol labelling.

You are definitely the most knowledgeable person to speak about the Yukon experience and it would be awesome if you are able to participate. We are able to cover all of the costs associated with the conference and travel.

Please let me know if you want to chat more about it.

Thanks,
Erin

From: Patch.Groenewegen@gov.yk.ca [mailto:Patch.Groenewegen@gov.yk.ca]
Sent: July 5, 2019 2:25 PM
To: vallance@uvic.ca; Erin Hobin <Erin.Hobin@oahpp.ca>; Susan.Russell@gov.yk.ca
Cc: Nour Schoueri-Mychasiw <Nour.Schoueri-Mychasiw@oahpp.ca>
Subject: RE: Alcohol label study and leftover label stock

Brad just confirmed – no labels at the Whitehorse Liquor Store.

From: Patch.Groenewegen
Sent: July-05-19 10:57 AM
To: 'Kate Vallance' <vallance@uvic.ca>; Erin.Hobin@oahpp.ca; Susan.Russell <Susan.Russell@gov.yk.ca>
Cc: Nour.Schoueri-Mychasiw@oahpp.ca
Subject: RE: Alcohol label study and leftover label stock

Hey Kate,
If I recall correctly, it was all labels.

We brought all labels from the store to my office, counted all remaining, sent the numbers to you and Erin, held onto the boxes and then you and I packaged up the lot.
If I recall, your project didn't want to leave the lot with us nor did we want to keep extra boxes lying about.
I will ask Brad to double ensure but it is unlikely he has any for there is not much room in their shop for storage.
Thanks,
Patch

From: Kate Vallance [mailto:vallance@uvic.ca]
Sent: July-05-19 9:34 AM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>; Erin.Hobin@oahpp.ca; Susan.Russell <Susan.Russell@gov.yk.ca>
Cc: Nour.Schoueri-Mychasiw@oahpp.ca
Subject: RE: Alcohol label study and leftover label stock

Thanks for following up, Patch! I definitely remember packaging up leftover labels together and leaving the extra sticker guns but I think that must have been in February, as I didn't make it up to Whitehorse last summer. We were probably shipping the cancer labels back at that point so it may be that there are still some LRDG and standard drink labels leftover? I wonder if Brad might know?

Thanks!

Kate

From: Patch.Groenewegen@gov.yk.ca <Patch.Groenewegen@gov.yk.ca>
Sent: Wednesday, July 03, 2019 8:02 PM
To: Erin.Hobin@oahpp.ca; Susan.Russell@gov.yk.ca
Cc: Kate Vallance <vallance@uvic.ca>; Nour.Schoueri-Mychasiw@oahpp.ca
Subject: Re: Alcohol label study and leftover label stock

Hey Erin,

We sent them all back to you when the study ended in June / July last year.

I know we kept some extra sticker guns (as you / Kate said to keep them) but I recall packaging them with Kate and sending them onto you. I am quite sure PHO has them, about 6 square boxes with all the types of labels that were leftover.

I cannot recall if it was sent by airline or Purolator yet I recall walking them out to a car, and I thought Kate dealt with them.

Then again, maybe my memory is not correct.

Patch

Sent from my BlackBerry 10 smartphone on the Bell network.

From: Erin Hobin

Sent: Wednesday, July 3, 2019 13:26
To: Susan.Russell
Cc: Kate Vallance (vallance@uvic.ca); Nour Schoueri-Mychasiw; Patch.Groenewegen
Subject: RE: Alcohol label study and leftover label stock

Hi again Susan,

Apologies for the wave of emails, our team is trying to locate the leftover labels from the alcohol labelling study. I believe the leftover rolls of labels would be in brown boxes.

If you are able to locate the labels, I will arrange for a pre-paid courier to pick up the labels and return to us in Toronto.

Thank you for your time and attention. Hope you're having a nice summer so far.

Best,
Erin

From: Erin Hobin
Sent: June 24, 2019 4:07 PM
To: 'Susan.Russell@gov.yk.ca' <Susan.Russell@gov.yk.ca>
Cc: Kate Vallance (vallance@uvic.ca) <vallance@uvic.ca>; Nour Schoueri-Mychasiw <Nour.Schoueri-Mychasiw@oahpp.ca>; Patch.Groenewegen@gov.yk.ca
Subject: Alcohol label study and leftover label stock
Importance: High

Hi Susan,

I received your email from Kate and am wondering if you could please help us locate the leftover label stock from the alcohol labelling study?

If you are able to locate the labels, I will arrange for a pre-paid courier to pick up the labels and return to us in Toronto.

Thank you for your time and attention.

Best,
Erin

Patch.Groenewegen

From: Peter Maher <Peter_Maher@gov.nt.ca>
Sent: Thursday, December 13, 2018 10:16 AM
To: Patch.Groenewegen
Cc: Carrie Herring-Cooper; Scott.Westerlaken
Subject: Label Study
Attachments: YK Shop September 2016.xlsx

Patch,

This is what I am planning on giving to Stockwell. It will be by month and store location from September 2016 to November 2018. I am not worried about UPC or CSPC numbers as they are on most jurisdiction's on-line price lists. Any data above and beyond this will require time and effort by our staff and will only be provided for a fee. Let me know if you have any comments/concerns.

Mársı | Kinanāskomitin | Thank you | Merci | Hąį' | Quana | Qujannamiik | Quyanainni | Máhsı | Máhsı | Mahsì

Peter Maher
Director, Liquor Operations
NWT Liquor Commission
Finance
Government of the Northwest Territories

2nd floor, Greenway Building
31 Capital Drive
Hay River NT X0E 1G2

Phone: 867-874-8702
Cell: 867-875-7899
www.gov.nt.ca

Sub-department Single Total

Starting date 09/01/2016 0 | Ending dat 09/30/2016 | Printed: 12/13/2018 10:19:35 AM

Adding detail Month | Filter: 1000 0 5000

Store group S110 | Totalizers: 3 0 4

Code	Descriptor	Qty	Amount
Whisky			
3095	Golden Wedding Whisky PET 375ml	443	6,791.19
9522	Wisers Deluxe 10 YO Whisky PET 375ml	276	4,410.48
1370	Seagrams 83 Whisky PET 375ml	223	3,503.33
745028	Crown Royal Whisky 1140ml	102	4,989.84
1487	Crown Royal Whisky 750ml	101	3,336.03
1735	Royal Reserve Whisky PET 375ml	87	1,343.28
3558	Gibsons Finest 12 Yr Old Whisky 750ml	81	2,783.97
765908	Crown Royal PET Whisky 50ml	78	194.22
9043	Crown Royal Whisky 375ml	75	1,262.25
113837	Gibsons Finest 12 Yr Old Whisky 375ml	64	1,151.36
893	Wisers Deluxe 10 Yr Old Whisky 750ml	60	1,875.60
117739	Jack Daniels Old No 7 Whiskey PET 50ml	55	192.50
8854	Gibsons Finest 12 Yr Old Whisky 1140ml	50	2,594.00
114694	Crown Royal Whisky 1750ml	43	3,160.07
78634	Golden Wedding Whisky PET 1750ml	40	2,753.20
687	Walker Special Old Whisky PET 375ml	39	602.16
745074	Wisers Deluxe 10 Yr Old Whisky 1140ml	34	1,613.98
41384	Jack Daniels Old No. 7 Whiskey 750ml	33	1,189.98
463	Canadian Club Whisky PET 375ml	31	494.76
200741	Gibsons Finest 12 Yr Old Whisky 1750ml	29	2,302.60
10173	Five Star Whisky PET 375ml	28	439.88
119743	Jack Daniels Old No. 7 Whiskey 375ml	27	496.26
89177	Jack Daniels Old No. 7 Whiskey 1140ml	22	1,171.94
10157	Jameson Irish Whiskey 750ml	21	871.71
1297	Golden Wedding Whisky 750ml	20	599.80
550715	Forty Creek Barrel Select Whiskey 750ml	19	675.26
992	Royal Reserve Whisky PET 1140ml	19	874.19
786	Royal Reserve Whisky 750ml	18	547.20
745073	Wisers Special Blend Whisky 1140ml	18	828.36
34637	Canadian Club Whisky PET 1750ml	17	1,221.79
33928	Wisers Deluxe 10 Yr Old Whisky 1750ml	16	1,150.08
653	Silk Tassel Whisky PET 1140ml	13	598.39
189209	Gibsons Finest Sterling Ed Whisky 1140ml	13	655.59
743162	Canadian Club Whisky 1140ml	13	616.33
209205	Walker Special Old Whisky PET 1750ml	13	899.47
103747	Makers Mark Kentucky Bourbon Whiskey 750ml	11	382.47
189217	Gibsons Finest Sterling Ed Whisky 750ml	11	367.84
741112	Seagrams 83 Whisky 1140ml	10	463.50
61374	Old Bushmills Black Bush Whiskey 750ml	10	389.56
42	Canadian Club Whisky 750ml	10	311.60
21378	Jim Beam Kentucky Bourbon Whiskey 750ml	9	303.57
54213	Alberta Premium PET 1750ml	9	643.95
743098	Alberta Premium Rye Whisky 1140ml	9	413.64
561894	Tangle Ridge Rye Whisky 750ml	9	286.83

Susan.Russell

From: Kate Vallance <vallance@uvic.ca>
Sent: Monday, December 17, 2018 3:13 PM
To: Susan.Russell; Mia.Archambault
Subject: FW: Labels study liquor sales data access?
Attachments: 05666 Label Study DDA FX.pdf

Just sending the signed agreement again in case it didn't come through the first time.

Thanks!
Kate
250-472-5934

-----Original Message-----
From: Kate Vallance
Sent: Thursday, December 13, 2018 12:21 PM
To: 'Patch.Groenewegen@gov.yk.ca' <Patch.Groenewegen@gov.yk.ca>; Susan.Russell@gov.yk.ca
Cc: Mia.Archambault@gov.yk.ca
Subject: RE: Labels study liquor sales data access?

Hello all,

Please find attached the signed data share agreement!

. PI: Tim Stockwell
. Project title: Examining alcohol warning labels as a tool to increase public awareness of alcohol-related health risks and reduce alcohol intake at the population level; Evidence to inform alcohol labelling policy and practice
. Term: From 4 December 2018 to 31 March 2020

Mia, please let me know if you would like us to arrange a Fedex pick up of the flash drive.

Thanks,
Kate

Kate Vallance, MA
Research Associate
Canadian Institute for Substance Use Research University of Victoria
Phone: 250-472-5934
Email: vallance@uvic.ca
Facebook: www.facebook.com/UVic.CISUR
Twitter: www.twitter.com/UVic_CISUR
Websites: https://imsva91-ctp.trendmicro.com:443/wis/clicktime/v1/query?url=www.cisur.ca&umid=231D368F-7D3F-EC05-9311-EB1CE11C2997&auth=c132af8ee7c9d1278d61a701569070a095ce962e-8aad44bedd6759952eb26c08338a48411f2a634a | https://imsva91-ctp.trendmicro.com:443/wis/clicktime/v1/query?url=www.cmaps.ca&umid=231D368F-7D3F-EC05-9311-EB1CE11C2997&auth=c132af8ee7c9d1278d61a701569070a095ce962e-4a10811eb998582ad552603bb75c2d8caeb4332e

https://imsva91-ctp.trendmicro.com:443/wis/clicktime/v1/query?url=www.alcoholpolicy.cisur.ca&umid=231D368F-7D3F-EC05-9311-EB1CE11C2997&auth=c132af8ee7c9d1278d61a701569070a095ce962e-3f63bc0378a0439f1bcfe728f1e4aced97fc2444 | https://imsva91-ctp.trendmicro.com:443/wis/clicktime/v1/query?url=www.alcohollabels.cisur.ca&umid=231D368F-7D3F-EC05-9311-EB1CE11C2997&auth=c132af8ee7c9d1278d61a701569070a095ce962e-e9a9233dd5afcb8fc392b34ab1416d739d790457

I honour with respect the Lkwungen-speaking peoples on whose territory I live and work and the Songhees, Esquimalt and WSÁNEĆ peoples whose relationships with the land continue to this day.

-----Original Message-----
From: Patch.Groenewegen@gov.yk.ca <Patch.Groenewegen@gov.yk.ca>
Sent: Monday, December 10, 2018 9:27 AM
To: Kate Vallance <vallance@uvic.ca>; Susan.Russell@gov.yk.ca
Cc: Mia.Archambault@gov.yk.ca
Subject: RE: Labels study liquor sales data access?

Good morning Kate,
In Susan's absence this week, I will respond.
I am sure reasonable date extensions are fine.
Thanks,
Patch

-----Original Message-----
From: Kate Vallance <vallance@uvic.ca>
Sent: Monday, December 10, 2018 9:18 AM
To: Susan.Russell <Susan.Russell@gov.yk.ca>
Cc: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>; Mia.Archambault <Mia.Archambault@gov.yk.ca>
Subject: RE: Labels study liquor sales data access?

Hi Susan,

Just a quick question - we had talked about leaving open the possibility of requesting a bit more data post-July 31st in the agreement. I forgot to double check that when you sent the draft over. Could we potentially just update this document later on with revised dates if more data are needed?

Thanks,
Kate

-----Original Message-----
From: Susan.Russell@gov.yk.ca <Susan.Russell@gov.yk.ca>
Sent: Friday, December 07, 2018 4:09 PM
To: Kate Vallance <vallance@uvic.ca>
Cc: Patch.Groenewegen@gov.yk.ca; Mia.Archambault@gov.yk.ca
Subject: RE: Labels study liquor sales data access?

Hi Kate:

The signed agreement is attached.

Please have Brent sign and then email back to myself, Patch and Mia.

Mia will then send the encrypted flash drive to Tim Stockwell as per the agreement.

Thank you.

Susan

Susan Russell
Director, Finance and Information Management Yukon Liquor Corporation, Yukon Lottery Commission | Finance T 867-667-3704 | C 867-332-3282 | F 867-393-6306 Susan.Russell@gov.yk.ca | Yukon.ca

-----Original Message-----
From: Kate Vallance <vallance@uvic.ca>
Sent: Thursday, December 06, 2018 3:14 PM
To: Susan.Russell <Susan.Russell@gov.yk.ca>
Cc: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>
Subject: RE: Labels study liquor sales data access?

Hi Susan,

The agreement looks fantastic!! If possible we would like to make the following minor changes:

1) We request that the flash drive be sent "via either Canada Post or FedEx tracked package"...

2) Under "UVic agrees to the following terms" we request that a new bullet point with the following language be added, "UVic may publish and disseminate the aggregated data but will not publish the raw data"

3) Under "UVic agrees to the following terms" points 1, 2, and 3 we ask that all references to "data" be changed to "raw data", which will allow UVic to retain copies of the aggregated data

Also, just a note that we are happy to pay for the shipping of the flash drive!

Thanks so much,

Kate
250-472-5934

-----Original Message-----
From: Susan.Russell@gov.yk.ca <Susan.Russell@gov.yk.ca>
Sent: Thursday, December 06, 2018 12:55 PM
To: Kate Vallance <vallance@uvic.ca>
Cc: Patch.Groenewegen@gov.yk.ca
Subject: RE: Labels study liquor sales data access?

Hi Kate:

Attached is a draft of the agreement.

Please review and let me know if you would like anything changed.

Thanks

Susan

Susan Russell
Director, Finance and Information Management Yukon Liquor Corporation, Yukon Lottery Commission | Finance T 867-667-3704 | C 867-332-3282 | F 867-393-6306 Susan.Russell@gov.yk.ca | Yukon.ca

-----Original Message-----
From: Kate Vallance <vallance@uvic.ca>
Sent: Tuesday, December 04, 2018 4:03 PM
To: Susan.Russell <Susan.Russell@gov.yk.ca>
Subject: RE: Labels study liquor sales data access?

Awesome! You are a star!!

-----Original Message-----
From: Susan.Russell@gov.yk.ca <Susan.Russell@gov.yk.ca>
Sent: Tuesday, December 04, 2018 3:51 PM
To: Kate Vallance <vallance@uvic.ca>
Subject: RE: Labels study liquor sales data access?

Thanks, Kate.

Should have agreement letter to you tomorrow.

Susan Russell
Director, Finance and Information Management Yukon Liquor Corporation, Yukon Lottery Commission | Finance T 867-667-3704 | C 867-332-3282 | F 867-393-6306 Susan.Russell@gov.yk.ca | Yukon.ca

-----Original Message-----
From: Kate Vallance <vallance@uvic.ca>
Sent: Tuesday, December 04, 2018 2:34 PM
To: Susan.Russell <Susan.Russell@gov.yk.ca>
Subject: RE: Labels study liquor sales data access?

Hi Susan,

Sorry I missed your call! The package can be addressed to Tim Stockwell and I believe the study name in full is: "Examining alcohol warning labels as a tool to increase public awareness of alcohol-related health risks and reduce alcohol intake at the population level: evidence to inform alcohol labelling policy and practice"

Kate

-----Original Message-----
From: Susan.Russell@gov.yk.ca <Susan.Russell@gov.yk.ca>

Sent: Tuesday, December 04, 2018 1:45 PM
To: Kate Vallance <vallance@uvic.ca>
Subject: RE: Labels study liquor sales data access?

Hi Kate:

I left you a message but thought I might be able to speed things up by emailing you my two questions.

1. Please provide the name of the person the package will be given to.

2. What is the specific name of the study? Example: YLC and UofVic partnered in a study to???? I am not able to find anything in this email or Patch's paper file.

Thanks

Susan

Susan Russell
Director, Finance and Information Management Yukon Liquor Corporation, Yukon Lottery Commission | Finance T 867-667-3704 | C 867-332-3282 | F 867-393-6306 Susan.Russell@gov.yk.ca | Yukon.ca

-----Original Message-----
From: Kate Vallance <vallance@uvic.ca>
Sent: Wednesday, November 28, 2018 3:22 PM
To: Susan.Russell <Susan.Russell@gov.yk.ca>
Subject: RE: Labels study liquor sales data access?

Hi Susan,

Thanks for the call!

Here is our courier address:

Canadian Institute for Substance Use Research
2300 McKenzie Ave, Room 273
Victoria BC
V8P 5C2

And here is Rachel Corder's email address - she is our Research Agreements Facilitator at UVic
<contractsfacilitator3@uvic.ca>

Happy to chat again if any other questions come up!

Kate

-----Original Message-----
From: Susan.Russell@gov.yk.ca <Susan.Russell@gov.yk.ca>
Sent: Tuesday, November 27, 2018 3:23 PM
To: Kate Vallance <vallance@uvic.ca>

Subject: RE: Labels study liquor sales data access?

Thanks, Kate.

I will be reviewing the draft tomorrow and probably do some revisions and then I should be able to share with you by Thursday and we can figure out together if changes are required.

I might have questions tomorrow.

Susan

Susan Russell
Director, Finance and Information Management Yukon Liquor Corporation, Yukon Lottery Commission | Finance T 867-667-3704 | C 867-332-3282 | F 867-393-6306 Susan.Russell@gov.yk.ca | Yukon.ca

-----Original Message-----
From: Kate Vallance <vallance@uvic.ca>
Sent: Tuesday, November 27, 2018 2:21 PM
To: Susan.Russell <Susan.Russell@gov.yk.ca>
Subject: RE: Labels study liquor sales data access?

Hi Susan,

Just wanted to touch base about letter for data transfer. I would be happy to have a chat on the phone if there are any details you wanted to go over or feel free to shoot me an email if you have any questions right off the bat!

Thanks,
Kate

Kate Vallance, MA
Research Associate
Canadian Institute for Substance Use Research University of Victoria
Phone: 250-472-5934
Email: vallance@uvic.ca
Facebook: www.facebook.com/UVic.CISUR
Twitter: www.twitter.com/UVic_CISUR
Websites: https://imsva91-ctp.trendmicro.com:443/wis/clicktime/v1/query?url=www.cisur.ca&umid=802971F1-7BAC-DD05-B0C8-58B09F7C0201&auth=c132af8ee7c9d1278d61a701569070a095ce962e-4d85e5773be544ed53f4f98c5bdd71c150fda107 | https://imsva91-ctp.trendmicro.com:443/wis/clicktime/v1/query?url=www.cmaps.ca&umid=802971F1-7BAC-DD05-B0C8-58B09F7C0201&auth=c132af8ee7c9d1278d61a701569070a095ce962e-1bc2f3fcd0bedb6f5d42e910f7530c6462f49bf5 https://imsva91-ctp.trendmicro.com:443/wis/clicktime/v1/query?url=www.alcoholpolicy.cisur.ca&umid=802971F1-7BAC-DD05-B0C8-58B09F7C0201&auth=c132af8ee7c9d1278d61a701569070a095ce962e-7680b24c0e62901d2913fbc51221b4df0d9d27f3 | https://imsva91-ctp.trendmicro.com:443/wis/clicktime/v1/query?url=www.alcohollabels.cisur.ca&umid=802971F1-7BAC-DD05-B0C8-58B09F7C0201&auth=c132af8ee7c9d1278d61a701569070a095ce962e-b16c5254146414cece05e1698de055790c1eca89

I honour with respect the Lkwungen-speaking peoples on whose territory I live and work and the Songhees, Esquimalt and WSÁNEĆ peoples whose relationships with the land continue to this day.

-----Original Message-----
From: Kate Vallance
Sent: Wednesday, November 21, 2018 5:21 PM
To: Patch.Groenewegen@gov.yk.ca
Cc: Tim Stockwell <timstock@uvic.ca>; Erin.Hobin@oahpp.ca; Susan.Russell@gov.yk.ca
Subject: Re: Labels study liquor sales data access?

Hi Patch,

Thanks for the update - we can definitely work with Susan to keep things moving at a fast crawl! Letter of transmittal sounds good if that works on your end. Happy to take a look whenever there is something ready for review.

Hope you have a wonderful and relaxing time off with no mid-vacation conference calls this time!

Kate

Kate Vallance, MA
Research Associate
Canadian Institute for Substance Use Research University of Victoria
Phone: 250-472-5934
Email: vallance@uvic.ca

From: Patch.Groenewegen@gov.yk.ca <Patch.Groenewegen@gov.yk.ca>
Sent: Wednesday, November 21, 2018 5:04 PM
To: Kate Vallance
Cc: Tim Stockwell; Erin.Hobin@oahpp.ca; Susan.Russell@gov.yk.ca
Subject: RE: Labels study liquor sales data access?

Thanks bunches Kate!

Based on the draft agreement provided, our shop drafted up something similar in nature as a 'letter of transmittal' of sorts.
However, I am going away for some time off (pretty much the first time since when I went to US last March!) and for two weeks.
So I have asked Susan (cc'd) to help move this along again; unfortunately, things have not been dull enough to keep this rocking quickly forward :) ... but we will get there soon.

Thanks for your patience folks!
Patch

-----Original Message-----
From: Kate Vallance [mailto:vallance@uvic.ca]
Sent: Wednesday, November 21, 2018 3:01 PM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>
Cc: Tim Stockwell <timstock@uvic.ca>; Erin.Hobin@oahpp.ca

Subject: Re: Labels study liquor sales data access?

Great! I can add that information as well as the exact details of the request into the draft agreement that Rachel circulated and send that back to you for review if that works? I don't it specifies that info currently.

Kate Vallance, MA
Research Associate
Canadian Institute for Substance Use Research University of Victoria
Phone: 250-472-5934
Email: vallance@uvic.ca

From: Patch.Groenewegen@gov.yk.ca <Patch.Groenewegen@gov.yk.ca>
Sent: Wednesday, November 21, 2018 2:41 PM
To: Kate Vallance
Cc: Tim Stockwell; Erin.Hobin@oahpp.ca
Subject: RE: Labels study liquor sales data access?

Yes thanks; such details helps with releasing the data.

-----Original Message-----
From: Kate Vallance [mailto:vallance@uvic.ca]
Sent: Wednesday, November 21, 2018 1:09 PM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>
Cc: Tim Stockwell <timstock@uvic.ca>; Erin.Hobin@oahpp.ca
Subject: Re: Labels study liquor sales data access?

Hi Patch,

Yup, Rachel. The data will be stored and analysed at UVic only but the results of the analysis will be used by both Tim at UVic and Erin at PHO in reports and papers. Does that help?

Kate

Kate Vallance, MA
Research Associate
Canadian Institute for Substance Use Research University of Victoria
Phone: 250-472-5934
Email: vallance@uvic.ca

From: Patch.Groenewegen@gov.yk.ca <Patch.Groenewegen@gov.yk.ca>
Sent: Wednesday, November 21, 2018 12:45 PM
To: Kate Vallance
Cc: Tim Stockwell; Erin.Hobin@oahpp.ca
Subject: RE: Labels study liquor sales data access?

Hello there ... I think it was Rachel.

Question to you folks - who will be using the data - is it under only UoV or PHO or both?

-----Original Message-----
From: Kate Vallance [mailto:vallance@uvic.ca]
Sent: Tuesday, November 13, 2018 10:25 AM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>
Cc: Tim Stockwell <timstock@uvic.ca>; Erin Hobin (Erin.Hobin@oahpp.ca) <Erin.Hobin@oahpp.ca>
Subject: RE: Labels study liquor sales data access?

Hi Patch,

I just realized you may have been asking about an email address for Rachel Corder (her email is Research Agreements Facilitator <contractsfacilitator3@uvic.ca>) in addition to Leah Syme (Contracts Facilitator Assistant <contractsassistant@uvic.ca>) who is assisting her.

I can send you both an email to connect you if that's helpful :)

Kate

-----Original Message-----
From: Kate Vallance
Sent: Monday, November 05, 2018 9:02 AM
To: 'Patch.Groenewegen@gov.yk.ca' <Patch.Groenewegen@gov.yk.ca>
Cc: erinhobin@hotmail.com; Tim Stockwell <timstock@uvic.ca>
Subject: RE: Labels study liquor sales data access?

Morning Patch! Thanks for touching base. I believe the person you were working with was Leah Syme - Contracts Facilitator Assistant <contractsassistant@uvic.ca>

Kate

-----Original Message-----
From: Patch.Groenewegen@gov.yk.ca <Patch.Groenewegen@gov.yk.ca>
Sent: Monday, November 05, 2018 8:47 AM
To: Kate Vallance <vallance@uvic.ca>
Cc: erinhobin@hotmail.com; Tim Stockwell <timstock@uvic.ca>
Subject: RE: Labels study liquor sales data access?

My brain is not sparking hot this morning - what is the name of the lady who reached out to me with a data sharing agreement of sorts?

-----Original Message-----
From: Patch.Groenewegen
Sent: Monday, November 05, 2018 8:46 AM
To: 'Kate Vallance' <vallance@uvic.ca>
Cc: 'erinhobin@hotmail.com' <erinhobin@hotmail.com>; 'Tim Stockwell' <timstock@uvic.ca>
Subject: RE: Labels study liquor sales data access?

Good morning all,
You are still on my radar ... I hope to connect this week sometime.

Thanks,
Patch

-----Original Message-----
From: Kate Vallance <vallance@uvic.ca>
Sent: Friday, October 26, 2018 3:08 PM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>
Cc: erinhobin@hotmail.com; Tim Stockwell <timstock@uvic.ca>
Subject: RE: Labels study liquor sales data access?

Hi Patch,

Just checking in! Happy to catch up next week if that works for you.

Hope you have a great weekend!

Kate

-----Original Message-----
From: Kate Vallance
Sent: Tuesday, October 23, 2018 9:26 AM
To: Patch.Groenewegen@gov.yk.ca
Cc: erinhobin@hotmail.com; Tim Stockwell <timstock@uvic.ca>
Subject: RE: Labels study liquor sales data access?

Hi Patch,

Thanks for the update! I can touch base again on Friday and see where you are at - hopefully winning the battle at that point!

Have a great week.

Kate

Kate Vallance, MA
Research Associate
Canadian Institute for Substance Use Research (formerly CARBC) University of Victoria
Phone: 250-472-5934
Email: vallance@uvic.ca
Facebook: www.facebook.com/UVic.CISUR
Twitter: www.twitter.com/UVic_CISUR
Website: https://imsva91-ctp.trendmicro.com:443/wis/clicktime/v1/query?url=www.cisur.ca&umid=94ECDB97-7928-F405-8C0C-31ED24C304E7&auth=c132af8ee7c9d1278d61a701569070a095ce962e-1b728fc34fe8c8412093855765eadf18feada24c

---

From: Patch.Groenewegen@gov.yk.ca [Patch.Groenewegen@gov.yk.ca]
Sent: Tuesday, October 23, 2018 8:48 AM
To: Kate Vallance
Cc: erinhobin@hotmail.com; Tim Stockwell

Subject: RE: Labels study liquor sales data access?

Good morning Kate,

Kevin is no longer working with YG.
We are still addressing numerous media requests about cannabis launch, etc. so I cannot set my mind to it quite yet.

Please give me until end of this week to review the file and get back to you; however, we are almost there.

Chat soon,
Patch

-----Original Message-----
From: Kate Vallance <vallance@uvic.ca>
Sent: Tuesday, October 23, 2018 8:45 AM
To: Kevin.O'Connor <Kevin.OConnor@gov.yk.ca>; Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>
Cc: Erin Hobin <erinhobin@hotmail.com>; Tim Stockwell <timstock@uvic.ca>
Subject: RE: Labels study liquor sales data access?

Hi Kevin and Patch,

Hope all went well with the cannabis legalization launch last week! Just wanted to check in to see how things are going with setting up the data sharing agreement with Uvic and whether it might be helpful to set up a meeting in the next month or so to discuss next steps?

Thanks,
Kate

From: Kate Vallance
Sent: Thursday, September 06, 2018 9:36 AM
To: Kevin.OConnor@gov.yk.ca
Cc: Erin Hobin <erinhobin@hotmail.com>; Tim Stockwell <timstock@uvic.ca>; 'Patch.Groenewegen@gov.yk.ca' <Patch.Groenewegen@gov.yk.ca>
Subject: Labels study liquor sales data access?

Hi Kevin,

Hope this finds you well! Just wanted to touch base about next steps for getting access to the sales data for the Whitehorse and five other liquor stores for the labels study. Did you need any further information from us? I think that having the data in the xls or csv format on a disc as far back as we could go (sounds like 3 yrs?) would work really well.

Thanks again for being willing to help us out with this!!

Best,
Kate

Kate Vallance, MA
Research Associate
Canadian Institute for Substance Use Research (formerly CARBC) University of Victoria
Phone: 250-472-5934

Email: vallance@uvic.ca<mailto:vallance@uvic.ca>
Facebook: www.facebook.com/UVic.CISUR<http://www.facebook.com/UVic.CISUR>
Twitter: www.twitter.com/UVic_CISUR<http://www.twitter.com/UVic_CISUR>
Website: https://imsva91-ctp.trendmicro.com:443/wis/clicktime/v1/query?url=www.cisur.ca&umid=246745F1-78E7-3F05-8A05-580781962730&auth=c132af8ee7c9d1278d61a701569070a095ce962e-b76433c472dcaad20e3298fc2cdf3f544326d3a1<https://imsva91-ctp.trendmicro.com:443/wis/clicktime/v1/query?url=http%3a%2f%2fwww.cisur.ca&umid=246745F1-78E7-3F05-8A05-580781962730&auth=c132af8ee7c9d1278d61a701569070a095ce962e-0ee36ba6bc1f5e7911b00576fa8ec4c2377f1087>

From: Jen Theil
Sent: Monday, June 25, 2018 9:58 AM
To: Tim Stockwell <timstock@uvic.ca<mailto:timstock@uvic.ca>>; Kevin.OConnor@gov.yk.ca<mailto:Kevin.OConnor@gov.yk.ca>
Cc: Erin Hobin <erinhobin@hotmail.com<mailto:erinhobin@hotmail.com>>; Kate Vallance <vallance@uvic.ca<mailto:vallance@uvic.ca>>
Subject: RE: Urgentish data issue - advice pls

Hi Kevin, our postal address is:

Tim Stockwell
CISUR
University of Victoria
PO Box 1700 Stn CSC
Victoria BC V8W 2Y2

Thanks!

Jen Theil
Assistant to Dr Tim Stockwell
Canadian Institute for Substance Use Research (formerly CARBC) University of Victoria<http://www.uvic.ca/>
jtheil@uvic.ca<mailto:jtheil@uvic.ca>
Facebook: www.facebook.com/UVic.CISUR<http://www.facebook.com/UVic.CISUR>
Twitter: www.twitter.com/UVic_CISUR<http://www.twitter.com/UVic_CISUR>
Web: cisur.ca

From: Tim Stockwell
Sent: Monday, June 25, 2018 9:57 AM
To: Kevin.OConnor@gov.yk.ca<mailto:Kevin.OConnor@gov.yk.ca>
Cc: Erin Hobin <erinhobin@hotmail.com<mailto:erinhobin@hotmail.com>>; Kate Vallance <vallance@uvic.ca<mailto:vallance@uvic.ca>>; Jen Theil <jtheil@uvic.ca<mailto:jtheil@uvic.ca>>
Subject: Re: Urgentish data issue - advice pls

Hi Kevin
Thanks so much for getting back to me. Very nice to meet somebody who has actually read something I've written!! Sounds like we should get a dump of data as soon as possible and then we can store that while we wait for another year's worth when it's ready. Yes please to the product level sales data for both the Whitehorse store and the five other locations. Any file format will work for us. It would be great to have good descriptions of each variable in your dataset.
Really appreciate your help
Cheers

Tim
PS in case you send a disc through the regular mail, Jen will send you our postal address

From: "Kevin.OConnor@gov.yk.ca<mailto:Kevin.OConnor@gov.yk.ca>"
<Kevin.OConnor@gov.yk.ca<mailto:Kevin.OConnor@gov.yk.ca>>
Date: Wednesday, 20 June 2018 at 09:18
To: Tim Stockwell <timstock@uvic.ca<mailto:timstock@uvic.ca>>
Subject: RE: Urgentish data issue - advice pls

Hello Tim,

I knew I recognized your name, I have read quite a few of your articles over the years. Good work!

Our vendor doesn't back up any of our data beyond 3 years. YLC would have to pay them to backup and store our data, not sure if they want to pay them to do that. I can provide sales data from Whitehorse store that I have available (after Patch gives me the okay), but we don't keep track of individual SKU sales from private businesses. You would also like sales data for our other 5 community locations?

I can have the vendor pull all relevant SKU data from the database into formatted .csv or .xls files if that's what you would like? I assume that would be preferable vs. inputting data from a mountain of out of the box reports.

Kind regards,

[cid:image004.png@01D3BC6B.A1D527A0]

Kevin O'Connor
Functional Analyst
Highways and Public Works | Service Innovation and Support T 867-334-4945 | Yukon.ca

From: Tim Stockwell [mailto:timstock@uvic.ca]
Sent: Tuesday, June 19, 2018 2:34 PM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca<mailto:Patch.Groenewegen@gov.yk.ca>>
Cc: Kevin.O'Connor <Kevin.OConnor@gov.yk.ca<mailto:Kevin.OConnor@gov.yk.ca>>; Erin Hobin
<erinhobin@hotmail.com<mailto:erinhobin@hotmail.com>>; Kate Vallance
<vallance@uvic.ca<mailto:vallance@uvic.ca>>
Subject: Re: Urgentish data issue - advice pls

Thanks Patch, much appreciated
Hi Kevin, pleased to meet you. You may know I am a coinvestigator with Erin Hobin and the alcohol labelling project.
My first concern is to see if it's possible to prevent any deletion of your alcohol sales datasets for earlier years? I understand you only keep three years worth as anyone time. For us, the more years worth of data the better.
It would be good to also have a conversation about what you have but in general terms we are after product level sales data over time and by location (e.g. Whitehorse store versus other Whitehorse outlets versus the rest of the Yukon). Do you have a handy list of the data elements you have readily available? We would need to make a formal request of course with undertakings for maintaining confidentiality. We have a lot of experience of that and high standards are set here at the University of Victoria.
In my experience, it's easiest for you and for us to discuss an exchange of raw data so no computations have to be done at your end.

Please let me know how you would like to proceed - whether by email like this and/or with a phone call perhaps sometime towards the end of next week?
Best wishes
Tim
Dictated by voice recognition - apologies for any errors Tim Stockwell, PhD Director, Canadian Institute for Substance Use Research (formerly CARBC) Professor, Department of Psychology University of Victoria, BC Fellow, Canadian Academy of Health Sciences
Tel: 1 250 472 5445
Fax: 1 250 472 5321
Cell: 1 250 415 7376

From: "Patch.Groenewegen@gov.yk.ca<mailto:Patch.Groenewegen@gov.yk.ca>"
<Patch.Groenewegen@gov.yk.ca<mailto:Patch.Groenewegen@gov.yk.ca>>
Date: Tuesday, 19 June 2018 at 14:18
To: Tim Stockwell <timstock@uvic.ca<mailto:timstock@uvic.ca>>
Cc: "Kevin.OConnor@gov.yk.ca<mailto:Kevin.OConnor@gov.yk.ca>"
<Kevin.OConnor@gov.yk.ca<mailto:Kevin.OConnor@gov.yk.ca>>
Subject: RE: Urgentish data issue - advice pls

Tim,

I have cc'd Kevin, our internal IT support.
Maybe you two can connect directly to confirm what all you need, etc.

Thanks,
Patch

From: Patch.Groenewegen
Sent: Monday, June 18, 2018 6:04 PM
To: Tim Stockwell <timstock@uvic.ca<mailto:timstock@uvic.ca>>; Erin Hobin
<erinhobin@hotmail.com<mailto:erinhobin@hotmail.com>>; Kate Vallance
<vallance@uvic.ca<mailto:vallance@uvic.ca>>
Subject: Re: Urgentish data issue - advice pls

Hello Tim et al,
I am working with our IT crew to get on the data. I hope to have some answers in the next few; I sent along your note too so they understand your need. Keep you posted when I know more.
Patch

Sent from my BlackBerry 10 smartphone on the Bell network.
From: Tim Stockwell
Sent: Monday, June 18, 2018 15:14
To: Patch.Groenewegen; Erin Hobin; Kate Vallance
Subject: Urgentish data issue - advice pls

Hi Patch
Amazing that the final follow-up for survey data collection is about to start up. We are very happy with the young woman who will be looking after Whitehorse interviews, very capable and well organized.
I emailed you a few weeks back about the Yukon alcohol sales data but may be made it sound a little complicated. Is there somebody we could speak to by phone who is responsible for storing your sales data? I believe that at the end of each fiscal year when the dataset is compiled for that year one for 3 years previously is deleted. We are hoping to

prevent this happening ASAP to maximise the amount of data we can analyse. So... If by chance this hasn't been done yet for 2018/2019 data compilation could we please speak to somebody to request no deletion of sales data until we have access to previous years datasets?

I hope you're not drowning in cannabis -related matters!

All the best

Tim

Northern Territories Alcohol Label Study- Options Paper

Purpose: To review options for next steps on the Northern Territories Alcohol Label Study.

Background:

The purpose of the Northern Territories Alcohol Label Study was to test if large, highly visible labels on alcohol containers with a cancer message, Canada's low-risk drinking guidelines (LRDG), and standard drink information support more informed and safer alcohol consumption. The labels were applied in rotation, and participants were approached at Liquor Stores in Whitehorse and Yellowknife (the comparison site) to participate in three survey "waves". The study ran from May 2017 to July 2018.

Researchers Tim Stockwell and Erin Hobin released a series of articles[i] from the study as part of a special section in the Journal of Studies on Alcohol and Drugs on May 4, 2020. They also provided YLC with a copy of a draft of the final report submitted to Health Canada in April 2020. In an e-mail to YLC, the researchers summarized key study results as follows:

- *About 300,000 labels were applied to 98 per cent of alcohol containers sold in the liquor store in Whitehorse over the study period. cent of alcohol containers sold in the liquor store in Whitehorse over the study period.*
- *Prior to the new labels, Yukon consumer awareness of alcohol's cancer risk, of Canada's national drinking guidelines, and of the number of standard drinks in containers was low.*
- *After the new labels were introduced in the main liquor store in Whitehorse, consumer awareness of alcohol's cancer risk and Canada's national drinking guidelines increased in Whitehorse compared to Yellowknife, where no new labels were added.*
- *Consumers who became aware that alcohol can cause cancer were twice as likely to express support for policies to increase the price of cheap alcohol.*
- *Analysis of the sales data showed that average alcohol consumption in Whitehorse decreased by 6% during the study period compared to NWT and neighbouring regions in Yukon.*
- *Average consumption of alcohol sold in labelled alcohol containers decreased by 7 per cent while average consumption of alcohol from the many fewer unlabeled containers increased by 7 per cent.*
- *Expert legal analysis showed that the Canadian alcohol industry lobbyists statements about the legality of alcohol warning labels were flawed. Instead, the analysis showed that Canadian territories and provinces have a duty to inform consumers about the health risks of a product they are involved in distributing, promoting and selling. Failure to adequately inform consumers exposes governments to future civil lawsuits as happened with tobacco.*

Methodology review:

YLC sought a review of the study's methodology from the Yukon Bureau of Statistics and Executive Council Office Science Policy Advisors. Both branches received the series of articles in the Journal of Studies on Alcohol and Drugs released in May, and the draft final report to Health Canada. Below is a summary combining their analysis.

The Journal of Studies on Alcohol and Drugs' is a reputable journal. The authors' decision to publish the findings of interrelated articles within the same issue will likely result in the work, as a whole, having a greater impact within the scientific community. This impact is also encouraged by the Journal editor's introduction to the issue, where the studies are described as ground-breaking. Together, this will increase the impact of this work.

The sales data and the population samples are not fully representative of the situation in Yukon. There is little information available in the articles around the high refusal to participate in the survey (91.5% in waves 2 and 3) and the survey drop-outs, and their potential effect on the survey. The small survey sample size in Yukon and NWT, as well as the pause in the study and associated media coverage, led to smaller differences in knowledge between the intervention and comparison sites, though this is highlighted by Hobin et al.[ii]

Zhao et al[iii] downplays, to some degree, the media attention surrounding the suspension of the study and the role this may have played in the results. There is brief mention of this in the discussion portion, but a fairly strong conclusion ("Applying new alcohol warning labels was associated with reduced population alcohol consumption") is drawn despite this cautionary note.

Overall, relevant authors across the articles are open about those study limitations that they see as most important and their impact on the results. The conclusions are appropriately softened based on these limitations. It would be challenging for any government agency or industry group to get any traction on issues they may have with the methodology or the findings of these studies outside of the credibility of a peer review process. If there are flaws that are great cause for concern, the best way to address them would be through the scientific community as a whole.

Alcohol labelling worldwide:

Stockwell et al[iv] identify 47 World Health Organization member countries with some requirements for warning labels, and highlight that only South Korea and Ireland currently require these to mention cancer (See table in Annex 1).

Yukon and NWT were among the earliest adopters of alcohol labelling with the 1991 pregnancy warning label. The idea of alcohol labelling as a tool to improve public health is

growing. On July 31 2020, New Zealand and Australia announced the start of a three-year transition period for mandatory pregnancy warning labels on alcohol. Ireland introduced the Public Health Alcohol Act in 2018, which includes requirements to label alcohol products with health, pregnancy and cancer warning messages. Both these labelling decisions involved controversial discussions with industry.

Some governments and institutions launch non-binding initiatives when addressing alcohol labelling. The European Commission has worked closely with the alcohol industry to encourage them to voluntarily commit to nutrition and ingredients listing.[v] In the United Kingdom, the Public Health Responsibility Deal sought non-binding pledges from the alcohol industry to implement labels with National Health Service Drinking Guidelines and a warning about drinking when pregnant on 80 per cent of products, among other measures. Non-binding measures such as these generally do not gain the support of health advocates and healthcare stakeholders question the intent, industry commitment and effectiveness of the measures.

Canada is in the midst of revising and expanding national-level strategies covering alcohol: the National Alcohol Strategy and the Canadian Drugs and Substances Strategy. The National Alcohol Strategy, first developed in 2007, is under review since 2019 by a new committee which no longer includes industry.[1] Alcohol labelling is on the agenda for discussion. Health Canada leads the Canadian Drugs and Substances Strategy, a high-level strategy launched in 2016, and is developing a detailed strategy based on their public engagement document, which includes feedback on alcohol labelling.[vi] There is no timeline yet on the release of either set of updated strategies.

Research on warning label effectiveness:

Zhao et al highlight that there is currently limited evidence that cancer warning labels affect population alcohol consumption: “With limited uptake worldwide, the effectiveness of cancer warning labels on alcohol remains largely unstudied (Martin-Moreno et al., 2013).” Zhao’s article contends that there is a growing literature on the characteristics of effective warning labels (salience, colour, etc.) and that the Northern Alcohol Labels Study labels are informed by this literature as well as consultations with local and international health experts and community stakeholders. As mentioned in the methodology review above, a fairly strong conclusion is drawn (“Applying new alcohol warning labels was associated with reduced population alcohol consumption”) despite the role media coverage could have played in the

[1] The committee is co-chaired by Canadian Centre on Substance Use and Addiction, MADD Canada, Government of Alberta. It includes CIHR, people with lived experience, Institute national de santé publique du Québec, Transport Canada, Office of Alcohol Policy, Health Canada, University of Calgary, Community Addictions Peer Support Association, Health PEI, Société des alcools du Québec, Manitoba Health, Seniors and Active Living, Éduc’alcool, BC Ministry of Health, First Peoples Group, CanFASD, Canadian Public Health Association, Chief Medical Officer of Health, Nova Scotia, Public Health Agency of Canada, Canadian Association of Emergency Physicians, College of Family Physicians of Canada, CALJ.

result. In his commentary on Stockwell and Hobin's series of articles, Babor concedes that "no one country is likely to provide definitive answers to critical policy questions about alcohol warning labels." However he contends that the articles offer "a clear set of conclusions that cannot be ignored" including the fact that "additional cancer label intervention studies are needed to refine the messages and study their impact in research programs that are not compromised by industry interference."[vii]

France has required pregnancy warning labels on bottles since 2006, and has reported increased awareness of the harms of drinking during pregnancy as part of a broader public information strategy. This included information for students in schools, a national media campaign, and information for pregnant women, epidemiological monitoring and training for professionals.[viii]

From the perspective of industry, a 2019 paper by International Alliance for Responsible Drinking, a not-for-profit supported by global beer, wine, and spirits producers contends that "Many studies attempt to address health warning label effectiveness by analyzing participants' self-reported awareness of labels or motivation and intention to change drinking habits. However, broader research indicates that not all of those who declare intentions to change a particular behavior actually do so."[ix]

Options:

74(1)(a)

Northern Territories Alcohol Label Study- Options Paper

74(1)(a)

Northern Territories Alcohol Label Study- Options Paper

74(1)(a)

Northern Territories Alcohol Label Study- Options Paper

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Other Considerations

The Yukon Liquor Corporation already conducts the following social responsibility initiatives that help to inform Yukoners of the health risks of alcohol consumption:

- The Rethink that Drink initiative aims to help Yukoners think about safer alcohol consumption patterns and limits. In winter 2019, the Yukon Liquor Corporation delivered in-store information sessions at its liquor stores Whitehorse, Haines Junction, Faro, Mayo, Dawson City and Watson Lake.
- The Corporation has added shopping cart and basket cards, with Low Risk Drinking Guidelines and standard drink messaging in all its stores.
- Installed a social responsibility rack card shelf at the Whitehorse Liquor Store with information about Low Risk Drinking Guidelines. A digital screen will soon be available and will display messaging about responsible alcohol consumption.
- The Corporation provides FASSY with ongoing support for a range of Fetal Alcohol Spectrum Disorder (FASD) awareness initiatives, such as participating on the FASD Interagency Advisory Committee and helping to create marketing materials to encourage a safe pregnancy without alcohol or cannabis.
- Messaging about responsible consumption (liquor and cannabis) is shared on social media and in store.
- Safe Grad funding, to encourage schools to discuss substance use with youth and host alcohol-free graduation.

74(1)(a)

Annex 1

Table 1 of 1

Table 1. Types of warning label requirements in World Health Organization (WHO) member countries

Country			Health warning types		
	WHO Member countries *n*	Health warnings *n* (%)	Pregnancy *n* (%)	Underage drinking *n* (%)	Drink driving *n* (%)
Americas	35	13 (37.1)	5 (14.3)	6 (17.1)	5 (14.3)
Africa	46	11 (23.9)	6 (13.0)	14 (30.4)	9 (19.6)
Eastern Mediterranean	21	2 (9.5)	1 (4.8)	1 (4.8)	0 (0.0)
Europe	53	13 (24.5)	13 (24.5)	12 (22.6)	11 (20.8)
Southeast Asia	11	2 (18.2)	0 (0.0)	1 (9.1)	1 (9.1)
Western Pacific	28	6 (21.4)	2 (7.1)	7 (25.0)	5 (17.9)
Total	194	47 (24.2)	27 (13.9)	41 (21.1)	31 (16.0)

Source: WHO Global Information System on Alcohol and Health.

[i] The Arrogance of Power: Alcohol Industry Interference With Warning Label Research Thomas F. Babor 81(2), pp. 222–224; The Effects of Alcohol Warning Labels on Population Alcohol Consumption: An Interrupted Time Series Analysis of Alcohol Sales in Yukon, Canada Jinhui Zhao, Tim Stockwell, Kate Vallance, Erin Hobin 81(2), pp. 225–237; Baseline Assessment of Alcohol-Related Knowledge of and Support for Alcohol Warning Labels Among Alcohol Consumers in Northern Canada and Associations With Key Sociodemographic Characteristics Kate Vallance, Tim Stockwell, Jinhui Zhao, Simran Shokar, Nour Schoueri-Mychasiw, David Hammond, Thomas K. Greenfield, Jonathan McGavock, Ashini Weerasinghe, Erin Hobin 81(2), pp. 238–248; Testing Alcohol Labels as a Tool to Communicate Cancer Risk to Drinkers: A Real-World Quasi-Experimental Study Erin Hobin, Ashini Weerasinghe, Kate Vallance, David Hammond, Jonathan McGavock, Thomas K. Greenfield, Nour Schoueri-Mychasiw, Catherine Paradis, Tim Stockwell 81(2), pp. 249–261; Examining the Impact of Alcohol Labels on Awareness and Knowledge of National Drinking Guidelines: A Real-World Study in Yukon, Canada Nour Schoueri-Mychasiw, Ashini Weerasinghe, Kate Vallance, Tim Stockwell, Jinhui Zhao, David Hammond, Jonathan McGavock, Thomas K. Greenfield, Catherine Paradis, Erin Hobin 81(2), pp. 262–272; News Media and the Influence of the Alcohol Industry: An Analysis of Media Coverage of Alcohol Warning Labels With a Cancer Message in Canada and Ireland Kate Vallance, Alexandria Vincent, Nour Schoueri-Mychasiw, Tim Stockwell, David Hammond, Thomas K. Greenfield, Jonathan McGavock, Erin Hobin 81(2), pp. 273–283; Cancer Warning Labels on Alcohol Containers: A Consumer's Right to Know, a Government's Responsibility to Inform, and an Industry's Power to Thwart Tim Stockwell, Robert Solomon,Paula O'Brien, Kate Vallance, Erin Hobin 81(2), pp. 284–292

[ii] Testing Alcohol Labels as a Tool to Communicate Cancer Risk to Drinkers: A Real-World Quasi-Experimental Study Erin Hobin, Ashini Weerasinghe, Kate Vallance, David Hammond, Jonathan McGavock, Thomas K. Greenfield, Nour Schoueri-Mychasiw, Catherine Paradis, Tim Stockwell 81(2)

[iii] The Effects of Alcohol Warning Labels on Population Alcohol Consumption: An Interrupted Time Series Analysis of Alcohol Sales in Yukon, Canada Jinhui Zhao, Tim Stockwell, Kate Vallance, Erin Hobin 81(2)

[iv] Cancer Warning Labels on Alcohol Containers: A Consumer's Right to Know, a Government's Responsibility to Inform, and an Industry's Power to Thwart Tim Stockwell, Robert Solomon,Paula O'Brien, Kate Vallance, Erin Hobin 81(2), pp. 284–292

[v] European Commission (2019) Labelling of Alcoholic Beverages in the EU https://ec.europa.eu/food/safety/labelling_nutrition/labelling_legislation/alcohol_en
[vi] Government of Canada (2019) What we heard https://www.canada.ca/content/dam/hc-sc/documents/services/publications/healthy-living/what-we-heard-strengthening-approach-substance-use-issues/What-We-Heard-Report-Opioids-EN.pdf
[vii] The Arrogance of Power: Alcohol Industry Interference With Warning Label Research Thomas F. Babor 81(2), pp. 222–224.
[viii] Institut National de Prevention et d'éducation pour la santé (2009) Labelling on alcoholic drinks https://ec.europa.eu/health/archive/ph_determinants/life_style/alcohol/documents/ev_20090217_co08_en.pdf
[ix] IARD, *Policy Review of Health Warning Labels on Alcohol Beverages* (2019) https://iard.org/getattachment/079bd825-7d47-41b7-b9df-3613e6f0ee16/iard-policy-review-health-warning-labels-on-alcohol-beverages-april-2019.pdf

Liquor Corporation
9031 Quartz Road Whitehorse, Yukon Y1A 4P9
telephone: (867) 667-5245 | fax:(867) 393 6306 | email: yukon.liquor@gov.yk.ca

September 23, 2016

Dear Health Canada Substance Use and Addictions Program Review Panel:

Re: Examining alcohol warning labels as a tool to increase public awareness of alcohol-related health risks and reduce alcohol intake at the population level: Evidence to inform alcohol labelling policy and practice.

The Yukon Liquor Corporation (YLC) is pleased to support the above grant being submitted by Drs. Erin Hobin and Tim Stockwell to Health Canada Substance Use and Addictions Program grant competition. This letter serves to confirm our endorsement of the project.

YLC's vision is to ensure liquor products are enjoyed in a safe, legal, and socially responsible manner. Under YLC's mission, we are responsible for the purchase, distribution, and responsible sale of liquor products in Yukon. The Corporation has a monopoly on the distribution and retail sale of liquor products through our six liquor stores across the territory. One of our key strategic goals is to reduce alcohol related harm to the public through regulation, education and enforcement, and promotion of a culture of moderation and social responsibility. In addition to federal regulations requiring %ABV information on alcohol labels in Canada, the Yukon currently requires an additional black and orange alcohol warning label cautioning consumers about drinking while pregnant. However, since the implementation of the warning labels in 1992 in Yukon, no evaluation of these alcohol warning labels has been conducted. Given the incessantly high prevalence of high risk alcohol use in Yukon, the YLC is seeking evidence to inform revisions to our alcohol warning labels to better educate drinkers of alcohol-related health risks and to promote low-risk alcohol use.

Given our keen interest in learning more about effective alcohol warning labels, we have agreed to provide several in-kind contributions to the project. First, we agree to post the intervention alcohol warning labels on alcohol containers in our Whitehorse liquor store and will contribute 10% of liquor store staff time at that site towards the process of affixing the alcohol warning labels on alcohol containers over the 8-month intervention period. In addition, we will also launch a territory-wide social marketing campaign that aligns with the timing and messaging of the labels, which research suggests may increase label effectiveness. Next, we will allow Dr. Hobin and her team to approach our liquor store customers in Whitehorse to invite them to participate in an exit survey to determine individuals' alcohol purchases and to assess their awareness, recall, and use of the alcohol warning labels.

Finally, we will provide Dr Stockwell and his team with weekly liquor store sales data that include total units sold by liquor type, brand, volume, and quantity as well as the time and date of

.../2

YUKON LIQUOR CORPORATION

purchase, store location, and price as described in the protocol.

Results of this innovative project will provide valuable real-world information about the impact of alcohol warning labels in Yukon and Canada. We are pleased to provide our endorsement and commitment to this project and look forward to hearing the results of the competition.

Sincerely,

PGroenewegen

Patch Groenewegen
Marketing and Social Responsibility Coordinator

YLC
YUKON LIQUOR CORPORATION

Reducing Alcohol-Related Harm in Canada:

Toward a Culture of Moderation

Recommendations for a
National Alcohol Strategy
April 2007

Dear colleague,

On behalf of the National Alcohol Strategy Working Group, we are pleased to provide you with *Reducing Alcohol-Related Harm in Canada: Toward a Culture of Moderation – Recommendations for a National Alcohol Strategy*.

As you know, alcohol is a legal commodity that has economic and social benefits, but it also has high potential for harm when used inappropriately. The recent Cost of Substance Abuse in Canada Report estimated that, in 2002, the economic impact of alcohol-related harm in Canada totalled $14.6B, taking into account the costs associated with lost productivity, health care, and enforcement. This amount is slightly less than the estimated cost of tobacco at $17B, but nearly double the cost attributed to illegal drugs at $8.2B.

During cross-country consultations on substance use and abuse held in 2005, the need to address alcohol misuse in Canada was repeatedly identified as an issue requiring national attention. As a result, Health Canada, the Canadian Centre on Substance Abuse, and the Alberta Alcohol and Drug Abuse Commission jointly created an expert working group to study the situation and develop recommendations for a National Alcohol Strategy.

The National Alcohol Strategy Working Group was composed of a wide range of stakeholders and included representatives from federal, provincial and territorial governments, addictions agencies, academia, non-governmental organizations, and the alcohol beverage and hospitality industries. Following considerable work, the group reached general consensus on a comprehensive strategy that recognizes the respective roles of all players in addressing alcohol-related harm, and identifies a total of 41 recommendations in four broad areas for action:

- **Health promotion, prevention and education** – which aims to raise public awareness about responsible alcohol use;
- **Health impacts and treatment** – which aims to reduce the negative health impacts of alcohol consumption and address its contribution to injury and chronic disease;
- **Availability of alcohol** – which aims to implement and enforce effective measures that control alcohol availability; and,
- **Safer communities** – which aims to create safer communities and minimize harms related to intoxication.

The notion of sensible alcohol use, or developing a culture where moderation is the goal, underpins the recommendations for a National Alcohol Strategy. Similar to the cultural change that led to a decrease in tobacco use or to acceptance of mandatory seat belt use, reducing alcohol-related harm in Canada will require multi-faceted and long-term approaches which focus on social values and norms, along with a mix of social marketing, community information, regulation, and enforcement activities.

Since the strategy may not completely address the needs of First Nations, Inuit or Metis, the working group supports additional work that more fully engages these communities and their leadership. In addition, it is recognized that the issues around Fetal Alcohol Spectrum Disorder (FASD) are too complex to deal with comprehensively in these recommendations. As such, the working group encourages all sectors to continue to make efforts to prevent FASD and support those who live with it.

Implementing recommendations to reduce alcohol-related harm will take time, commitment and collaboration amongst all key players. The Working Group hopes that you will find the recommendations in this report helpful.

Sincerely,

Co-Chairs of the National Alcohol Strategy Working Group

Murray Finnerty
Chief Executive Officer

Alberta Alcohol and Drug Abuse Commission

10909 Avenue Jasper
Edmonton, Alberta
T5J 3M9

AADAC ALBERTA ALCOHOL AND DRUG ABUSE COMMISSION

Michel Perron
Chief Executive Officer

Canadian Centre on Substance Abuse

Suite 300
75 Albert Street
Ottawa, Ontario
K1P 5E7

CCSA · CCLAT

Beth Pieterson
Director General

Drug Strategy and Controlled Substances Programme

Health Canada
123 Slater Street
Ottawa, Ontario
K1A 0K9

Health Canada Santé Canada

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Note: This document reflects the general consensus of the National Alcohol Strategy Working Group on recommendations for a National Alcohol Strategy.

Reducing Alcohol-Related Harm in Canada: Toward a Culture of Moderation

1. Executive Summary

Alcohol is no ordinary commodity. It is a legal psychoactive drug that enjoys enormous popularity and special social and cultural significance in Canada. Evidence also suggests that alcohol consumed at low to moderate levels can benefit the health of some individuals. Alcohol also plays an important role in the Canadian economy, generating jobs and tax revenue for governments.

However, alcohol use is also a public health issue as it can contribute to health and social harms. In 2002, the cost of alcohol-related harm totaled $14.6 billion, or $463 for every living Canadian. This included $7.1 billion for lost productivity due to illness and premature death, $3.3 billion in direct health care costs, and $3.1 billion in direct law enforcement costs.

This National Alcohol Strategy is a comprehensive, collaborative strategy that provides direction and recommendations to reduce alcohol-related harm. It proposes renewed efforts in health promotion, prevention, treatment, and enforcement. To implement the Strategy, a range of approaches is required, including those that focus on overall levels of alcohol consumption (population-level approaches) as well as those that target specific, high-risk drinking patterns and/or vulnerable populations (targeted interventions).

The notion of sensible alcohol use, or developing a culture where moderation is the goal, underpins the Strategy. Moving towards a culture of moderation signals a new way of thinking about alcohol use that includes an understanding of when, when not, and how much to drink, appropriate motivations for drinking and settings in which responsible drinking should take place. It requires an understanding of the different risks involved in drinking – both acute injuries and chronic diseases – and learning how to minimize these risks.

The Strategy identifies four strategic areas for action: *health promotion, prevention and education*; *health impacts and treatment*; *availability of alcohol*; and *safer communities*.

The *health promotion, prevention and education* area aims to raise public awareness about responsible alcohol use and enhance the capacity and resilience of individuals and communities to participate in a culture of moderation. Establishing a common understanding of what constitutes sensible drinking is critical to achieving a culture of moderation that would encourage all Canadians to make healthy and informed decisions about their use of alcohol. A key recommendation is the development of national alcohol drinking guidelines, which would provide a benchmark for Canadians in evaluating their personal drinking practices.

The aim of the recommendations related to *health impacts and treatment* is to reduce the negative health impacts of alcohol consumption and address its contribution to injury and chronic disease. A key recommendation within this section is expansion of the use of various health professionals to implement screening, brief interventions and referrals for those who may be at risk of developing, or may already have developed, alcohol-related problems. It is anticipated that such early interventions would yield savings to both the health and social service and justice systems that would offset the initial costs of implementation. Development of additional treatment options and specialist treatment services is equally important.

The *availability of alcohol* section aims to implement and enforce effective measures that control alcohol availability. It recommends shoring up the social responsibility mandate of government liquor control boards, reinforcing liquor licensing and enforcement regulations, and harmonizing minimum purchase ages across Canada. This action area also touches on key taxation and pricing policies, as well as controls on advertising and promotion.

Finally, the *safer communities* section aims to create safer communities and minimize the harms related to intoxication. It examines how communities can foster a culture of moderation and create safer drinking environments. It addresses the various physical and social contexts in which harmful drinking patterns occur, including the home, workplace, school, licensed establishments and recreation.

It also reviews how the culture surrounding drinking and driving has changed dramatically over recent decades, and how success in that area, as well as in smoking reduction and mandatory seat belt use, provide insight into the changes that are required to achieve a culture of moderation in the use of alcohol in Canada.

In summary, the Strategy provides a long-term vision of how to reduce alcohol-related harm in Canada. It makes 41 specific recommendations across four action areas, and it identifies the stakeholders who should lead their implementation. To ensure successful change in knowledge, attitudes and practices concerning alcohol use, all relevant players must share responsibility for addressing the harm caused by the misuse of alcohol.

2. Introduction

Genesis of this National Alcohol Strategy

This National Alcohol Strategy is a comprehensive, collaborative strategy that provides direction and recommendations to support a culture of moderation that, if embraced, will reduce alcohol-related harm in Canada. This is timely in light of the resolution, passed in 2005 by the World Health Assembly, that encouraged member states to develop national alcohol strategies to address the substantial health, social and economic costs that result from problematic use.

The Strategy reflects the vision, principles and goals of the *National Framework for Action to Reduce the Harms Associated with Alcohol and Other Drugs and Substances in Canada*. The product of extensive, multi-sectoral, cross-Canada consultations, the Framework received consensus approval in June 2005 at a meeting in Montreal of some 100 key stakeholders.

This consultation process underscored the serious nature of issues related to harmful alcohol use and the need to address these as a national priority. In November 2004, a workshop on alcohol policy, co-sponsored by the Government of Canada and the Canadian Centre on Substance Abuse, confirmed the need for concerted action in several key areas.

Building on this earlier work, a national working group of more than 30 representatives – including provinces and territories, relevant federal departments, non-governmental organizations, researchers, addictions agencies, and the alcohol beverage and hospitality industries – came together to develop the Strategy.

The Strategy describes the nature and extent of alcohol-related harm in Canada, while acknowledging that alcohol also offers certain benefits. It identifies interventions that will reduce the health, social and economic costs of alcohol-related harm in Canada in a comprehensive and coordinated manner.

Alcohol in Canadian society

Alcohol is no ordinary commodity. It is a legal psychoactive drug that enjoys enormous popularity and special social and cultural significance in Canada, as it does in other societies around the world. Alcohol serves a variety of functions – relaxation, socialization and celebration – often accompanying meals or incorporated into religious rituals and celebrations of holidays and events such as births and weddings. On the positive side, evidence also suggests that alcohol, consumed at low to moderate levels, can benefit the health of some individuals, for example, by reducing the risk of coronary heart disease.

Alcohol also plays an important role in the Canadian economy, generating jobs, retail activity, export income and tax revenue for governments. In 2004, the value of sales of alcoholic beverages in Canada totalled approximately $16 billion, compared with $13 billion in 2000. Total revenue and profits to all governments equalled approximately $7.7 billion.

However, alcohol use is also a public health issue, as it can cause harm. For example, it can impair motor skills and judgment, lead to intoxication and dependence, cause illness and death, and have other negative effects on our daily social, economic and living environments. Alcohol-related harm includes both chronic diseases, such as cirrhosis of the liver and some cancers, and acute events, such as road crashes, injury, verbal abuse, violence, disability and death.

Alcohol-related death and disability account for four percent of the overall toll on life and longevity globally. This figure rises to nine percent in Canada, where alcohol is among the top three risk factors contributing to the burden of disease, disability and death (compared with tobacco at 12 percent and high blood pressure at 11 percent).

In 2002, the overall financial impact on Canada of alcohol-related harm totaled $14.6 billion, including $7.1 billion for lost productivity due

to illness and premature death, $3.3 billion in direct health care costs, and $3.1 billion in law enforcement costs. This translates to $463 for every living Canadian.

According to the 2004 Canadian Addiction Survey (CAS), approximately 80 percent of Canadians aged 15 and older reported having used alcohol in the 12 months before the survey. Just over seven percent reported having never consumed alcohol, and approximately 13 percent reported not drinking in the year before the survey.

Approximately 14 percent of Canadians (i.e., 3.3 million) are high-risk drinkers, meaning that their pattern of drinking is either currently harmful or significantly increases the likelihood of future harm. Among youth, 13.8 percent of past-year drinkers reported heavy drinking at least once a week, and 46 percent reported heavy drinking at least once a month.

The CAS also revealed that heavy drinking (i.e., five or more drinks on a single occasion for men and four or more drinks on a single occasion for women) on a monthly or more frequent basis is the strongest predictor that someone will experience alcohol-related harm. These drinkers are almost twice as likely to experience harm as those who never engage in heavy drinking. Altogether, nearly one quarter of former or current drinkers reported that their drinking had caused harm to themselves and to others at sometime in their lives.

Overall, consumption levels have increased in Canada, from 7.2 litres of absolute alcohol per person aged 15 years and older in 1997, to 7.9 litres per capita in 2004. This ranks Canada 43rd of 185 countries in total adult per-capita alcohol consumption.

As overall levels of consumption rise, the overall incidence of alcohol-related harm in the population also rises. Individual patterns of alcohol use (i.e., how often and how much) can indicate the likelihood of chronic or acute harm. For example, continuous, long-term use can lead to chronic disease. In contrast, binge drinking (heavy use at one sitting) or drinking to intoxication can lead to acute events such as road crashes.

The costs of alcohol-related harm in Canada

- Totalled $14.6 billion in 2002.
- Alcohol cost the Canadian economy $7.1 billion in lost productivity due to illness and premature death.
- The cost in direct health care was $3.3 billion and $3.1 billion in law enforcement.
- This translates to $463 for every living Canadian.

Many people identify alcoholism, characterized by chronic, excessive drinking with symptoms of physical dependence on alcohol, as the most serious alcohol-related problem. However, heavy, single-occasion and episodic binge drinking by the much larger population of non-dependent drinkers produces far greater and wider-reaching impacts on the health, safety and well-being of individuals and communities.

In Canada, there are certain segments of the population that are more vulnerable to acute and chronic alcohol-related health and social problems. In addition to youth, these segments include: offenders, the homeless, the elderly, pregnant women, young adults, First Nations, Inuit and Métis.

Components of this National Alcohol Strategy

In order to reduce alcohol-related harm in Canada, a comprehensive National Alcohol Strategy is needed, with investments in health promotion, prevention, treatment, enforcement and harm reduction. To support the Strategy, a range of approaches is required that includes those that focus on the general population to control overall levels of alcohol consumption (population-level approaches) as well as those that target specific, high-risk drinking patterns and/or vulnerable populations (targeted interventions).

The notion of sensible alcohol use, or developing a culture where moderation is the goal, underpins the National Alcohol Strategy. Establishing a common understanding of what constitutes sensible drinking is critical to achieving a culture of moderation that would encourage all Canadians to make healthy and informed decisions about their use of alcohol.

Moving towards a culture of moderation does not imply that a culture of "immoderation" exists in Canada. Rather, it signals a new way of thinking by the large majority of the population, a way of making choices about alcohol use based on a clearer understanding of when, when not, and how much to drink, and the appropriate motivations and settings for drinking. It also strives to create a better understanding of the different risks involved in drinking, such as acute injuries or chronic diseases, and learning how to minimize these.

Previous successes in other areas provide insight into the changes that are required to achieve a culture of moderation in alcohol use. For example, cultural changes led to a reduction in smoking, acceptance of mandatory seat belt use, and a reduction in drinking and driving. In these cases, multi-faceted and long-term approaches focused on social values and norms, and included a mix of social marketing, community information, regulation, and enforcement activities.

National Alcohol Strategy

Principles

1. Alcohol misuse is a public health issue.
2. Alcohol misuse is shaped by social and other factors.
3. Successful responses to reduce the harm associated with alcohol reflect the full range of health promotion, prevention, treatment, enforcement and harm reduction approaches.
4. Action is knowledge-based, evidence-informed and evaluated for results.
5. Human rights are respected.
6. Strong partnerships are the foundation for success.
7. Responsibility, ownership and accountability are understood and agreed on by all.
8. Those most affected are meaningfully involved.
9. Reducing the harm associated with alcohol creates healthier, safer communities.

Goals

1. To reduce the harm associated with alcohol use to individuals, families and communities across Canada.
2. To increase common understanding of the impact and scope of alcohol-related harm to Canadian society, and to prevent and minimize negative health outcomes for those affected by alcohol consumption.
3. To develop a comprehensive, coordinated, and effective approach that builds on past and present efforts to prevent, reduce and address alcohol-related issues, and identifies realistic responses.
4. To multiply and strengthen collaborative partnerships among governments, non-governmental organizations, industry, addictions agencies, law enforcement and communities that are affected by alcohol-related harm.

Consultations and research leading to the development of the Strategy identified a wide variety of issues and recommendations, including new and innovative responses and the pressing need for continued research and evaluation of programs and policies. The Strategy groups these issues and recommendations into four strategic areas for action:

- Health promotion, prevention and education;
- Health impacts and treatment;
- Availability of alcohol; and,
- Safer communities.

The proposed activities in each of these areas must be coordinated and sustained across jurisdictions and sectors to ensure successful change in knowledge, attitudes and practices. Within each area, recommendations are made to both control overall levels of consumption and address the contexts and motivations behind specific high-risk drinking patterns.

This Strategy cannot address completely the needs of all vulnerable populations, but it does recognize the impact of regional and cultural diversity as well as the determinants of health. Interventions that result from the recommendations can be further reviewed and expanded upon to meet the specific needs of certain populations.

Furthermore, to reach these important populations, it is necessary to establish links with existing national and local programs and policies.

All relevant players must share responsibility for addressing the harm caused by alcohol use. Input and action must come from individuals, local communities, federal, provincial, territorial and municipal governments, health and education providers, law enforcement agencies, non-governmental organizations, and the alcohol and hospitality industries. Accomplishing a longer-term vision of reducing alcohol-related harm in Canada for future generations will require continuous dialogue, ongoing development of a strong evidence base, political will to action and a focus on social responsibility.

3. Strategic areas for action

3.1. Health promotion, prevention and education

Aim: Raise public awareness about responsible alcohol use, and enhance the resilience of individuals and communities and their capacity to participate in a culture of moderation.

Raising public awareness about alcohol is complex, as there are some benefits associated with its use, and a "don't drink" approach for the general population is impractical and unnecessary. For the majority of Canadians who are of legal purchase age, the public messaging around alcohol should focus on moderation or drinking sensibly. For others, the concept of drinking sensibly means not to drink at all.

In Canada, there is currently no national consensus on drinking guidelines. Provinces such as Ontario and British Columbia have developed their own, yet these are not consistent with each other. Therefore, as a first major step, establishing national alcohol drinking guidelines would give Canadians the information they need to appreciate how their personal drinking practices compare to sensible consumption guidelines. These guidelines would describe appropriate drinking amounts, contexts and motivations to minimize alcohol-related harm. Establishing an understanding of what constitutes sensible or low-risk drinking is critical to achieving a culture of moderation.

National alcohol drinking guidelines would identify 12 risky drinking practices (see table) relating to drinking levels and rates, the contexts in which alcohol is consumed and the reasons for drinking alcohol. They would also provide information on the health impacts of alcohol consumption.

In addition, these guidelines would define what is considered to be a standard drink in terms of the alcohol content in beer, wine and spirit products. A label on each alcohol beverage container would indicate the number of standard drinks contained therein. This, in turn, would allow Canadians to monitor their daily/weekly alcohol consumption relative to the guidelines.

National alcohol drinking guidelines would provide the cornerstone for undertaking a variety of health promotion, prevention and education initiatives aimed at raising public awareness and achieving changes in knowledge, attitudes and behaviours. Initiatives would be delivered through social marketing and mass-media campaigns, community-based programs, and targeted approaches for specific vulnerable groups in the community. In addition, awareness activities would be developed or strengthened to address key risky drinking practices (e.g. drinking during pregnancy). These initiatives would require sustained action over a long period of time to ensure that each

National drinking guidelines would clearly identify

Twelve Risky Drinking Practices:

1. Drinking more than (#) standard drinks/week
2. Drinking more than (#) drinks/day for men and (#) drinks/day for women
3. Drinking more than one standard drink an hour
4. Drinking and driving
5. Drinking before or during work
6. Drinking before or during sports or other physical activities
7. Drinking during pregnancy
8. Drinking while on medication or with other drugs
9. Drinking with the intention of becoming intoxicated
10. Drinking to cope with difficulties or negative outlook
11. Drinking out of habit
12. Drinking underage

generation of Canadians is aware of the risks and benefits of alcohol consumption.

Underage youth and young adults (18-24 years of age)

Alcohol is part of the youth and young adult culture. The 2004 CAS confirmed that the majority of youth aged 15 years and older have consumed alcohol, both in the past year (82.9 percent) and in their lifetime (90.8 percent). Although there is little difference in the overall prevalence of alcohol consumption by youth and adults, there are many differences in the frequency and patterns of use. More specifically, youth consume alcohol less frequently than adults; however, when they drink, they tend to drink more (binge drinking). The rates of heavy monthly and weekly drinking among youth are almost double those of adults. The rates of hazardous drinking and quantity consumed per occasion are twice those of adults. In light of these findings, it is not surprising that the rate of harm experienced by youth as a result of their own drinking is also significantly higher than for adults.

Of course, youth are not a homogeneous group when it comes to alcohol use and the frequency and quantity of use. Males are likely to drink more frequently than females, to consume more per occasion, and more likely to report drinking heavily. Youth aged 15 to 17 consume less frequently, drink fewer drinks per occasion, and are less likely to drink heavily and hazardously.

Canadian youth are initiated to alcohol use at an average age of 15.6 years. The earlier youth start drinking, the more likely they are to consume more on a typical occasion and drink heavily on a monthly and weekly basis. Youth who start drinking earlier are also more likely to report alcohol-related harm than those who start drinking at a later age. Since it is so tightly connected to the outcomes of their alcohol use, age of initiation is a crucial factor in planning prevention and intervention efforts directed at youth.

It is important to note that shaping a culture of moderation towards alcohol does not imply encouraging underage youth to drink. Rather, developing national alcohol drinking guidelines geared to adults and people who are of the legal purchase age would assist in modeling or shaping adult drinking habits and practices, which in turn would influence what underage youth and children observe at home and in other social settings where drinking takes place.

While abstinence remains the ideal goal with regard to underage youth, it is well known that many youth under the legal purchase age do choose to consume alcohol. It is important for those who do so to be aware of the risks and to understand how to limit their consumption in ways that prevent harm to themselves or to others.

Youth information and education approaches

By the time teens reach the age of 15, their experience, role models and environment have already formed many of their ideas, attitudes and expectations regarding alcohol. Unfortunately, many teens are not aware of basic information that would help them make informed decisions about their use of alcohol.

Consumption Patterns: Underage Youth and Young Adults

- Among Canadian youth aged 15 and older, 90.8% have used alcohol in their lifetime and 82.9% have used in the past 12 months.
- The mean age at which youth started drinking alcohol was 15.6.
- Of the 82.9% of youth who consumed alcohol over the past year, over one-third (36.9%) reported doing so at least once a week, and 33.7% reported consuming five or more drinks per typical drinking occasion.
- The most common drinking pattern among youth is light/infrequent (38.7%).
- Among youth, 13.8% of past-year drinkers reported heavy drinking at least once a week, and 46.0% reported doing so at least once monthly.
- Youth had higher rates than the general population of reported lifetime harms (33.7% versus 24.2%) and harms in the past year (21.8% versus 8.8%) as a result of their own drinking.

Mass-media campaigns, community-based programs, and school-based curricula are potential vehicles for conveying new health and safety information regarding alcohol to youth. However, to be effective, policy and programming that target underage youth must be based on developmentally appropriate goals, ranging from abstinence (an appropriate goal for the entire age group) to moderate consumption (viewed as the norm as youth approach legal purchase age).

As previously noted, youth and young adult populations learn about drinking (how, where and why) from older adults.

Creating a culture of moderation must begin with older adults who fashion the templates for the attitudes and practices of the younger generation. Transition from the status quo to a newly established culture of moderation, for both younger and older adults, would require at least a generation of education, enforcement and advocacy, given our experience with tobacco and impaired driving.

Health promotion, prevention and education programs for youth are important components of the Strategy, and significant effort needs to be put into the design, implementation and evaluation of future initiatives.

Recommendations:

1. Develop and promote national alcohol drinking guidelines to encourage a culture of moderation, and aim for consistency and clarity of alcohol-related health and safety messages (Health Canada, all governments).
2. Develop a comprehensive, sustained and coordinated social marketing campaign with multi-sectoral partners to promote the national alcohol drinking guidelines. This would include building on existing social marketing campaigns, such as those targeting drinking and driving and high-risk drinking patterns (all governments, NGOs, alcohol and hospitality industries).
3. Support and fund local communities to develop and implement community-wide health promotion initiatives that emphasize the national alcohol drinking guidelines, and prevent and reduce alcohol-related harm (all governments, alcohol and hospitality industries).
4. For alcohol beverage containers, regulate standardized, easily visible labels that convey the number of standard drinks in each container (Health Canada).
5. With regard to underage youth, develop and evaluate policies and programs that are appropriate to youth stages of development and that promote: abstinence as a valid goal for everyone; adherence to the national alcohol drinking guidelines and avoidance of high-risk drinking for those who choose not to abstain from alcohol (all governments, NGOs, alcohol and hospitality industries).
6. With regard to young adults, through a national collaborative initiative, develop and evaluate policies and programs in schools, colleges and universities (all governments, NGOs, alcohol and hospitality industries).

3.2. Health impacts and treatment

Aim: Reduce the negative health impacts of alcohol consumption and address its contribution to injury and chronic disease.

Alcohol is causally related to more than 65 different medical conditions, ranging from injuries to long-term health conditions such as cancer, cardiovascular disease and a variety of mental illnesses. Research in Canada and abroad suggests that rates of chronic disease rise in the population as overall alcohol consumption rates increase.

For 2002, the net total of 4,258 deaths attributed nationally to alcohol accounted for 1.9 percent of all deaths in that year[1]. Cirrhosis caused the largest number of deaths (1,246) followed by motor vehicle collisions (909) and alcohol-attributed suicides (603). Alcohol-attributed fatalities resulted in 191,136 potential years of life lost. Alcohol-attributed illness accounted for approximately 1.6 million days of acute care in hospital. The resulting drain on the Canadian economy totaled some $14.6 billion, which is slightly less than the total estimated impact of tobacco use ($17 billion) but nearly double the total national costs attributed to illicit drugs ($8.2 billion).

Other health issues arise when harmful consumption of alcohol is compounded with the use of other drugs (poly-drug use). The interactions between other drugs (tobacco, illicit and prescription) and alcohol are complex. For example, studies reveal a close association between heroin overdose and alcohol consumption at harmful levels at the time of overdose. Among cannabis users, alcohol is almost universally used on a regular basis, with most users consuming alcohol at harmful levels.

[1] The net figure is calculated by subtracting the number of deaths *prevented* from the number of deaths *caused* by alcohol.

The use of alcohol during pregnancy has been shown to affect a developing fetus, often causing a range of permanent neurological disabilities and behavioural disorders known as Fetal Alcohol Spectrum Disorder (FASD). The leading form of preventable birth defects and developmental delays, FASD is a complex, lifelong disability and a public health and social issue affecting individuals, communities, families and society as a whole.

Approximately nine of every 1,000 children in Canada are born with FASD. This disorder is a particular challenge for Aboriginal children and youth, with rates ranging between 55 and 190 per 1,000 births. It is clear that the costs of FASD to society are high. Without taking into account the lost potential and opportunity, direct costs associated with FASD over a lifetime have been estimated at about $1.5 million per person with FASD.

Interventions and treatment

Availability varies, but all provinces and territories offer a variety of services – ranging from prevention initiatives, to early identification – and treatment for Canadians who experience problems with alcohol.

Screening, brief interventions and referrals

One promising technique involves making use of health professionals, such as doctors, nurses, social workers and allied health professionals, to screen and treat those who may be at risk of developing, or may already have developed, alcohol-related problems. Screening can take place in a community health service clinic, a general practitioner's office or even the emergency or admissions room at a hospital. Referrals can then be made, when appropriate, to treatment and specialist services.

Brief interventions are short-term or opportunistic interventions that both introduce a patient to the notion that he or she may have issues with alcohol and suggest ways to deal with them. Such interventions typically provide information and advice, encourage the patient to consider the positives and negatives of their drinking behaviour, and support patients who decide to reduce their drinking. In most cases, the patients would not have attended the consultation for the specific or primary purpose

of discussing their alcohol consumption. Research suggests that brief intervention counseling can decrease alcohol misuse for at least one year in non-dependent drinkers. They can also help achieve a reduction in the use of health care resources, sick days, drinking-and-driving episodes, and alcohol-related deaths.

The systematic use of screening, brief interventions and referrals should be extended to hospitals, emergency departments, in-patient and out-patient services, public health sites, university campus clinics, health facilities and other initial points of contact with the health care system. However, the need to expand screening, brief interventions and referrals to treatment and specialist services (e.g. pre-natal interventions), comes at a time when communities throughout Canada are facing a shortage of primary health care professionals. Furthermore, these and other professionals are increasingly being expected to serve as the frontline in providing prevention and early intervention responses for a broad range of health issues, including diabetes, obesity, heart disease and cancer, as well as misuse of alcohol and other drugs and substances.

Nonetheless, it is expected that early intervention with problem drinkers would yield future savings to health and social services (e.g. treatment programs), to law enforcement and the justice system, savings that would offset the initial costs of implementation.

Treatment and specialist services

Available treatment measures include out-patient or residential care, specialist or generalist interventions, counseling, detoxification services, pharmaceutical interventions, self-help, or various combinations of these approaches. No single treatment path can help every person in the same way; indeed, individuals often require different approaches at each stage of their recovery. An effective system, therefore, is one that provides a range of options to meet the diverse needs of those seeking treatment, including the needs of the family and friends of these individuals.

In many provinces and territories across Canada, there is a commitment to ongoing quality accreditation of specialist alcohol and drug treatment services. These initiatives require additional support to ensure better treatment outcomes. However, according to the Canadian Centre on Substance Abuse (CCSA), many health professionals and their allies lack the resources, support and ongoing information and training required to effectively assess and treat patients with alcohol problems.

Recommendations:

7. Develop integrated and culturally sensitive screening, brief intervention and referral tools and strategies (P/T governments).
8. Ensure adequate ongoing funding, quality training and accreditation for specialized addiction services (P/T governments).
9. Improve access to addiction services in isolated, rural and remote regions of Canada and for vulnerable populations (all governments).
10. Evaluate treatment programs to determine promising practices and disseminate the findings (all governments, NGOs).
11. Coordinate the transfer of knowledge relating to the evaluation and research of prevention, treatment and population health policies and programs addressing alcohol (Canadian Centre on Substance Abuse).
12. Strengthen drug and alcohol curriculum in undergraduate, post-graduate and continuing professional development programs (P/T governments, NGOs, colleges, universities).
13. Disseminate FASD screening and diagnostic tools to, and promote their use by, family physicians, pediatricians and other health professionals (all governments, NGOs).
14. Regarding the contribution of alcohol to chronic diseases:
    a) Prepare periodic reports on the impact of alcohol on chronic disease within Canada and coordinate these with the ongoing Costs of Substance Abuse reports (Public Health Agency of Canada);
    b) Ensure that alcohol is consistently included in policies and programs focused on chronic disease (all governments, NGOs);
    c) Collaborate with the Chronic Disease Prevention Alliance of Canada (CDPAC) and others to improve the prevention of alcohol-related chronic disease, including implementation of a public awareness campaign (Public Health Agency of Canada).
15. Regarding research:
    a) Develop a national, coordinated, ongoing data-collection and reporting system of common indicators relevant to acute and chronic alcohol-related harm across Canadian jurisdictions (Health Canada).
    b) Develop a strategic national alcohol research program that is informed by a determinants of health approach and is directed at gaining a better understanding of the risk and protective factors surrounding alcohol use (Health Canada, Canadian Institutes of Health Research (CIHR)).
    c) Collect data on alcohol-related health impacts and treatment outcomes specific to First Nations, Inuit and Métis, using appropriate research ethics (including ownership, control, access and possession principles). These data should be comparable to those collected for the general Canadian population (Health Canada, NGOs).

3.3. Availability of alcohol

Aim: Implement and enforce effective measures that control alcohol availability

As noted previously, increases in overall alcohol consumption nearly always translate into increases in alcohol-related problems, and this appears to be especially true for countries in northern Europe and for Canada.[2]

In addressing the availability of alcohol, population-level approaches are primarily used. Examples include pricing and taxation policies, controls on hours and days of sale and setting of minimum purchase ages. Indeed, population-level approaches that limit the availability of alcohol are some of the most effective ways to manage alcohol-related harm, despite the fact that such approaches have an impact on all drinkers, including those who do not misuse alcohol.

In recent years, certain regulations directed at controlling alcohol availability in Canada have been relaxed, particularly with regard to physical access (e.g. days and hours of sale, number of outlets, etc.). For example, between 1993 and 2004, the number of off-premise alcohol outlets in Canada operated or licensed by government Liquor Control Boards rose from 2,344 to 3,371 – an increase of 43.8 percent.[3]

Overall Rates Of Alcohol Consumption in Canada…

- peaked in 1980 at just over 11 litres of absolute alcohol per capita among those aged 15 and older;
- fell to 7.2 litres of absolute alcohol per capita in 1997;
- increased nearly 10% between 1997 and 2004 to 7.9 litres per capita.

To keep pace with this nationwide trend toward increased access to alcohol, population-level controls that focus on the behaviours, practices and products that contribute most significantly to alcohol-related harm need to be an integral part of any comprehensive strategy.

Physical availability

Physical availability refers to the accessibility or convenience of the product, which has policy implications for preventing alcohol-related harm through controls on the conditions of sale to the drinker as a retail customer.

Government liquor control boards

Government liquor control boards are responsible for setting and enforcing the most important policies that determine general accessibility of alcohol for off-premise consumption. Canada is among a minority of countries that continue to control alcohol distribution and sales, either partially or fully, through government liquor control boards.

While this monopoly arrangement was originally designed to ensure that social responsibility issues were not subordinated by economic and financial considerations, liquor control boards have gradually moved away from focusing on this original mandate to addressing other consumer priorities. Within the context of the current debate over the privatization of retail alcohol sales in some provinces, Canadian jurisdictions need to focus on control structures that support the social responsibility mandates that underpin effective management of alcohol-related harm. This should include maintaining reasonable controls on the physical availability of alcohol

[2] The case of drinking and driving in Canada demonstrates that it is possible to disconnect overall drinking levels with rates of specific alcohol-related harm. In the period between 1992 and 2003, alcohol consumption remained steady and then increased by nearly 10 percent (after 1997) while rates of impaired driving continued to decline significantly. It is important to note, however, that the progress on drinking and driving in the face of stable or increasing rates of drinking was based on 20 years of significant investments to create social change regarding this behavior. Without similar investments to address other types of alcohol-related harm, one can expect the positive relationship between overall drinking and alcohol-related harms to remain valid.

[3] These numbers exclude Alberta, since that province privatized retail alcohol sales in 1993.

(e.g. number of off-premise outlets, controls on the days and hours of sale, etc.).

A specific issue within existing liquor control boards systems that needs to be addressed is the policy that currently requires all outlets within a province or territory to charge the same price for its alcohol products. This can lead to lower prices for alcohol relative to other commodities in isolated rural areas, if the costs of transportation are not included in the final selling price. This is of concern, as alcohol could be disproportionately cheaper than essential food and beverage products.

Liquor licensing and enforcement

A significant proportion of drinking in Canada takes place in approximately 65,000 licensed establishments such as bars, restaurants and nightclubs. Licences issued to private businesses, allowing them to sell alcohol, are subject to a comprehensive body of laws and regulations that vary somewhat from jurisdiction to jurisdiction. While the laws regulating alcohol service generally provide a sound basis for managing alcohol-related harm, all jurisdictions would benefit from improving their implementation, especially in relation to serving underage and intoxicated patrons. This is particularly critical in light of the current trend toward increasing the availability of alcohol nationwide.

One way to reinforce responsible beverage service in licensed establishments is to provide training to staff. All provinces and territories currently offer server-training programs, but many of these are voluntary. British Columbia, Alberta, Manitoba, Nova Scotia, Ontario, Prince Edward Island and the Yukon have mandatory programs, although some of these apply only to certain types of establishments and situations. For example, Ontario has required server training since 1993 for new liquor licence applicants, transferees, caterers and stadiums; however, participation is voluntary for all other licensed operators. Furthermore, given the high staff turnover rate within the hospitality industry, periodic server recertification is just as important as initial training.

Given the role that alcohol plays in accidents and other social harms, provinces and territories should consider making liability insurance mandatory for drinking establishments. However, this should be implemented in a way that does not create undo economic hardship for the hospitality industry. One option might be to assist the industry in developing self-insurance programs.

There is much debate over the possible manipulation of operating hours as a means of dealing with problems associated with large numbers of intoxicated patrons leaving multiple licensed premises simultaneously at closing time. Evidence suggests that extended operating hours coincides with higher levels of alcohol consumption and corresponding increases in violent crime, road crashes, illicit drug use and additional public health and tourism costs. Therefore, jurisdictions could consider staggering closing times to address this issue, especially in areas with high outlet density.

Legal purchase age

There is strong evidence that a higher minimum legal purchase age for alcohol can have significant positive effects on underage drinking and some forms of alcohol-related harm among both underage youth and young adults. However, minimum purchase age laws are only effective if they are strictly and consistently enforced in all situations.

Harmonizing minimum purchase ages across jurisdictions would help reduce certain risky drinking behaviours, for example, where significant numbers of youth cross provincial/territorial borders to take advantage of less restrictive regulations in neighbouring jurisdictions. The problem is especially acute

Legal Purchase Ages in Canada and Around the World

- The United States has the highest minimum purchase age for alcohol in the world at 21.
- Alberta, Manitoba and Quebec set their minimum purchase ages at 18, with the rest of Canada set at 19.
- The last time a minimum purchase age was changed in Canada was in 1982 when P.E.I. raised its drinking age from 18 to 19.

at border "hot spots" where alcohol outlets and licensed establishments cluster to meet the demand from cross-border patrons. Jurisdictions should consider the potential benefits of setting a consistent minimum purchase age across Canada.

Taxation and pricing

Taxation and pricing are proven, effective ways of controlling the availability and consumption of alcohol. As a general rule, higher prices translate into lower consumption and reduced alcohol-related harm, while lower prices lead to increases in consumption and related harm.

Final retail prices interact with disposable income to influence rates of consumption of alcohol. In the face of stable disposable incomes, increases in the price of alcohol translate into decreases in overall consumption and, by extension, lower alcohol-related harm. Two key strategies for controlling alcohol-related health and social problems involve pricing alcohol at levels that discourage heavy (high-risk) consumption, and maintaining the real value of prices relative to inflation over time.

Governments and industry can use a number of policy levers to influence and maintain the final price of alcohol, including setting taxes, markups and implementing minimum prices consistent across Canada to ensure that prices do not fall to a level that encourages misuse and increases alcohol-related harm (social-reference price).

By reducing consumption of products with a higher concentration of ethyl alcohol, the overall risk of adverse health effects can be reduced. Currently in Canada there appears to be an absence of incentives for choosing beers and coolers with lower alcohol content, due to the fact that most jurisdictions calculate taxes and markups based on overall volume of the product rather than on the concentration of ethyl alcohol in the product. This can potentially lead to a situation where an individual can purchase products with higher alcohol content for less than products with lower alcohol content. Other jurisdictions, such as Australia, have addressed this situation by creating incentives to offer consumers products with lower alcohol content at lower prices.

Another issue that requires attention is the tax advantage available for do-it-yourself brewing and winemaking facilities in some jurisdictions. U-Vin and U-Brew facilities are generally able to produce alcoholic beverages for consumers at a lower cost in comparison to the beverages sold by licensed retailers. As the current situation can potentially lead to individuals inexpensively producing and consuming harmful levels of alcohol, action should be taken to ensure that prices at these facilities accurately reflect the social-reference price for alcohol products within the jurisdiction.

Advertising and promotion

Canadians are exposed to alcohol advertising and promotion through television, radio, print advertisements, point-of-sale promotions and the Internet. Many types and brands of alcohol are linked in the marketplace with a range of different sports, lifestyles and consumer identities. Continuous exposure to advertisements facilitates the development of pro-drinking attitudes and increases the likelihood of heavier drinking in some people. In addition, research now shows the cumulative influence of alcohol advertising in shaping young people's perceptions of alcohol and the development of social norms about drinking.

Three main bodies govern alcohol advertising in Canada: (1) the Canadian Radio-Television Telecommunications Commission (CRTC)'s Code for Broadcast Advertising of Alcoholic Beverages is the primary regulatory vehicle at the federal level; (2) individual provincial and territorial governments establish advertising standards built on the federal regulations; and, (3) Advertising Standards Canada identifies industry standards for alcohol advertising. None of these bodies exercise any form of control over alcohol advertising and promotion that occurs over the Internet.

The CRTC Code prohibits alcohol advertising from targeting underage drinkers. For example, people who are, or appear to be, underage cannot appear in advertisements, and alcohol use cannot be associated with symbols,

activities and/or personalities that are popular with people under the legal purchase age.

Provincial and territorial guidelines, which are not consistent across all jurisdictions, also prohibit a wide range of activities that could encourage minors to drink, including the use of advertising in media targeted at minors or broadcast at times when minors constitute the bulk of the audience. These guidelines often prohibit alcohol advertising that features family scenes, children's fairy tales, nursery rhymes, characters that may appeal to children or music that appeals to minors.

The challenge with alcohol advertising is to ensure compliance with existing standards. Creation of effective and efficient processes for monitoring alcohol advertising and for the submission of public complaints is crucial, especially with the movement toward industry-based self-regulation in Canada.[4] A coordinated approach to ensuring that the standards are upheld, that appropriate changes are made over time and that youth are not over-exposed to alcohol advertising is essential to successfully implementing a culture of moderation.

[4] According to the annual reports from Advertising Standards Canada, alcohol advertising accounts for a significant number of public complaints about advertising each year. Although very few of these complaints are upheld in decisions by the CRTC, industry sponsors frequently discontinue ads that the public deems to be offensive.

Recommendations:

Note: where the term "liquor control board" is used, it also refers to a comparable agency within a province or territory.

16. Maintain current systems of control over alcohol sales (P/T governments). Under these systems, it will be important to:
    a) Require liquor control boards to maintain a social-responsibility frame of reference for all matters pertaining to their operations and governance, and to maintain or increase their spending and programming in this area;
    b) Enhance staff training at outlets and implement ongoing enforcement compliance programs to ensure that alcohol is consistently sold in a socially responsible way and in accordance with the law; and
    c) Encourage the systematic re-examination and analysis of hours and days of alcohol sales and outlet density, recognizing that increased physical availability of alcohol can lead to increased harm.
17. Collaborate with liquor control boards to ensure alcohol cost and availability in high-risk communities are managed in a socially responsible manner (P/T and municipal governments).
18. Request all liquor licensing authorities and liquor control boards to collect and make public detailed information on both off-premise and on-premise alcohol-outlet density (P/T governments).
19. Conduct research to specify the magnitude and nature of third-party supply of alcohol in Canada (e.g. supply of alcohol outside the legal distribution system and in those jurisdictions where alcohol is banned) (all governments).
20. Evaluate the outcomes of trial alcohol-control measures in remote communities (particularly in the three territories), including total bans, limitations on importing alcohol into the community and severely restrictive selling practices (P/T and municipal governments, First Nation communities).
21. Implement server-training programs in Canada as a pre-condition for receiving and/or renewing licences for serving alcohol. These training programs should include regular recertification of servers, ongoing enforcement compliance checks and periodic program evaluations to sustain and improve impacts over time. In addition, server training and compliance checks should be conducted more frequently for establishments with a history of service-related problems (P/T and municipal governments, First Nation communities).

22. Investigate the implications of making liability insurance mandatory for all licensed establishments in Canada, using options that do not place undue economic burdens on the hospitality industry (for example, self-insurance programs) (P/T governments).
23. Conduct research on the nature and extent of underage access to alcohol, including in licensed venues, and implement appropriate programs and policies to respond to the issue (P/T governments).
24. Given the relationship between legal purchase age and alcohol-related harm, consider increasing the legal purchase age of alcohol to 19 years (governments of Alberta, Quebec and Manitoba).
25. Strengthen enforcement and sanctions for people producing or using fake identification (P/T governments).
26. Adopt minimum retail social-reference prices for alcohol and index these prices, at least annually, to the Consumer Price Index (CPI). A competent body should review alcohol pricing throughout Canada, at least annually, and publish a report recommending increases where prices are not keeping pace with inflation (P/T governments).
27. Discourage the introduction or expansion of U-Brew and U-Vin industries. Where these industries currently exist, make licensing contingent upon matching the socially referenced price for beverage alcohol in that jurisdiction (P/T and municipal governments).
28. Create incentives, whether through tax or price adjustments, to promote the production and marketing of lower-alcohol-content beers and coolers, with the overall goal of reducing the volume of absolute alcohol consumed per capita in Canada (all governments, alcohol industry).
29. Move towards alcohol volumetric pricing (based on the volume of ethyl alcohol in alcohol products) within each beverage class (all governments, alcohol industry).
30. Coordinate funding for research and publication of an annual report documenting the exposure of underage youth in Canada to alcohol advertising (Health Canada).
31. Review existing advertising regulatory systems with a view to updating the standards, especially as they pertain to youth, as well as the mechanisms of receiving and responding to consumer complaints about alcohol advertising (all governments).

3.4. Safer communities

Aim: Create safer communities and minimize harms related to intoxication.

Alcohol-related harm occurs not only to drinkers, but also to a potentially wide circle of people around them. Alcohol is a contributing factor in impaired driving, injuries, assaults, homicides, fires and other events that threaten public safety and community wellness. Some of these impacts occur as a result of chronic heavy drinking; others are acute affects arising from isolated or single-session drinking occasions. Drinking to intoxication greatly increases the risk of harm to oneself or to others.

Through community mobilization, communities can minimize the likelihood of alcohol-related harm by both fostering a culture of moderation and creating safer drinking environments. These environments are facilitated by implementing policies, programs, regulations and laws and by backing these up with appropriate enforcement.

To improve community safety, harmful drinking patterns must be addressed in various contexts including the home, workplace, school, licensed establishments, recreation and other local settings. While some interventions focus narrowly on the drinking behaviours of individuals, other interventions modify the environment where drinking takes place to mitigate the potential for intoxication and its consequential harm.

Did you know that ...

- A large majority (85%) of Canadians reported in a recent study that they had not driven after drinking in the month prior to the survey. However, that leaves about 15% or 3.2 million Canadians who did.
- According to the most recent Canadian Campus Survey (2004), 32% of undergraduates reported patterns of harmful drinking; 10% of those surveyed reported alcohol-related assaults, 9.8% reported alcohol-related sexual harassment, and 14.1% reported having unplanned sexual relations due to alcohol.
- An Alberta workplace study found that 11% of employees overall reported consuming alcohol at work in the previous 12 months, with the highest rates in the finance/insurance/real-estate industry (22%) and in the manager/professional occupation (14%).

Workplace

As a majority of Canadian adults are employed and spend a significant proportion of their time at work, the workplace becomes an important context for addressing alcohol-related harm. Patterns of alcohol use in relation to the workplace include: consumption prior to or during the workday; employees who arrive at work under the influence or feeling the effects of a hangover; consumption on the worksite including the parking lot; and, consumption during business meetings or work-sponsored events.

Alcohol use may be compounded by a workplace culture that promotes heavy drinking or by other workplace factors, such as stressful working conditions or frequent travel. Patterns and levels of alcohol use are highly influenced by the context surrounding the workplace and vary considerably across industries and occupations.

In the short term, alcohol consumed in the context of work can affect productivity and safety and lead to accidents and errors in judgment. In the long term, heavy drinkers can experience social, psychological, and medical problems that lead to increased absenteeism, poor overall work performance and extended sick leave. These serious outcomes not only affect the individual and co-workers, but also impose equally serious responsibilities, costs and consequences on the employer and the economy.

Employers have a broad duty to protect their employees against health and safety threats, including those related to alcohol use in the work environment. Employers may also be liable should employees who drink while in their work role cause injuries or damages within the community at large. In response, increasing numbers of employers are implementing workplace policies addressing alcohol use. These policies feature education and employee assistance programs that typically incorporate counseling and other supports.

Comprehensive workplace alcohol policies that give direction toward responsible use and, in specific situations, abstention, are especially necessary in safety-sensitive professions. All such policies should include language about obligations and liabilities of both workers and employers. Wherever possible, they should build on existing, broader employee assistance programs.

Municipal alcohol policies

Municipal authorities have considerable scope to implement bylaws and other local ordinances that help manage availability of, and access to, alcohol within their boundaries. Through municipal alcohol policies, communities can specify where and under what conditions access to alcohol will be permitted and not permitted in municipally owned facilities. Pursuant to these policies, permits issued to serve alcohol typically contain such elements as roles and responsibilities of management; strategies such as standard servings to limit intoxication, low-alcohol drinks, no last call and enforcement procedures and penalties should rules not be followed.

The municipal alcohol policy approach was successfully demonstrated via a collaborative project involving a number of municipalities in Ontario and the Centre for Addiction and

Mental Health of Ontario.[5] The municipal alcohol policy can be extended beyond municipal facilities to cover the activities of entities such as service, recreational and sporting clubs, as well as events planned by religious groups or private event organizers where alcohol may be available. Such policies may reduce illegal service of alcohol and help educate these hosts about their responsibilities and liabilities.

Safe bars

Bars and restaurants that are licensed to serve alcohol provide environments that can potentially lead to intoxication of patrons, which, in turn, can result in alcohol-related injuries and assaults. In addition, this alcohol-related harm can place others at risk within the surrounding community as a result of impaired driving and other problem behaviours.

Key initiatives that target high-risk behaviours within this drinking environment include server-training programs for managers and staff to minimize the risk of serving someone to the point of intoxication, someone who is already intoxicated or someone who is underage [Refer to section on mandatory server training, physical availability]. There are also promising violence-prevention programs that aim to minimize the likelihood of violence resulting from alcohol consumption in licensed establishments.

These programs enable bar owners and managers to assess and manage risks related to such environmental factors as patrons' access to the bar, its physical layout, characteristics of servers and security staff, and closing time.

These programs have become a standard and increasingly mandatory feature of the hospitality industry in most provinces for curbing the problems of underage drinking, over-consumption, violence and impaired driving. Especially when supported by increased enforcement and server liability laws, these programs are the most effective means of reducing harms associated with on-premise drinking.

[5] The Centre for Addiction and Mental Health has prepared a field resource manual to assist municipalities interested in developing alcohol policies.

Did you know that...

- There is a proven relationship between overall alcohol consumption rates in Canada and traffic fatalities, homicides, liver cirrhosis, suicide and total mortality.
- Use of alcohol is an important risk factor for injuries, which in turn represent a significant public health burden. Figures vary by community and region, but studies indicate that alcohol is implicated in 17% to 70% of violent injuries and 7% to 32 % of accidental injuries.
- There is a strong association between the occurrence(and recurrence of traumatic injuries and alcohol or other drug dependence.
- Between 35% and 50% of people who arrive at emergency rooms with traumatic brain injuries have a history of abusing alcohol or other drugs.
- Young people between 10 and 24 years of age represented the highest proportion (27%) of people admitted to a specialized trauma hospital in 2002-03 due to alcohol-related injuries. Motor vehicle crashes accounted for over half of the alcohol-related trauma hospitalizations in 2002-03.
- A Canadian study of an emergency department found that 42% of those with violent injuries had a blood alcohol level over 0.08%, the Criminal Code "legal limit."

Responsible hosting

A recent decision by the Supreme Court of Canada in a civil liability case determined that social hosts should not generally be held to the same standards of legal responsibility as commercial hosts (bars and other licensed establishments) to fulfill a duty of care and to demonstrate due diligence in providing for the safety and well-being of guests and third parties when drinking occurs in their home or in other social venues. In this particular case, the host did not provide the alcohol, and no liability was found.

While individual drinkers maintain a higher degree of personal responsibility for their actions under this ruling, the role of social

hosts in non-commercial drinking contexts remains highly significant from a standpoint of strengthening a culture of moderation. Social hosting provides vital opportunities for adults to model responsible use of alcohol, particularly among children and youth.

Recreation

Alcohol is often consumed in recreational contexts, although its impairing effects on judgment and motor skills make it a risk factor for harm in most sports and recreational activities. As a person's blood alcohol concentration rises, coordination, judgment and reactions deteriorate, increasing the risk of injury or death. Canadian injury statistics indicate that these negative outcomes occur especially in sports involving boats, snowmobiles, and other activities with high participation rates by young males.

Information campaigns targeting snowmobile users and boaters have been conducted in Canada, and initial evaluation results indicate promising reductions in the incidence of alcohol-related problems. As noted previously, such initiatives can build on municipal policies and include the participation of key stakeholders such as the insurance industry.

Colleges and universities

Risky drinking behaviours typical of college and university students – in particular binge drinking and drinking during initiation rituals – take place in on- and off-campus locations (e.g. residences, student housing, pubs). Harmful alcohol use can result in intoxication and alcohol poisoning and lead to unwanted sexual advances, sexual assault and rape. The context in which drinking takes place plays a significant role in the amount consumed and in the problems that may ensue. However, it can also present opportunities for interventions.

Traditional approaches taken on college and university campuses to reduce alcohol-related harm include education, alcohol awareness weeks/events, and residence information programs. Many current initiatives attempt to influence the environment within which alcohol is used on campus, including alcohol-free events or residences, responsible beverage service programs, and restricting availability of alcohol through fewer on-campus pubs and limited advertising. While several campuses across Canada have adopted alcohol policies, additional empirical evaluation of these initiatives is required.

Drinking and driving

The culture surrounding drinking and driving has changed dramatically over recent decades. What was once a well-entrenched, normalized activity has become unacceptable behavior to a majority of Canadians.

It is now well understood that even small amounts of alcohol can impair a person's ability to drive a motor vehicle such as a car, truck, motorcycle, snowmobile, boat or personal watercraft, especially for young drivers. The resulting increased risk of collision, injury and death carries high costs.

Did you know that...

- Police statistics indicate that the overall rate of impaired driving incidents decreased by 60% between 1980 and 2002.
- The percentage of fatally injured drivers who had been drinking prior to an accident decreased from 48% (1991-92) to 33% (1999) to 35% (2002). In 2003, the figure rose slightly to 38%.
- Nevertheless, drinking and driving remains a persistent social concern among Canadians, with 81% indicating that they were somewhat or very concerned about it.
- Since 1999, the percentage of fatally injured drivers who test positive for alcohol has increased about 3% per year.
- In 2001, there were an estimated 195 alcohol-involved injury crashes per day and 648 alcohol-involved property crashes per day in Canada.
- While the overall trends on various measures of impaired driving remain positive, researchers at the Traffic Injury Research Foundation conclude that "the rate of improvement has slowed ...[and]...the magnitude of the problem is still substantial."

Like most developed countries, Canada has a three-tier system of sanctions: zero blood alcohol concentration (BAC) for young or novice drivers, a 0.05 percent BAC level, where administrative sanctions such as a 24-hour licence suspension apply; and a 0.08 percent BAC level, above which criminal sanctions are invoked. Canada's system reflects two different levels of government responsibility: the 0.05 percent level, where provincial and territorial highway traffic law applies, and the 0.08 percent level, where the federal Criminal Code applies. Most provinces now have some provisions for roadside screening and short-term administrative driving provisions for drivers with BACs between 0.05 percent and 0.08 percent.

Young and novice drivers are known to be at increased risk for road crashes as a result of their inexperience as drivers or inexperience with alcohol, or both. Any alcohol use compounds these risks, especially for youth, for whom other factors such as peer pressure and thrill seeking may also come into play. Motor vehicle crashes are the leading cause of death among teenagers in Canada, and 40 percent of teenage drivers killed in road crashes had been drinking. The likelihood of death for drinking drivers under 25 is the greatest of any age group. One-third (34 percent) of alcohol-related motor vehicle crash fatalities involved people aged 25 years or younger.

Currently in Canada, all jurisdictions except Nunavut have implemented graduated driver-licensing programs for young and novice drivers. These programs feature such elements as zero tolerance for BAC and restrictions on hours and passengers allowed, although considerable variation exists across program elements. A growing body of research confirms the safety benefits of graduated driver licensing and supports the identification of best practices.

While significant progress has been made to reduce impaired driving in Canada, it remains a serious problem, especially with regard to repeat offenders.

Canadians indicate that they are generally supportive of drinking and driving countermeasures such as police check stops, ignition interlocks and immediate vehicle impoundment for those who fail breath tests. Clearly, vigorous enforcement contributes to fewer people drinking and driving. However, continued and strengthened public awareness initiatives are important in supporting these efforts.

The inter-related issues of drinking, driving, impairment and harm have been the long-standing concerns of transportation authorities such as Transport Canada, provincial ministries responsible for highway safety, and research organizations such as the Traffic Injury Research Foundation.

In 1990, the Council of Ministers responsible for transportation and highway safety directed the Canadian Council of Motor Transport Administrators (CCMTA) to develop a comprehensive initiative that would reduce the number of traffic fatalities involving impaired drivers across Canadian provinces and territories. This initiative, called the Strategy to Reduce Impaired Driving (STRID) was extended for a five-year period from 1995–2001. It was then renewed to become STRID 2010, with the

Did you know that...

- Comparisons of the crash risks of young drivers indicate that drivers of age 16–19 years have a fatality rate four times that of drivers of age 25–34 and nine times that of drivers in the 45–54 age range).
- Most drinking drivers who are killed are 19 years old.
- Males make up 87% of fatally injured drinking drivers (89% of those seriously injured).
- Death or injury is most likely to occur in the summer, and least likely in the winter.
- Most fatalities and injuries occur on weekend nights.
- Automobiles are the most likely type of vehicle used, and often the crashes are single-vehicle.
- In almost two-thirds of the alcohol-involved multiple-vehicle crashes, the fatally injured teen driver (but not the other drivers) had been drinking.

goal of bringing about a 40-percent decrease in the number of road users fatally or seriously injured in crashes involving alcohol. It takes a comprehensive and coordinated approach that includes a wide range of initiatives targeting the hardcore drinking driver, young/new drivers, social drinkers, and the first-sanctioned driver. It also includes proposed actions to handle low BAC level infractions more effectively.

Recommendations:

32. Develop and adopt comprehensive policies for alcohol within every sector of the Canadian workforce, with special emphasis on safety-sensitive professions (all governments, NGOs, industries).
33. Partner with community groups to develop municipal alcohol policies and programs that address local issues (P/T governments, municipal governments, NGOs).
34. Implement the use of proven violence-prevention programs in licensed establishments (P/T governments, alcohol and hospitality industries).
35. Develop a public awareness campaign to raise awareness about alcohol liability (all governments, NGOs, alcohol industry).
36. Amend or develop policies and programs that incorporate evidence-based solutions that reduce alcohol-related harm in colleges and universities (colleges and universities, NGOs)
37. Endorse and support the Strategy to Reduce Impaired Driving 2010 (all governments).
38. Adopt the Canadian Council of Motor Transport Administrators' (CCMTA) short-term suspension model and other proposed actions to address drinking drivers with lower BACs (P/T governments).
39. Re-invigorate law enforcement around drinking and driving (all governments).
40. Pursue approaches that focus on high-risk or alcohol-dependent drivers (i.e. with BACs of 0.15 percent or higher) to better deter and rehabilitate repeat offenders (P/T governments, NGOs). These would include:
    a) Technology-based solutions (e.g. ignition interlock systems);
    b) Education and public awareness initiatives;
    c) Improved assessment protocols; and
    d) Improved treatment and rehabilitation, drawing on harm reduction and medical models to better address the concurrent issues of chronic alcohol misuse and possible cognitive impairments.
41. Adopt, within their graduated driver-licensing programs, zero-tolerance alcohol (0.00 percent BAC) provisions for all drivers until age 21 (P/T governments).

4. Conclusion

When used in moderation, alcohol can give pleasure to many. However, when used irresponsibly, alcohol can be a dangerous drug that can result in a variety of health and social harms. To address alcohol-related harm in Canada, this National Alcohol Strategy was developed as a broad call to action based on extensive stakeholder consultations and input. It proposes renewed efforts in the areas of health promotion, prevention, treatment, and enforce-ment to support a culture of moderation. Moving towards this culture of moderation signals a new way of thinking about alcohol use, a better understanding of the different risks involved in drinking and a determination to help Canadians in choosing wisely how to minimize those risks. This National Alcohol Strategy makes 41 specific recommendations across the four action areas and identifies the stakeholders who should lead their implementation. Just as all the action areas must operate *together* to ensure successful change in knowledge, attitudes and practices, all relevant players must *share responsibility* for addressing the harm caused by excessive or irresponsible alcohol use.

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Safer communities

Beirness, D.J., Simpson, H.M., Mayhew, D.R. and Desmond, K. (2005). *The Road Safety Monitor 2005: Drinking and Driving*. Ottawa: Traffic Injury Research Foundation. Available at: http://www.trafficinjuryresearch.com/publications/

CCMTA. (2001). *Strategy to reduce impaired driving (STRID) 2010*. Ottawa: CCMTA (Canadian Council of Motor Transport Administrators) Standing Committee on Road Safety Research and Policies. Available at http://www.ccmta.ca/english/pdf/strid_strategy_2010.pdf

CCMTA. (2005). *STRID strategy to address lower BAC drinking drivers*. Ottawa: Canadian Council on Motor Transport Administrators. Available at http://www.ccmta.ca/english/pdf/strid_bac_strategy.pdf

MADD Canada. (2006). *Alcohol, trauma and impaired driving*, 3rd edition. Oakville, Ontario. MADD Canada and the Centre for Addiction and Mental Health (CAMH). Available at http://www.madd.ca/english/research/real_facts.pdf

6. Recommendations

Health promotion, prevention and education

1. Develop and promote national alcohol drinking guidelines to encourage a culture of moderation, and aim for consistency and clarity of messages across all alcohol-related health and safety arenas (Health Canada, all governments).
2. Develop a comprehensive, sustained and coordinated social marketing campaign with multi-sectoral partners to promote the national alcohol drinking guidelines. This would include building on existing social marketing campaigns such as those targeting drinking and driving and high-risk drinking patterns (all governments, NGOs, alcohol and hospitality industries).
3. Support and fund local communities to develop and implement community-wide health promotion initiatives that emphasize the national alcohol drinking guidelines, and prevent and reduce alcohol-related harm (all governments, alcohol and hospitality industries).
4. For alcohol beverage containers, regulate standardized, easily visible labels that convey the number of standard drinks in each container (Health Canada).
5. With regard to underage youth, develop and evaluate policies and programs that are appropriate to youth stages of development and that promote abstinence as a valid goal for everyone, adherence to the national alcohol drinking guidelines and avoidance of high-risk drinking for those who choose not to abstain from alcohol (all governments, NGOs, alcohol and hospitality industries).
6. With regard to young adults, through a national collaborative initiative, develop and evaluate policies and programs in schools, colleges and universities (all governments, NGOs, alcohol and hospitality industries).

Health impacts and treatment

7. Develop integrated and culturally sensitive screening, brief intervention and referral tools and strategies (P/T governments).
8. Ensure adequate ongoing funding, quality training and accreditation for specialized addiction services (P/T governments).
9. Improve access to addiction services in isolated, rural and remote regions of Canada and for vulnerable populations (all governments).
10. Evaluate treatment programs to determine promising practices and disseminate the findings (all governments, NGOs).
11. Coordinate the transfer of knowledge relating to the evaluation and research of prevention, treatment and population health policies and programs addressing alcohol (Canadian Centre on Substance Abuse).
12. Strengthen drug and alcohol curriculum in undergraduate, post-graduate and continuing professional development programs (P/T governments, NGOs, colleges, universities).
13. Disseminate FASD screening and diagnostic tools to, and promote their use by, family physicians, pediatricians and other health professionals (all governments, NGOs).
14. Regarding the contribution of alcohol to chronic diseases:
    a) Prepare periodic reports on the impact of alcohol on chronic disease within Canada and coordinate these with the ongoing Costs of Substance Abuse reports (Public Health Agency of Canada);
    b) Ensure that alcohol is consistently included in policies and programs focused on chronic disease (all governments, NGOs);
    c) Collaborate with the Chronic Disease Prevention Alliance of Canada (CDPAC) and others to improve the prevention of alcohol-related chronic disease, including implementation of a public

awareness cam-paign (Public Health Agency of Canada).

15. Regarding research:
    a) Develop a national, coordinated, ongoing data-collection and reporting system of common indicators relevant to acute and chronic alcohol-related harm across Canadian jurisdictions (Health Canada).
    b) Develop a strategic national alcohol-research program that is informed by a determinants of health approach and is directed at gaining a better understanding of the risk and protective factors surrounding alcohol use (Health Canada, CIHR).
    c) Collect data on alcohol-related health impacts and treatment outcomes specific to First Nations, Inuit and Métis, using appropriate research ethics (including ownership, control, access and possession principles). These data should be comparable to those collected for the general Canadian population (Health Canada, NGOs).

Availability of alcohol

Note: Where the term "liquor control board" is used, it also refers to a comparable agency within a province or territory.

16. Maintain current systems of control over alcohol sales (P/T governments). Under these systems, it will be important to:
    a) Require liquor control boards to maintain a social-responsibility frame of reference for all matters pertaining to their operations and governance, and to maintain or increase their spending and programming in this area;
    b Enhance staff training at outlets and implement ongoing enforcement compliance programs to ensure that alcohol is consistently sold in a socially responsible way and in accordance with the law; and,
    c) Encourage the systematic re-examination and analysis of hours and days of alcohol sales and outlet density, recognizing that increased physical availability of alcohol can lead to increased harm.
17. Collaborate with liquor control boards to ensure alcohol cost and availability in high-risk communities are managed in a socially responsible manner (P/T and municipal governments).
18. Request all liquor licensing authorities and liquor control boards to collect and make public, detailed information on both off-premise and on-premise alcohol-outlet density (P/T governments).
19. Conduct research to specify the magnitude and nature of third-party supply of alcohol in Canada (e.g. supply of alcohol outside the legal distribution system and in those jurisdictions where alcohol is banned) (all governments).
20. Evaluate the outcomes of trial alcohol-control measures in remote communities (particularly in the three territories), including total bans, limitations on importing alcohol into the community, and severely restrictive selling practices (P/T and municipal governments, First Nation communities).
21. Implement server-training programs in Canada as a pre-condition for receiving and/or renewing licences for serving alcohol. These training programs should include regular recertification of servers, ongoing enforcement compliance checks and periodic program evaluations to sustain and improve impacts over time. In addition, server training and compliance checks should be conducted more frequently for establishments with a history of service-related problems (P/T and municipal governments, First Nation communities).
22. Investigate the implications of making liability insurance mandatory for all licensed establishments in Canada, using options that do not place undue economic burdens on the hospitality industry (for example, self-insurance programs) (P/T governments).
23. Conduct research on the nature and extent of underage access to alcohol, including in licensed venues, and implement appropriate programs and policies to respond to the issue (P/T governments).

24. Given the relationship between legal purchase age and alcohol-related harm, consider increasing the legal purchase age of alcohol to 19 years (governments of Alberta, Quebec and Manitoba).
25. Strengthen enforcement and sanctions for people producing or using fake identification (P/T governments).
26. Adopt minimum retail social-reference prices for alcohol and index these prices, at least annually, to the Consumer Price Index (CPI). A competent body should review alcohol pricing throughout Canada, at least annually, and publish a report recommending increases where prices are not keeping pace with inflation (P/T governments).
27. Discourage the introduction or expansion of U-Brew and U-Vin industries. Where these industries currently exist, make licensing contingent upon matching the socially referenced price for beverage alcohol in that jurisdiction (P/T and municipal governments).
28. Create incentives, whether through tax or price adjustments, to promote the production and marketing of lower-alcohol-content beers and coolers, with the overall goal of reducing the volume of absolute alcohol consumed per capita in Canada (all governments, alcohol industry).
29. Move towards alcohol volumetric pricing (based on the volume of ethyl alcohol in alcohol products) within each beverage class (all governments, alcohol industry).
30. Coordinate funding for research and publication of an annual report documenting the exposure of underage youth in Canada to alcohol advertising (Health Canada).
31. Review existing advertising regulatory systems with a view to updating the standards, especially as they pertain to youth, as well as the mechanisms of receiving and responding to consumer complaints about alcohol advertising (all governments).

Safer communities

32. Develop and adopt comprehensive policies for alcohol within every sector of the Canadian workforce, with special emphasis on safety-sensitive professions (all governments, NGOs, industries).
33. Partner with community groups to develop municipal alcohol policies and programs that address local issues (P/T governments, municipal governments, NGOs).
34. Implement the use of proven violence-prevention programs in licensed establishments (P/T governments, alcohol and hospitality industries).
35. Develop a public awareness campaign to raise awareness about alcohol liability (all governments, NGOs, alcohol industry).
36. Amend or develop policies and programs that incorporate evidence-based solutions that reduce alcohol-related harm in colleges and universities (colleges and universities, NGOs).
37. Endorse and support the Strategy to Reduce Impaired Driving 2010 (all governments).
38. Adopt the Canadian Council of Motor Transport Administrators' (CCMTA) short-term suspension model and other proposed actions to address drinking drivers with lower BACs (P/T governments).
39. Re-invigorate law enforcement around drinking and driving (all governments).
40. Pursue approaches that focus on high-risk or alcohol-dependent drivers (i.e., with BACs of 0.15 percent or higher) to better deter and rehabilitate repeat offenders (P/T governments, NGOs). These would include:
    a) Technology-based solutions (e.g. ignition interlock systems);
    b) Education and public awareness initiatives;
    c) Improved assessment protocols; and
    d) Improved treatment and rehabilitation, drawing on harm reduction and medical models to better address the concurrent issues of chronic alcohol misuse and possible cognitive impairments.
41. Adopt, within their graduated driver-licensing programs, zero-tolerance alcohol (0.00 percent BAC) provisions for all drivers until age 21 (P/T governments).

7. National Alcohol Strategy Working Group members

Chairpersons:

Beth Pieterson, Director General, (Health Canada)

Michel Perron, CEO, (Canadian Centre on Substance Abuse)

Murray Finnerty, CEO, (Alberta Alcohol and Drug Abuse Commission)

Provincial/Territorial Representation

Nova Scotia: Carolyn Davison

British Columbia: Dr. Tim Stockwell

Ontario: Dr. Louis Gliksman

Federal Government Representatives

Fraser Macaulay, Public Safety and Emergency Preparedness Canada/RCMP

Hal Pruden, Criminal Law Section, Justice Canada

Kelly Stone, Public Health Agency of Canada

Dr. Dennis Wardman, First Nations and Inuit Health Branch, Health Canada and Assembly of First Nations

Non-Government Organizations

Sylvia Fanjoy, Canadian Public Health Association

Andrew Murie, Mothers Against Drunk Drivers Canada

Chris McNeil, Canadian Association of Chiefs of Police

Dr. Peter Butt, College of Family Physicians of Canada (Saskatchewan)

Jan Lutke, FASD Connections, Vancouver

Don Lussier, Canadian Association of Liquor Jurisdictions

Dr. David Marsh, Canadian Society of Addiction Medicine

Michael Ferrabee, Executive Vice-President, Government Affairs, Canadian Restaurant and Foodservice Association

Maureen Spier, representing Association of Liquor Licensing Authorities of Canada

Catherine Dallas, Health Department, Inuit Tapiriit Kanatani

Researchers

Dr. Louise Nadeau, University of Montreal

Dr. Christiane Poulin, Dalhousie University

Alcohol Industry

Dan Paszkowski, Canadian Vintners Association

Howard Collins, Brewers Association of Canada

Jan Westcott, Association of Canadian Distillers

Secretariat Support

Linda Dabros, Health Canada

Heidi Liepold, Health Canada

Ed Sawka, Alberta Alcohol and Drug Abuse Commission

Gerald Thomas, Canadian Centre on Substance Abuse

Sandra Song, Health Canada

Nathan Lockhart, Health Canada

Jennifer.Roach

From: Scott.Westerlaken
Sent: Monday, December 03, 2018 10:48 AM
To: Matt.King
Cc: Jennifer.Roach; Patch.Groenewegen; Loree.Stewart
Subject: RE: Confidential - Paper #1
Attachments: Paper_1_Study_Plan_181127 SW notes.pdf

* Scott reached Erin re. End of Day Friday (see email from Scott)

Hi Matt,

I have reviewed the overview and added two comments:

1. They indicate we have requirements to label alcohol and may make people believe we have regulations to do so.
2. The statement on why YLC halted the application of labels is a little too strongly worded. Have added suggested wording to indicate we paused due to industry concerns and resumed after resolving them.

File attached.

Patch has indicated she would like to review also, but can't do so until Friday. Can we delay them? * Patch to review or return

Scott Westerlaken, UXC
Marketing and Social Responsibility Coordinator
Yukon Liquor Corporation | Social Responsibility, Policy and Planning
T 867-667-3709 | C 867-332-2595 | Yukon.ca

From: Matt.King <Matt.King@gov.yk.ca>
Sent: Wednesday, November 28, 2018 12:15 PM
To: Scott.Westerlaken <Scott.Westerlaken@gov.yk.ca>
Subject: FW: Confidential - Paper #1
Importance: High

Hi Scott,

Please review and track comments / changes. I think we should look at language referencing YLC participation.

Regards,
Matt

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: Tuesday, November 27, 2018 1:15 PM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>; Matt.King <Matt.King@gov.yk.ca>; Brendan.Hanley <Brendan.Hanley@gov.yk.ca>
Cc: Tim Stockwell (timstock@uvic.ca) <timstock@uvic.ca>; Kate Vallance (vallance@uvic.ca) <vallance@uvic.ca>; Simran Shokar <Simran.Shokar@oahpp.ca>; Nour Schoueri-Mychasiw <Nour.Schoueri-Mychasiw@oahpp.ca>
Subject: Confidential - Paper #1
Importance: High

Hello Patch, Matt, and Brendan,

Hope you are all doing well!

Our research team is putting the final touches on paper #1 from the alcohol labelling study. Briefly, this paper (please see attached) uses waves 1 and 2 survey data to test the impact of the enhanced alcohol labels on consumer salience, processing, and self-reported alcohol consumption.

At this time, it is important that this paper please **remains strictly confidential** and is not shared beyond the people listed on this email.

Please review the paper and email your feedback to me on or before **Wednesday, December 5th**, as we are scheduled to submit the paper to the American Journal of Public Health on Thursday, December 6th. If you have questions or would like to chat about the paper, I am in the office and happy to schedule a telecom.

Please also note that we will have paper #2 ready before the end of December 2018.

All the best,

Erin

labels - data agree

0477

Patch.Groenewegen

From: Patch.Groenewegen
Sent: Wednesday, September 19, 2018 8:22 AM
To: Peter.Morawsky
Subject: REVIEW: UVic Data Share agreement
Attachments: 05666 - NDA UVic YLC - Draft 17Sep2018.docx

Good morning Peter!
I hope you are well.

Please review the attached document and provide feedback.
This is linked to the Label Study; sharing data with the researchers was part of the project.
We will do so, but wanted to make sure there was an agreement in play beforehand as we are considering providing per SKU / item information yet not necessarily linking brand names or commonly used CPU codes, just Yukon vendor codes per item.

Please call if you have questions.
Thanks,
Patch

Yukon

Patch Groenewegen
Manager
Yukon Liquor Corporation | Social Responsibility, Policy and Planning
T 867-667-8926 | C 867-332-1653 | F 867-393-6306 | Yukon.ca

From: Rachel Corder - Research Agreements Facilitator <contractsfacilitator3@uvic.ca>
Sent: Monday, September 17, 2018 4:41 PM
To: Patch.Groenewegen <Patch.Groenewegen@gov.yk.ca>
Subject: RE: 05666 UVic Data Share

Hello Patch,

Thank you for your reply. Unfortunately, we don't have a standard template for data sharing agreements. Alternatively, we can use our template NDA with added publication terms. I have attached a basic draft for your review. Please let me know if you think that this type of agreement will be sufficient.

If this agreement doesn't work, perhaps we can set up a phone call to discuss what elements you would like to see in an agreement and whether that is something that we can do.

All the best,

Rachel Corder, B.A., J.D.
Research Agreements Facilitator

Research Partnerships & Knowledge Mobilization
University of Victoria

Sedgewick Building A124
T 250-472-5372; uvic.ca/rpkm

From: Patch.Groenewegen@gov.yk.ca <Patch.Groenewegen@gov.yk.ca>
Sent: September 17, 2018 2:16 PM
To: Rachel Corder - Research Agreements Facilitator <contractsfacilitator3@uvic.ca>
Subject: Re: 05666 UVic Data Share

Thanks Rachel. It was my understanding your shop / Stockwell had something of such nature to share. Please and thank you.
Patch

Sent from my BlackBerry 10 smartphone on the Bell network.

From: Rachel Corder - Research Agreements Facilitator
Sent: Monday, September 17, 2018 13:51
To: Patch.Groenewegen
Subject: 05666 UVic Data Share

Dear Patch Groenewegen,

My office was recently contacted by Kate Vallance at the University of Victoria's Canadian Institute for Substance Use Research (CISUR) regarding data that will be transferred from Yukon Liquor Corporation to UVic for CISUR research. It is my understanding that YLC and CISUR would like to have a data sharing agreement in place to cover the transfer and use of that data. If you are able to provide a draft of the agreement for me to review, that would be greatly appreciated. If you have any questions or if the situation requires further discussion before a draft is created, please let me know.

Best regards,

Rachel Corder, B.A., J.D.
Research Agreements Facilitator

Research Partnerships & Knowledge Mobilization
University of Victoria

Sedgewick Building A124
T 250-472-5372; uvic.ca/rpkm

CONFIDENTIALITY NOTICE: This e-mail message, including any attachments, is for the sole use of the intended recipient(s) and may contain confidential and privileged information. Any unauthorized review, use, disclosure or distribution is prohibited. If you are not the intended recipient, please contact me immediately and destroy all copies of the original message. Thank you.

UNIVERSITY OF VICTORIA

NON-DISCLOSURE AGREEMENT

THIS AGREEMENT is made as of September 17, 2018 (the "Effective Date"), between the **University of Victoria ("UVic" or the "Receiving Party")**, a corporation continued under the *University Act* (British Columbia) and having offices at Attention: Contracts, Office of Research Services, Michael Williams Building, B202, 3800 Finnerty Road, Victoria, BC, Canada V8P 5C2 Email: contract@ uvic.ca, and Yukon Liquor Corporation, **(the "Company" or the "Disclosing Party")** a Yukon Territory company having a principal place of business at Click here to enter text. Email Click here to enter text. (hereinafter referred to individually as a or the "Party" and collectively as the "Parties").

Commented [r1]: Please confirm full legal name

Commented [r2]: Please confirm place of incorporation

Commented [r3]: Please insert contact information

FOR GOOD AND VALUABLE CONSIDERATION, the receipt and sufficiency of which is mutually acknowledged, the Parties agree that the following terms and conditions form the basis upon which the Disclosing Party is prepared to allow the Receiving Party access to certain information:

1. **DEFINITIONS.** For the purposes of this Agreement:

   (a) **"Confidential Information"** means all oral, written or machine readable information and data including, without limitation, trade secrets, know-how, show-how, inventions, discoveries, concepts, business information, software, technical information, specifications, proposals, models, designs, formulae, test results and reports, analyses, materials, testing and operating procedures and industrial skills that:

      i. if disclosed in tangible form is clearly marked "CONFIDENTIAL" at the time of disclosure;

      ii. if disclosed orally, is identified as confidential or proprietary at the time of disclosure and which is summarized in a tangible format which is clearly marked as "CONFIDENTIAL" and delivered to the receiver within fifteen (15) days of the original disclosure.

   (b) **"Purpose"** means use of the Confidential Information to create multilevel regression models using weekly time periods nested within cities to examine the effect of alcohol warning labels on per capita alcohol intake.

Commented [r4]: To be confirmed by the CISUR research team

2. **EXCLUSION.** The Confidential Information does not include and the Receiving Party has no obligation to the Disclosing Party with respect to any information that:

   (a) is disclosed by a third party, acting independently, at arm's length and without knowledge of the contents of this Agreement, who acquires and delivers such information lawfully and without breaching any agreement, including this one;

   (b) is already in the public domain or, after disclosure, is published or otherwise becomes part of the public domain through no fault of the Receiving Party;

   (c) is already in the possession of the Receiving Party prior to disclosure by the Disclosing Party or is independently developed by the Receiving Party without access to, or use of, the Confidential Information of the Disclosing Party as demonstrated by competent evidence; or

   (d) is required to be disclosed by law or by the order of any judicial, administrative, or similar body provided that the Receiving Party promptly notifies the Disclosing Party of the requirement and co-operates reasonably at the Disclosing Party's expense, in preventing and minimizing the extent of the disclosure.

3. **OWNERSHIP, DISCRETION & RELATIONSHIP.**

(a) Ownership of and all right, title and interest to the Confidential Information will at all times remain exclusively vested in the Disclosing Party. Disclosure of the Confidential Information by the Disclosing Party will not be construed as granting to the Receiving Party a license of any rights, including without limitation any right to any copyright, trade-mark, patent or trade secret relating to the Confidential Information in respect of which the Disclosing Party or any officer, director, employee, affiliate, partner, successor or assign now has or may in the future have any right, title or interest.

(b) Notwithstanding execution of this Agreement, the Disclosing Party maintains the sole and absolute discretion to determine what, if any, Confidential Information it will release to the Receiving Party.

(c) The exchange of any Confidential Information between the Parties is not intended to be interpreted that the Parties have formed or will form a partnership, joint venture or other relationship. Any business relationship between the parties, if any, must be governed by separate agreement.

4. **PUBLICATION**

Receiving Party shall provide Disclosing Party copies of any proposed presentations, publications or other disclosures (the "Disclosures") based on Receiving Party's use of Confidential Information at least twenty (20) working days in advance of presentation or publication. If Disclosing Party does not object in writing to a disclosure within ten (10) days of receipt of proposed publication, then Receiving Party shall be free to proceed with such Disclosures. In the event that an objection is made, the Parties shall in good faith negotiate an acceptable version of the proposed Disclosures within the original twenty (20) day notice period.

5. **RESTRICTIONS ON USE.**

(a) The Receiving Party will not use the Confidential Information for any purpose other than the Purpose;

(b) The Receiving Party will use the Confidential Information for the Purpose for a period commencing on the Effective Date and ending on September 30, 2020

Commented [r5]: Actual end date to be negotiated

(c) The Receiving Party will use the same care to avoid disclosure of the Confidential Information as the Receiving Party uses to protect its own confidential information provided that the Receiving Party may disclose the Confidential Information it receives to those of its employees, grant funded employees, consultants, faculty, students and advisors who need access to the Confidential Information to assist the Receiving Party in the Purpose.

6. **TERMINATION.** Either Party may for any reason terminate this Agreement upon Notice of not less than ten (10) business days, following which:

(a) the Receiving Party will immediately cease all further inspection, assessment and evaluation or other use of the confidential information;

(b) the Receiving Party, on written demand by the Disclosing Party, shall, within 21 days following receipt of such written demand destroy or return all Confidential Information to the Disclosing Party, uncopied and undistributed, whether or not the Receiving Party has completed the Purpose for which the Confidential Information has been disclosed and delivered. For the avoidance of doubt, any Confidential Information that is stored on routine back-up media solely for the purpose of disaster recovery will be subject to destruction in due course, provided that, employees are precluded from accessing such Confidential Information in the ordinary course of business prior to destruction. Notwithstanding the foregoing, latent data such as deleted files, and other non-logical data types, such as memory dumps, swap files, temporary files, printer spool files, and metadata that can only be retrieved by computer forensics experts and is generally considered inaccessible without the use

of specialized tools and techniques will not be within the requirements for return or destruction of Confidential Information as set forth by this provision.

7. **DISCLAIMER.** The Receiving Party acknowledges and agrees that the Confidential Information is provided on an "AS IS" basis. The Disclosing Party makes NO REPRESENTATION OR WARRANTY (EXPRESS OR IMPLIED) WITH RESPECT TO THE CONFIDENTIAL INFORMATION DISCLOSED, ITS ADEQUACY, ACCURACY, OR SUITABILITY FOR ANY PURPOSE INCLUDING WITHOUT LIMITATION, WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY OR NON-INFRINGEMENT. Except as expressly agreed in writing, the Disclosing Party will not be liable to the Receiving Party for any loss or damage arising directly or indirectly from any use of the Confidential Information by the Receiving Party, howsoever caused. Such other persons who may have licensed or otherwise provided Confidential Information to a Disclosing Party are intended beneficiaries of this section 6.

9. **SURVIVAL.** Termination of the undertakings and covenants of a Party to this Agreement, be it actual, implied, constructive, or otherwise will not affect the non-disclosure and non-use obligations of the Receiving Party, and such obligation will survive termination of the Agreement for a period of two (2) years from the Effective Date.

10. **BREACH.** It is understood that monetary damages may not be a sufficient remedy for any breach of the Agreement, and it is agreed that the Disclosing Party will be entitled to injunction, specific performance or other equitable relief as a remedy for any such breach by the Receiving Party, in addition to all other remedies available, at law or in equity.

11. **TERM.** This Agreement will be effective as of the Effective Date, and will continue in force for a period of three (3) years unless terminated earlier in accordance with Section 5 of this Agreement.

Commented [r6]: Actual term of agreement to be negotiated

12. **GENERAL.**

(a) Any notice, request, demand, consent or other communication ("**Notice**") provided or permitted by this Agreement will be in writing and given by personal delivery or registered mail, or transmitted electronically, to the address first written above. Notice will be deemed to have been received on the date on which it was delivered or transmitted. A Party may change its address for Notice by a written request sent in accordance with this section 11(a).

(b) This Agreement shall be construed and the rights of the Parties shall be governed and enforced in accordance with the laws of British Columbia and in accordance with any applicable law of Canada (without regard to any conflict of laws principles). The Parties irrevocably consent and agree that any legal action, suit or proceeding arising out of or in any way in connection with this Agreement, shall be instituted or brought in the British Columbia Supreme Court and the parties accept and submit to the exclusive jurisdiction of such court, and to all proceedings in such court.

(c) No term, covenant or condition of this Agreement will be deemed waived by either Party and no breach excused, unless such waiver or consent excusing the breach is in writing and signed by both Parties and this Agreement may be amended or otherwise modified only by the written agreement of the Parties.

(d) This Agreement constitutes the entire agreement between the Parties, and supersedes all prior representations, understandings and agreements between the Parties with respect to the Confidential Information. In the event that any term, covenant or condition of this Agreement is declared indefinite, invalid, illegal or unenforceable by a court having jurisdiction this Agreement with respect to the enforceable terms, covenants or conditions will continue in force.

(e) Each Party will execute and deliver to the other Party, on request, such further assurances and documents, and do such further things, as may reasonably be required to give full force and effect to this Agreement.

(f) This Agreement will enure to the benefit of and will bind the successors, heirs and assigns of each Party.

(g) This Agreement and the benefits, advantages and entitlements of the parties under this Agreement cannot be assigned or transferred, in whole or in part, directly or indirectly, by either party, without first obtaining the written consent of the other parties.

(h) This Agreement may be executed in counterparts either through original or facsimile signatures, which together shall form an Agreement. An executed copy of the Agreement delivered by facsimile or electronic copy shall constitute valid execution and delivery of this Agreement.

IN WITNESS WHEREOF the Parties have caused this Agreement to be executed on the day, month and year first above written.

UNIVERSITY OF VICTORIA:

Per:

_____

Brent Sternig
Director, Research Partnerships and Knowledge Mobilization

YUKON LIQUOR CORPORATION:

Per:

_____

Name:
Title:

This document is internally used by UVic to ensure that all individuals provided with confidential information are aware of the restrictions on use and agree to comply with the NDA. Only UVic participants need provide a signed copy.

Project Participant Agreements
Re: Non-Disclosure Agreement made between the University of Victoria ("UVic") and Yukon Liquor Corporation (the "Company") dated 17/09/2018 (the "Purpose NDA") governing the Purpose (as that term is defined in the Purpose NDA).

WHEREAS the Undersigned wishes to participate in the Purpose:

THEREFORE in consideration of the Undersigned being allowed to participate in the Purpose and to be provided with access to the Confidential Information, the Undersigned hereby agrees as follows:

1. The Undersigned hereby acknowledges and agrees that, through Undersigned's involvement with the Purpose, the Undersigned has been or will be provided information that is Confidential Information. The Undersigned agrees and confirms as follows:
    a. I have read and understood the terms of the Purpose NDA;
    b. I have no right to possess, use or retain the Confidential Information except as expressly permitted under the Purpose NDA; and
    c. I will comply with and be bound by the terms of the Purpose NDA as if a party thereto.

2. Without limiting the obligations set out above, the Undersigned agrees (1) to follow all instructions of UVic with respect to the protection and security of the Confidential Information; (2) to take reasonable measures to protect the Confidential Information; and (3) to return all such Confidential Information to UVic upon demand.

3. The Undersigned acknowledges and agrees that UVic cannot provide legal advice to the Undersigned in association with this agreement and that the Undersigned has had or has been given the opportunity to seek independent legal advice.

4. The Undersigned will execute and deliver to UVic, such further assurances and documents, and do such further things, as may reasonably be required to give full force and effect to this authorization and direction.

EXECUTED this _____ day of _____, 20 _____.

THE UNDERSIGNED	**Witness for UNDERSIGNED Signature**
_____	_____
Signature	*Signature*
_____	_____
Print Name	*Print Name*
_____	_____
Date	*Date*

Patch.Groenewegen

From: Erin Hobin <Erin.Hobin@oahpp.ca>
Sent: Thursday, August 8, 2019 9:23 AM
To: Patch.Groenewegen; Brendan.Hanley
Cc: Tim Stockwell (timstock@uvic.ca)
Subject: Two label papers for your review: 1) impact of labels on population consumption, 2) commentary
Attachments: Alcohol_Sales_Methods_Results_190808.docx; Appendices_rev_190808.docx; JSAD_Commentary__190806.docx

Importance: High

Good morning Patch and Brendan,

Our team is steadily working towards to submitting a series of peer-review manuscripts presenting the results from the alcohol labelling study.

Please find attached to this email the two most recent papers for your review:
1) The effects of alcohol warning labels on population alcohol consumption: an interrupted time-series analysis of alcohol sales in Yukon, Canada (manuscript and the appendices attached); and,
2) Commentary: Challenges with communicating alcohol's role in cancer to the public: a Canadian experience.

We are planning to submit these two manuscripts to the Journal of Studies on Alcohol and Drugs as part of a series of papers from our study. I anticipate the paper examining the impact of the label intervention on population consumption will be high profile and generate extensive media attention.

If you could you please review and return your feedback before **Thursday, August 22nd**. If you could like to discuss these papers or any of the other results, please contact us and we will arrange a time to connect.

We look forward to your thoughts and feedback.

All the best,
Erin

Yukon Liquor Corporation
9031 Quartz Rd., Whitehorse, Yukon Y1A 4P9

December 7, 2018

University of Victoria ("UVic"), Yukon Liquor Corporation ('YLC') and other partners participated in a study "Examining alcohol warning labels as a tool to increase public awareness of alcohol-related health risks and reduce alcohol intake at the population level: evidence to inform alcohol labelling policy and practice." YLC has collected sales data for many years, including during the term of the labelling study. The Canadian Institute of Substance Use Research is a part of UVic.

YLC is prepared to provide to the University of Victoria the following:

- High level sales raw data from July 2015 to July 2018 for Whitehorse, Dawson City, Watson Lake, Mayo, Haines Junction and Faro retail stores in excel format.
- Each excel workbook contains sales by store and sheets in workbook by month.
- The sheets contain the following columns of information:
    - Sub department (whiskey, gin, rum, wine, beer, ciders, liqueurs etc)
    - Country of origin
    - Units sold
    - Size description of the unit (for example, 375ml beer)
    - $ amount of units sold (includes taxes)
    - Net sale ($ amount of units sold excluding taxes)
    - % alcohol for the unit sold
    - Licencee units sold
    - Licencee $$ amount sold (includes taxes)
    - Licencee $$ amount sold (excludes taxes)
    - Retail units sold
    - Retail sales amount (excludes taxes)
- The raw data will be sent on an encrypted flash drive via Canada Post or FedEx, tracked package with signature required upon delivery via to:

  Tim Stockwell
  Canadian Institute for Substance Use Research
  2300 McKenzie Ave, Room 273
  Victoria BC
  V8P 5C2

If UVic agrees to the following terms;

1. UVic will use this raw data only for the purpose of the labelling study - to examine liquor sales raw data and analyze whether or not alcohol warning labels increases public awareness of alcohol-related health risks and causes a reduction in alcohol purchases at the population level;
2. UVic will not provide, make available or disclose this raw data to anyone else and will ensure that anyone with access to the raw data undertakes not to make available to others;
3. UVic will return the flash drive with the raw data to us and destroy any copies no later than March 31, 2020 or when UVic has completed analyzing the raw data – which ever is sooner;
4. UVic will provide to YLC for it's review a copy of the analyses of the three-years of liquor sales data before publication;
5. UVic may publish and disseminate the aggregated data but will not publish the raw data;
6. Neither the YLC nor UVic will use or authorize others to use, the name, symbols, marks of either in any publications, news release, promotion, advertisement or other public announcement, whether written or oral, without prior written approval.

Please signify UVic's agreement to these terms by signing and returning the signed copy of this agreement and YLC will immediately attend to sending the encrypted flash drive.

Yukon Liquor Corporation:

Susan Russell
A/Director, Finance and Information Services

University of Victoria:

Brent Sternig
Director, Research Partnerships and Knowledge Mobilization

UNIVERSITY OF VICTORIA

~~NON~~-DISCLOSURE AGREEMENT

THIS AGREEMENT is made as of September 17, 2018 (the "Effective Date"), between the **University of Victoria ("UVic" or the "Receiving Party")**, a corporation continued under the *University Act* (British Columbia) and having offices at Attention: Contracts, Office of Research Services, Michael Williams Building, B202, 3800 Finnerty Road, Victoria, BC, Canada V8P 5C2 Email: contract@ uvic.ca, and Yukon Liquor Corporation, **(the "Company" or the "Disclosing Party")** a Yukon Territory company having a principal place of business at Click here to enter text. Email Click here to enter text. (hereinafter referred to individually as a or the "Party" and collectively as the "Parties").

Commented [r1]: Please confirm full legal name

Commented [r2]: Please confirm place of incorporation

Commented [r3]: Please insert contact information

FOR GOOD AND VALUABLE CONSIDERATION, the receipt and sufficiency of which is mutually acknowledged, the Parties agree that the following terms and conditions form the basis upon which the Disclosing Party is prepared to allow the Receiving Party access to certain information:

1. **DEFINITIONS.** For the purposes of this Agreement:

   (a) **"Confidential Information"** means all oral, written or machine readable information and data including, without limitation, trade secrets, know-how, show-how, inventions, discoveries, concepts, business information, software, technical information, specifications, proposals, models, designs, formulae, test results and reports, analyses, materials, testing and operating procedures and industrial skills that:

      i. If disclosed in tangible form is clearly marked "CONFIDENTIAL" at the time of disclosure;

      ii. If disclosed orally, is identified as confidential or proprietary at the time of disclosure and which is summarized in a tangible format which is clearly marked as "CONFIDENTIAL" and delivered to the receiver within fifteen (15) days of the original disclosure.

   (b) **"Purpose"** means use of the Confidential Information to create multilevel regression models using weekly time periods nested within cities to examine the effect of alcohol warning labels on per capita alcohol intake for use in academic works and publications.

Commented [r4]: To be confirmed by the CISUR research team

2. **EXCLUSION.** The Confidential Information does not include and the Receiving Party has no obligation to the Disclosing Party with respect to any information that:

   (a) is disclosed by a third party, acting independently, at arm's length and without knowledge of the contents of this Agreement, who acquires and delivers such information lawfully and without breaching any agreement, including this one;

   (b) is already in the public domain or, after disclosure, is published or otherwise becomes part of the public domain through no fault of the Receiving Party;

   (c) is already in the possession of the Receiving Party prior to disclosure by the Disclosing Party or is independently developed by the Receiving Party without access to, or use of, the Confidential Information of the Disclosing Party as demonstrated by competent evidence; ~~or~~

   (d) is required to be disclosed by law or by the order of any judicial, administrative, or similar body provided that the Receiving Party promptly notifies the Disclosing Party of the requirement and co-operates reasonably at the Disclosing Party's expense, in preventing and minimizing the extent of the disclosure; or

march 2020

(e) is being disclosed in an academic publication, presentation, or other academic forum that has followed the review process set out under section 4 of this Agreement.

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3. **OWNERSHIP, DISCRETION & RELATIONSHIP.**

(a) Ownership of and all right, title and interest to the Confidential Information will at all times remain exclusively vested in the Disclosing Party. Disclosure of the Confidential Information by the Disclosing Party will not be construed as granting to the Receiving Party a license of any rights, including without limitation any right to any copyright, trade-mark, patent or trade secret relating to the Confidential Information in respect of which the Disclosing Party or any officer, director, employee, affiliate, partner, successor or assign now has or may in the future have any right, title or interest.

(b) Notwithstanding execution of this Agreement, the Disclosing Party maintains the sole and absolute discretion to determine what, if any, Confidential Information it will release to the Receiving Party.

(c) The exchange of any Confidential Information between the Parties is not intended to be interpreted that the Parties have formed or will form a partnership, joint venture or other relationship. Any business relationship between the parties, if any, must be governed by separate agreement.

4. **PUBLICATION**

Receiving Party shall provide Disclosing Party copies of any proposed presentations, publications or other disclosures (the "Disclosures") based on Receiving Party's use of Confidential Information at least twenty (20) working days in advance of presentation or publication. If Disclosing Party does not object in writing to a disclosure within ten (10) days of receipt of proposed publication, then Receiving Party shall be free to proceed with such Disclosures. In the event that an objection is made, the Parties shall in good faith negotiate an acceptable version of the proposed Disclosures within the original twenty (20) day notice period.

5. **RESTRICTIONS ON USE.**

(a) The Receiving Party will not use the Confidential Information for any purpose other than the Purpose;

(b) The Receiving Party will use the Confidential Information for the Purpose for a period commencing on the Effective Date and ending on September 30, 2020

Commented [r5]: Actual end date to be negotiated

(c) The Receiving Party will use the same care to avoid disclosure of the Confidential Information as the Receiving Party uses to protect its own confidential information provided that the Receiving Party may disclose the Confidential Information it receives to those of its employees, grant funded employees, consultants, faculty, students and advisors who need access to the Confidential Information to assist the Receiving Party in the Purpose.

6. **TERMINATION.** Either Party may for any reason terminate this Agreement upon Notice of not less than ten (10) business days, following which:

(a) the Receiving Party will immediately cease all further inspection, assessment and evaluation or other use of the confidential information;

(b) the Receiving Party, on written demand by the Disclosing Party, shall, within 21 days following receipt of such written demand destroy or return all Confidential Information to the Disclosing Party, uncopied and undistributed, whether or not the Receiving Party has completed the Purpose for which the Confidential Information has been disclosed and delivered. For the avoidance of doubt, any Confidential Information that is stored on routine back-up media solely for the purpose of disaster recovery will be subject to destruction in due

course, provided that, employees are precluded from accessing such Confidential Information in the ordinary course of business prior to destruction. Notwithstanding the foregoing, latent data such as deleted files, and other non-logical data types, such as memory dumps, swap files, temporary files, printer spool files, and metadata that can only be retrieved by computer forensics experts and is generally considered inaccessible without the use of specialized tools and techniques will not be within the requirements for return or destruction of Confidential Information as set forth by this provision.

7. **DISCLAIMER.** The Receiving Party acknowledges and agrees that the Confidential Information is provided on an "AS IS" basis. The Disclosing Party makes NO REPRESENTATION OR WARRANTY (EXPRESS OR IMPLIED) WITH RESPECT TO THE CONFIDENTIAL INFORMATION DISCLOSED, ITS ADEQUACY, ACCURACY, OR SUITABILITY FOR ANY PURPOSE INCLUDING WITHOUT LIMITATION, WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE, MERCHANTABILITY OR NON-INFRINGEMENT. Except as expressly agreed in writing, the Disclosing Party will not be liable to the Receiving Party for any loss or damage arising directly or indirectly from any use of the Confidential Information by the Receiving Party, howsoever caused. Such other persons who may have licensed or otherwise provided Confidential Information to a Disclosing Party are intended beneficiaries of this section 6.

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9. **SURVIVAL.** Termination of the undertakings and covenants of a Party to this Agreement, be it actual, implied, constructive, or otherwise will not affect the non-disclosure and non-use obligations of the Receiving Party, and such obligation will survive termination of the Agreement for a period of two (2) years from the Effective Date.

10. **BREACH.** It is understood that monetary damages may not be a sufficient remedy for any breach of the Agreement, and it is agreed that the Disclosing Party will be entitled to injunction, specific performance or other equitable relief as a remedy for any such breach by the Receiving Party, in addition to all other remedies available, at law or in equity.

11. **TERM.** This Agreement will be effective as of the Effective Date, and will continue in force for a period of three (3) years unless terminated earlier in accordance with Section 5 of this Agreement.

Commented [r6]: Actual term of agreement to be negotiated

12. **GENERAL.**

(a) Any notice, request, demand, consent or other communication ("**Notice**") provided or permitted by this Agreement will be in writing and given by personal delivery or registered mail, or transmitted electronically, to the address first written above. Notice will be deemed to have been received on the date on which it was delivered or transmitted. A Party may change its address for Notice by a written request sent in accordance with this section 11(a).

(b) This Agreement shall be construed and the rights of the Parties shall be governed and enforced in accordance with the laws of British Columbia and in accordance with any applicable law of Canada (without regard to any conflict of laws principles). The Parties irrevocably consent and agree that any legal action, suit or proceeding arising out of or in any way in connection with this Agreement, shall be instituted or brought in the British Columbia Supreme Court and the parties accept and submit to the exclusive jurisdiction of such court, and to all proceedings in such court.

(c) No term, covenant or condition of this Agreement will be deemed waived by either Party and no breach excused, unless such waiver or consent excusing the breach is in writing and signed by both Parties and this Agreement may be amended or otherwise modified only by the written agreement of the Parties.

(d) This Agreement constitutes the entire agreement between the Parties, and supersedes all prior representations, understandings and agreements between the Parties with respect to the Confidential Information. In the event that any term, covenant or condition of this Agreement is declared indefinite, invalid, illegal or unenforceable by a court having jurisdiction this Agreement with respect to the enforceable terms, covenants or conditions will continue in force.

(e) Each Party will execute and deliver to the other Party, on request, such further assurances and documents, and do such further things, as may reasonably be required to give full force and effect to this Agreement.

(f) This Agreement will enure to the benefit of and will bind the successors, heirs and assigns of each Party.

(g) This Agreement and the benefits, advantages and entitlements of the parties under this Agreement cannot be assigned or transferred, in whole or in part, directly or indirectly, by either party, without first obtaining the written consent of the other parties.

(h) This Agreement may be executed in counterparts either through original or facsimile signatures, which together shall form an Agreement. An executed copy of the Agreement delivered by facsimile or electronic copy shall constitute valid execution and delivery of this Agreement.

IN WITNESS WHEREOF the Parties have caused this Agreement to be executed on the day, month and year first above written.

UNIVERSITY OF VICTORIA:

Per:

_____

Brent Sternig
Director, Research Partnerships and Knowledge Mobilization

YUKON LIQUOR CORPORATION:

Per:

_____

Name:
Title:

This document is internally used by UVic to ensure that all individuals provided with confidential information are aware of the restrictions on use and agree to comply with the NDA. Only UVic participants need provide a signed copy.

Project Participant Agreements
Re: Non-Disclosure Agreement made between the University of Victoria ("UVic") and Yukon Liquor Corporation (the "Company") dated 17/09/2018 (the "Purpose NDA") governing the Purpose (as that term is defined in the Purpose NDA).

WHEREAS the Undersigned wishes to participate in the Purpose:

THEREFORE in consideration of the Undersigned being allowed to participate in the Purpose and to be provided with access to the Confidential Information, the Undersigned hereby agrees as follows:

1. The Undersigned hereby acknowledges and agrees that, through Undersigned's involvement with the Purpose, the Undersigned has been or will be provided information that is Confidential Information. The Undersigned agrees and confirms as follows:
    a. I have read and understood the terms of the Purpose NDA;
    b. I have no right to possess, use or retain the Confidential Information except as expressly permitted under the Purpose NDA; and
    c. I will comply with and be bound by the terms of the Purpose NDA as if a party thereto.

2. Without limiting the obligations set out above, the Undersigned agrees (1) to follow all instructions of UVic with respect to the protection and security of the Confidential Information; (2) to take reasonable measures to protect the Confidential Information; and (3) to return all such Confidential Information to UVic upon demand.

3. The Undersigned acknowledges and agrees that UVic cannot provide legal advice to the Undersigned in association with this agreement and that the Undersigned has had or has been given the opportunity to seek independent legal advice.

4. The Undersigned will execute and deliver to UVic, such further assurances and documents, and do such further things, as may reasonably be required to give full force and effect to this authorization and direction.

EXECUTED this _____ **day of** _____, **20** _____.

THE UNDERSIGNED	**Witness for UNDERSIGNED Signature**
_____	_____
Signature	*Signature*
_____	_____
Print Name	*Print Name*
_____	_____
Date	*Date*

Thank you for your interest in the Northern Territories Alcohol Study

Start

Thank you for considering to participate in our study. Before you continue, we need to confirm your eligibility with a few short questions.

Programmer Notes:

1. *Respondents are required to provide a valid answer to continue, which includes "Prefer not to say". If respondent enters an out-of-range response, show: An out-of-range answer was entered for this question. Please check what you've entered.*
2. *If Respondent is **terminated**, show:*

Unfortunately, we are looking for participants of a different demographic. Sorry, you are not eligible to participate at this time, but thank you for your time and interest.

Please return the tablet to project staff.

3. *Please include a "Next" and "Back" button and an "End Survey" button on each page, unless otherwise stated.*
4. *Please show "Don't know" and "Prefer not to say" options slightly lower on the screen, and in a lighter (grey) font, for all study questions (unless noted otherwise).*
5. *For all screening items, if Respondent chooses "Don't know" or "Prefer not to say", show the following message:*

This is an essential question that will help to determine your eligibility. Please do your best to answer. If you can't or don't wish to answer this question, you will not be able to continue the survey.

participation	**Have you participated in this survey before? This survey is part of the Northern Territories Alcohol Study which asks questions about people's attitudes and opinions about alcohol.** ○ Yes, I have participated in the past 2 months [TERMINATE] ○ Yes, I have participated in May/June 2017 or February/March 2018 ○ No, I have not participated before [Skip to **age**] ○ Don't know [TERMINATE] ○ Prefer not to say [TERMINATE] *[Programmer note: Do not include a 'Back' button.]*
name	*[Programmer note: If participant entered "***No, I have not participated before** *to **participation**, skip this question. If participant does not enter information into "**First Name**" or "**Last Name**" or participant selects "**Prefer not to say**" show the following message for this question only:* This is essential information for linking to your previously completed survey. Please do your best to answer. If you don't wish to answer, your survey data will not be linked.*]* **Please enter your first name and last name so we can link the contact information you previously provided to this survey.**

	First Name: [open text] Last Name: [open text] ○ Prefer not to say
age	**How old are you?** Enter Age: **_____** *Programmer note: Capture response, allow numeric text only **[IF UNDER 19; TERMINATE; acceptable age range 19-100]*** ○ Don't know [TERMINATE] ○ Prefer not to say [TERMINATE]
sex	**What sex were you assigned at birth, meaning on your original birth certificate?** ○ Male [Skip to **residence**] ○ Female
pregnant	[*Programmer note: If participant entered **Male** to **sex**, skip this question (pertains to females only).]* **Are you currently pregnant or breastfeeding?** ○ No ○ Yes [TERMINATE only if participant also entered "**No, I have not participated before**" to **participation**] ○ Don't know [TERMINATE only if participant also entered "**No, I have not participated before**" to **participation**] ○ Prefer not to say [TERMINATE only if participant also entered "**No, I have not participated before**" to **participation**]
residence	**Which province or territory do you currently live in?** List of all provinces & territories [TERMINATE ALL BUT YUKON/NORTHWEST TERRITORIES] [*Programmer notes: If participant selects Yukon go to city_1; if participant selects Northwest Territories, go to city_2*] ○ None of the above [TERMINATE] ○ Prefer not to say [TERMINATE]
city_1	**Do you live in Whitehorse or the Greater Whitehorse Area?** ○ No [TERMINATE] ○ Yes ***[Programmer note: Skip to move_1]***

	○ Don't know [TERMINATE] ○ Prefer not to say [TERMINATE]
city_2	**Do you live in Yellowknife?** ○ No [TERMINATE] ○ Yes ***[Programmer note: Skip to move_2]*** ○ Don't know [TERMINATE] ○ Prefer not to say [TERMINATE]
move_1	**How long have you lived in Whitehorse or the Greater Whitehorse Area?** ○ Less than 1 month ○ 1 - 3 months ○ 4 - 6 months ○ 7 - 9 months ○ 9 - 12 months ○ More than 12 months ○ Don't know ○ Prefer not to say
move_2	**How long have you lived in Yellowknife?** ○ Less than 1 month ○ 1 - 3 months ○ 4 - 6 months ○ 7 - 9 months ○ 9 - 12 months ○ More than 12 months ○ Don't know ○ Prefer not to say
***Programmer Note:* *1) If participant entered **No** to question **participation**, then continue with the remaining screening questions.* *2) If participant entered **Yes, I have participated in May/June 2017 or February/March 2018** to question **participation** AND entered **Prefer not say,** or did not enter anything for **First Name** or **Last Name** to question **name**, then continue with the remaining screening questions.* *OTHERWISE, end screening and begin follow-up survey.*	
purchase_1	*Programmer Note: Only ask participants who responded "**Yes**" to **city 1**.* **Did you purchase alcohol at the liquor store in Whitehorse today?** ○ No [TERMINATE] ○ Yes [Skip to 30_alcohol]

	○ Don't Know [TERMINATE] ○ Prefer not to say [TERMINATE]
purchase_2	*Programmer Note: Only ask participants who responded "**Yes**" to **city 2**.* **Did you purchase alcohol at the liquor store in Yellowknife today?** ○ No [TERMINATE] ○ Yes [Skip to **30_alcohol**] ○ Don't Know [TERMINATE] ○ Prefer not to say [TERMINATE]
30_alcohol	**In the PAST 30 DAYS, have you ever had a drink of alcohol? This means any type of alcohol, including beer, wine, hard liquor, coolers or cider.** ○ No [TERMINATE] ○ Yes ○ Don't Know [TERMINATE] ○ Prefer not to say [TERMINATE]
***Programmer Note: Begin baseline survey.*	

*[Programmer note: If participant entered **No** to question **participation**, OR if participant entered **Yes, I have participated in the liquor store last year in May or June 2017** to question **participation** and entered **Prefer not say** or did not enter anything for **First Name** or **Last Name** to question **name**, then use this survey]*

MAIN SURVEY

Those are all of the initial eligibility questions. You are eligible to participate in this study. Your participation is very important.

STOP – please ask Project Staff to provide further study information - STOP.

Project staff please note: MAIN SURVEY

Please ensure you have reviewed the study information carefully with the Research Assistant and provided consent. It is important that you understand the conditions of participation in this research study, and you have had the opportunity to have your questions or concerns addressed by the project staff.

Please press "Next" to start the main survey.

Next

Programmer notes:

1. *Please add variables to record start time and end time for this survey.*
2. *In bottom right corner, underneath the text, create a link to click "NEXT" to start survey. Please also create a link to click "BACK" in bottom left corner underneath response options. Unless otherwise noted.*
3. *In top left corner, create a link to click "End Survey" to terminate survey.*
4. *If participant ends survey, please display the following message on a page:*

   We are sorry you are not able to complete the survey. Thank you very much for your time and interest in our study.

   Please return the tablet to project staff.

5. *For main survey questions, please show "Don't know" and "Prefer not to say" options slightly lower on the screen, and in a lighter (grey) font, for all study questions (unless noted otherwise).*

Script: *[Programmer note: Please include this on its own single page.]*

Helpful hints for taking the survey:

• If you encounter a technical problem in the survey, please notify the project staff. • After choosing or entering an answer, click "Next" at the bottom of the page to continue. • During the survey, if you need to return to a previous question, click "Back". However, please note that some questions will not allow you to go back to the previous question. • If you do not wish to answer a question, choose "Prefer not to say". All questions can be skipped with no penalty or withholding of remuneration.	
store frequency	**SINCE APRIL, how often did you buy alcohol at <u>this liquor store</u>?** ○ First visit ○ Less than 1 time per month ○ 1 time per month ○ 2-3 times per month ○ 1 time per week ○ More than 1 time per week ○ Don't know ○ Prefer not to say *[Programmer note: Please do not include a "Back" button]*
main store	**SINCE APRIL, how much of the alcohol you drank was bought at <u>this liquor store</u>? This includes all of the alcohol you drank at home and in restaurants and bars.** ○ Almost none of my alcohol ○ About 25% of my alcohol ○ About 50% of my alcohol ○ About 75% of my alcohol ○ Almost all of my alcohol ○ Don't know ○ Prefer not to say
buy_outlet	**SINCE APRIL, where did you USUALLY buy alcohol – that is, from what kind of store or seller?** ○ Liquor store ○ Restaurant ○ Bar ○ Duty free shop ○ From someone else selling independently, such as a delivery service, a co-worker, or just in the street i.e., not at a store, restaurant, bar, or other mainstream establishment ○ Other (specify): ○ Don't know ○ Prefer not to say

Script: The next questions ask about warning labels on bottles or cans of beer, wine, hard liquor, coolers, or ciders.	
SEEN	**SINCE APRIL, have you seen any warning labels on bottles or cans of beer, wine, hard liquor, coolers, or ciders?** ○ No - *[skip to **LRDG**]* ○ Yes ○ Don't know– *[skip to **LRDG**]* ○ Prefer not to say– *[skip to **LRDG**]*
SALIENCE Purchase	**SINCE APRIL, how often, if at all, have you read or looked closely at the warning labels on bottles or cans of beer, wine, hard liquor, coolers, or ciders? Would you say:** ○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often ○ Don't know ○ Prefer not to say
Messages_1	**SINCE APRIL, what messages have you seen on the warning labels on bottles or cans of beer, wine, hard liquor, coolers, or ciders? Please list all messages you have seen on labels.** _____ ○ Don't know ○ Prefer not to say *[Programmer Notes: Once participant has responded to this item and pressed "Next", do not allow to return to this item. Allow text and numerical entries only (no emojis).]*
Messages_2	**SINCE APRIL, have you seen any of the following messages on warning labels on bottles or cans of beer, wine, hard liquor, coolers, or ciders? Please read the entire list and check all that apply.** ○ Alcohol and cancer ○ Low-risk drinking guidelines ○ Number of standard drinks in the bottle or can ○ Alcohol may be an addictive drug ○ Alcohol and liver disease ○ Alcohol and trauma

	○ Alcohol and FASD ○ Drinking alcohol and driving a car or operating machinery ○ Don't know ○ Prefer not to say *[Programmer Note: Do not include a "Back" button. Do not allow selection of options if "Don't know" or "Prefer not to say" are selected - use check boxes for options and radio buttons for "Don't know" and "Prefer not to say".]*
LRDG	**Were you aware of Canada's Low-Risk Drinking Guidelines before today?** ○ No ○ Yes ○ Don't know ○ Prefer not to say *[Programmer Note: Do not include a "Back" button.]*
LRDG_daily	**What is the <u>daily limit</u> of "standard drinks" recommended for [males/females based on response to "sex"] in Canada's Low-Risk Drinking Guidelines?** **Enter number of standard drinks per day:** ○ Don't know ○ Prefer not to say *Programmer notes:* - *DISPLAY A POP-UP MESSAGE FOR ENTRY LARGER THAN "30." – "Please verify the number of standard drinks entered, then press Next."* - *Allow numerical text entry only*
LRDG weekly	**What is the <u>weekly limit</u> of "standard drinks" recommended for [males/females based on response to "sex"] in Canada's Low-Risk Drinking Guidelines?** **Enter number of standard drinks per week: _____** ○ Don't know ○ Prefer not to say *Programmer notes:* - *DISPLAY A POP-UP MESSAGE FOR ENTRY LARGER THAN "75." – "Please verify the number of standard drinks entered, then press Next."* - *Allow numerical text entry only*
CHANGES	*[Programmer Notes: If answered "**No**" to **SEEN**, skip to next **Advertising**]*

	SINCE APRIL, have you noticed any CHANGES to warning labels on bottles or cans of beer, wine, hard liquor, coolers, or ciders in <u>this liquor store</u>? ○ No ○ Yes ○ Don't know ○ Prefer not to say
ITC Depth of processing	*[Programmer Note: If answered "**No**" to **SEEN**, skip to **Advertising**]* **SINCE APRIL, how often, if at all, have you thought about the warning labels on bottles and cans of beer, wine, hard liquor, coolers, or ciders? Would you say:** ○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often ○ Don't know ○ Prefer not to say
Label influence	*[Programmer Note: If answer "**No**" to **SEEN**, skip to **Advertising**.]* **SINCE APRIL, have you purchased a different type of alcohol <u>because of warning labels</u> on bottles or cans of beer, wine, hard liquor, coolers, or ciders?** ○ No ○ Yes ○ Don't know ○ Prefer not to say
TALKED	*[Programmer Note: If answer "**No**" to **SEEN**, skip to **Advertising**.]* **SINCE APRIL, how often have you talked about the warning labels on bottles or cans of beer, wine, hard liquor, coolers, or ciders with others? Would you say:** ○ Never ○ Rarely ○ Sometimes ○ Often ○ Very Often ○ Don't know ○ Prefer not to say
AMOUNT	*[Programmer Note: If answer "**No**" to **SEEN**, skip to **Advertising**.]*

	SINCE APRIL, has the amount of alcohol you are drinking changed as a result of the warning labels on bottles or cans of beer, wine, hard liquor, coolers, or ciders? Are you drinking: ○ Less ○ Same amount ○ More ○ Don't know ○ Prefer not to say
Influence_1	*[Programmer Note: If answer "**No**" to **SEEN**, skip to **Advertising**.]* **SINCE APRIL, have you tried to cut down your drinking?** ○ No ○ Yes ○ Don't know ○ Prefer not to say
Influence_2	*[Programmer Note: If answer "**No**" to **SEEN**, skip to Advertising.]* **SINCE APRIL, to what extent, if at all, have <u>warning labels</u> on bottles or cans of beer, wine, hard liquor, coolers, or ciders influenced you to cut down your drinking?** 1 2 3 4 5 **No Influence** **Main Influence** ○ Don't know ○ Prefer not to say *[Programmer Note: Please insert radio buttons above each number.]*
ADVERTISING	*[Programmer note: Keep the question bolded in red as a header for each place option.]* **SINCE APRIL, have you noticed advertising or information that talks about the dangers of drinking alcohol, or encourages people to cut down or stop drinking, in any of the following places?** On television? (If you never watch television, choose "no".) ○ No ○ Yes ○ Don't know ○ Prefer not to say On radio? (If you never listen to the radio, choose "no".) ○ No ○ Yes

	○ Don't know ○ Prefer not to say In newspapers? (If you never read a newspaper, choose "no".) ○ No ○ Yes ○ Don't know ○ Prefer not to say On signs or posters in store windows or inside liquor stores? ○ No ○ Yes ○ Don't know ○ Prefer not to say On signs or posters in restaurants or bars? ○ No ○ Yes ○ Don't know ○ Prefer not to say On the Internet? (If you never use the Internet, choose "no".) ○ No ○ Yes ○ Don't know ○ Prefer not to say

Script:

The following questions are about your alcohol drinking behaviours. When we use the word "drink", it means:

- 1 regular sized bottle or can of beer (341 ml or 12 ounces) or a glass of draft
- 1 glass of wine (142 ml or 5 ounces)
- 1 bottle of cooler (341 ml or 12 ounces)
- 1 bottle or can of cider (341 ml or 12 ounces)
- 1 straight or mixed drink with 1.5 ounces (43 ml) of liquor (e.g. rum, whisky, vodka)

From this point on, some of the questions ask you about the PAST 6 MONTHS: that means any time from January until now.

6 Alcohol	**During the PAST 6 MONTHS, how often did you drink alcoholic beverages?** ○ Less than once a month ○ Once a month ○ 2 to 3 times a month ○ Once a week ○ 2 to 3 times a week ○ 4 to 6 times a week ○ Every day ○ Don't know ○ Prefer not to say
Number Alcohol	**During the PAST 6 MONTHS, on those days when you have drank alcohol, how many drinks did you USUALLY have?** Enter number of drinks: _____ ○ Don't know ○ Prefer not to say *Programmer Notes:* - *Allow numerical text entry only.* - *DISPLAY A MESSAGE FOR ENTRY LARGER THAN "30." – "Please verify the number of drinks entered, then press Next."*
LRDG_Daily	**During the PAST 6 MONTHS, how often have you had [sex: Female =3 / Male= 4] or more drinks on one occasion?** *[Programmer Note: If participant is female use "3", if male use "4"].* ○ Never in the past 6 months *[Skip to **Weekly_Alcohol**]* ○ Less than once a month ○ Once a month ○ 2 or 3 times a month ○ Once a week ○ 2 to 5 times a week ○ Daily or almost daily ○ Don't know ○ Prefer not to say
Binge	*[Programmer Note: If participant chose "**Never in the past 6 months**" in **LRDG Daily**, skip to **Weekly Alcohol**]* **During the PAST 6 MONTHS, how often have you had 5 or more drinks on one occasion?** ○ Never in the past 6 months ○ Less than once a month

	○ Once a month ○ 2 or 3 times a month ○ Once a week ○ 2 to 5 times a week ○ Daily or almost daily ○ Don't know ○ Prefer not to say
Weekly_Alcohol	**During the PAST 6 MONTHS, how often have you had more than [sex: Female=10/Male=15] drinks in a week?** *[Programmer Note: If participant is female use "10", if male use "15"].* ○ Never in the past 6 months ○ Less than once a month ○ Once a month ○ 2 or 3 times a month ○ Every week or almost every week ○ Don't know ○ Prefer not to say
Max Alcohol	**Now thinking about all kinds of alcoholic beverages combined, that is, any combination of cans of beer, glasses of wine, or drinks containing liquor of any kind. During the PAST 6 MONTHS, what is the largest number of drinks that you have had <u>on a single day</u>?** ○ 24 or more drinks ○ 12-23 drinks ○ At least 8, but less than 12 drinks ○ 5, 6 or 7 drinks ○ 4 drinks ○ 3 drinks ○ 2 drinks ○ 1 drink ○ Don't know ○ Prefer not to say
Money	**In the PAST 6 MONTHS, has there been a time when the money you spent on alcohol resulted in not having enough money for household essentials such as food?** ○ No ○ Yes ○ Don't know ○ Prefer not to say
Injury	**Have you or someone else been injured as a result of your drinking?**

	○ No ○ Yes, but not in the past 6 months ○ Yes, in the past 6 months ○ Don't know ○ Prefer not to say
Hospital	**Have you had to go to the hospital as a result of drinking alcohol?** ○ No ○ Yes, but not in the past 6 months ○ Yes, in the past 6 months ○ Don't know ○ Prefer not to say
Type_Alcohol	**When you drink alcohol, what type of drink do you <u>mainly have</u>?** ○ Beer ○ Wine ○ Spirits (hard liquor) ○ Coolers/Cider ○ Don't know ○ Prefer not to say
SD_bottle	**How many "standard drinks" are in this bottle of** [*preferred drink from type.alcohol question; if participant entered "Don't know" or "Prefer not to say" use <u>wine</u>*]**?** *[Programmer Note: Show image of preferred drink from type.alcohol question; if participant answered "Don't Know" or "Prefer not to say" show image of wine]* Enter number of drinks: _____ ○ Don't know ○ Prefer not to say *[Programmer Note: Invalid Response Message: "Invalid response: Please type in a number for your answer, or either choose 'Don't Know'/ 'Prefer Not to Say'. Answers are limited to 1 decimal place."]* SOFT EDIT: DISPLAY A MESSAGE FOR ENTRY LARGER THAN "50." – "Please verify the number of drinks entered, then press Next."
Script: The next 5 questions will ask you about your beliefs about alcohol.	
Breast	**Based on what you know or believe, can drinking alcohol cause breast cancer?** ○ No ○ Yes ○ Don't know

	○ Prefer not to say
Liver	**Based on what you know or believe, can drinking alcohol cause liver disease?** ○ No ○ Yes ○ Don't know ○ Prefer not to say
Cold	**Based on what you know or believe, can drinking alcohol cause the flu?** ○ No ○ Yes ○ Don't know ○ Prefer not to say
Pregnancy	**Based on what you know or believe, can drinking alcohol when pregnant cause harm to unborn babies?** ○ No ○ Yes ○ Don't know ○ Prefer not to say
Colon	**Based on what you know or believe, can drinking alcohol cause colon cancer?** ○ No ○ Yes ○ Don't know ○ Prefer not to say
Script: The next set of questions will ask you about your attitudes and opinions towards alcohol as well as warning labels on bottles and cans of alcoholic beverages. *[Programmer Note: Please do not allow participants to go BACK to previous screen and do not include a BACK button on this screen.]*	
On a scale from 1 to 5, where 1 is strongly disagree and 5 is strongly agree, please indicate to what extent, if at all, you agree or disagree with each of the following statements. *[Programmer Note: Keep this text in bold in red at the top of the screen for each of the next 4 questions. Please show the survey statement on a separate line below this text, in bold and in black.]*	
Switch	**Since April, I have considered switching to lower strength alcoholic beverages.** 1 **Strongly Disagree** 2 3 4 5 **Strongly Agree** ○ Don't know

	○ Prefer not to say *[Programmer Note: Please insert radio buttons above numbers for this set of questions.]*
LRDG Opinion	**Cans and bottles of alcoholic beverages should be labelled with low-risk drinking guidelines.** 1 **Strongly Disagree** 2 3 4 5 **Strongly Agree** ○ Don't know ○ Prefer not to say
SD_Opinion	**Cans and bottles of alcoholic beverages should be labelled with the number of standard drinks per container.** 1 **Strongly Disagree** 2 3 4 5 **Strongly Agree** ○ Don't know ○ Prefer not to say
AWL Opinion	**Cans and bottles of alcoholic beverages should be labelled with warnings describing the link between alcohol and diseases, such as cancer.** 1 **Strongly Disagree** 2 3 4 5 **Strongly Agree** ○ Don't know ○ Prefer not to say *[Programmer Note: Do not include a "Back" button, and do not allow participants to go back once reached this question.]*
AWL Opinion2	**Labels on cans and bottles of alcoholic beverages warning, "Drinking less reduces your risk of 7 types of cancer" would affect the amount of alcohol you drink.** 1 **Strongly Disagree** 2 3 4 5 **Strongly Agree** ○ Don't know ○ Prefer not to say *[Programmer Note: Do not include a "Back" button, and do not allow participants to go back once reached this question.]*

AWL Opinion3	**Labels on cans and bottles of alcoholic beverages warning, "A bottle of wine or six bottles of beer contain as many calories as a burger and fries" would affect the amount of alcohol you drink.** 1 **Strongly Disagree** 2 3 4 5 **Strongly Agree** ○ Don't know ○ Prefer not to say *[Programmer Note: Do not include a "Back" button, and do not allow participants to go back once reached this question.]*
Worried	**How worried are you, if at all, that drinking alcohol will damage your health in the future?** ○ Not at all worried ○ A little worried ○ Very worried ○ Don't know ○ Prefer not to say
SD_Influence	**If the number of standard drinks were displayed on bottles and cans of alcoholic beverages, like the one shown on the screen, would you ever use this information to compare brands to get the most alcohol for the least amount of money?** ○ No ○ Yes ○ Don't know ○ Prefer not to say *[Programmer Note: Show image of standard drink label.]*
Stnd_Drk_LRDG	**If the number of standard drink were displayed on bottles and cans of alcoholic beverages, like the one shown on the screen, would you ever use this information to help yourself or someone else stay within the daily drink limit advised by in the low-risk drinking guidelines?** ○ No ○ Yes ○ Don't know ○ Prefer not to say *[Programmer Note: Show image of standard drink information.]*
LRDG_Influence	**To what extent, if at all, would labels with low-risk drinking guidelines on bottles and cans of alcoholic beverages make you think about the number of drinks you consume?**

	○ Not at all ○ Not much ○ Neutral ○ Somewhat ○ Very much ○ Don't know ○ Prefer not to say *[Programmer Note: Show image of label with drinking guidelines.]*
Warning_Influence	**To what extent, if at all, would health warning labels on bottles and cans of alcoholic beverages make you think about the number of drinks you consume?** ○ Not at all ○ Not much ○ Neutral ○ Somewhat ○ Very much ○ Don't know ○ Prefer not to say *[Programmer Note: Show image of warning label.]*
Availability_1	**To reduce the problems associated with drinking alcohol, to what extent do you support or oppose reducing the hours alcohol can be sold at government liquor retail outlets?** ○ Strongly oppose ○ Oppose ○ Neither support nor oppose ○ Support ○ Strongly support ○ Don't know ○ Prefer not to say
Availability_2	**To reduce the problems associated with drinking alcohol, to what extent do you support or oppose reducing the hours alcohol can be sold at off-sales liquor outlets?** ○ Strongly oppose ○ Oppose ○ Neither support nor oppose ○ Support ○ Strongly support ○ Don't know

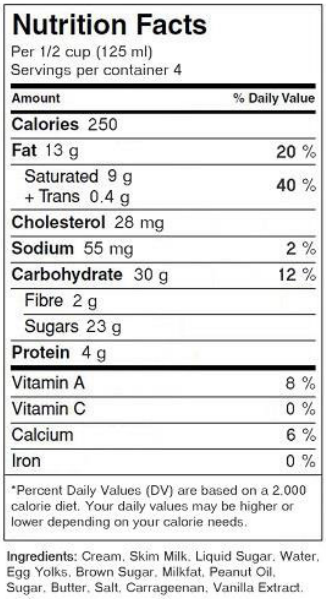
	○ Prefer not to say
Pricing_1	**To reduce the problems associated with drinking alcohol, to what extent do you support or oppose setting a minimum unit price below which a standard drink of alcohol cannot be sold?** ○ Strongly oppose ○ Oppose ○ Neutral ○ Support ○ Strongly support ○ Don't know ○ Prefer not to say
Pricing_2	**To reduce the problems associated with drinking alcohol, to what extent do you support or oppose government minimum prices of at least $1 per standard drink of alcohol?** ○ Strongly oppose ○ Oppose ○ Neutral ○ Support ○ Strongly support ○ Don't know ○ Prefer not to say
Marketing_1	**To reduce the problems associated with drinking alcohol, to what extent do you support or oppose strict controls on alcohol advertisements targeting young people?** ○ Strongly oppose ○ Oppose ○ Neutral ○ Support ○ Strongly support ○ Don't know ○ Prefer not to say
Marketing_2	**To reduce the problems associated with drinking alcohol, to what extent do you support or oppose restrictions on how bars and pubs can use social media (e.g. Facebook, Instagram) to promote drinking on their premises?** ○ Strongly oppose ○ Oppose ○ Neutral ○ Support ○ Strongly support

	○ Don't know ○ Prefer not to say
Marketing_3	**To reduce the problems associated with drinking alcohol, to what extent do you support or oppose banning outdoor advertising of alcohol such as on billboards and bus stops?** ○ Strongly oppose ○ Oppose ○ Neutral ○ Support ○ Strongly support ○ Don't know ○ Prefer not to say
Script: To wrap up the survey, the remaining questions will ask you about your background and general health, as well as a few items about nutrition information. These questions will only be used for statistical purposes. All of your responses will be kept entirely confidential. **You're almost done the survey!**	
Gender	**What is your current gender identity?** ○ Man ○ Woman ○ Trans male/trans man ○ Trans female/trans woman ○ Gender queer/gender non-conforming ○ Different identity – please specify: [open-ended] ○ Don't know ○ Prefer not to say
Employment	**Are you presently working for pay?** ○ Employed full time (30 hours or more per week) ○ Employed part-time (less than 30 hours per week) ○ Unemployed - looking for work ○ Unemployed - not looking for work ○ Stay at home parent ○ Student ○ Retired ○ Unable to work ○ Don't know ○ Prefer not to say
Education	**What is the highest level of education you have completed, or the highest degree you**

	have received? ○ Less than high school diploma ○ High school diploma or equivalent ○ Trade certificate or diploma from a technical/vocational school or apprenticeship training ○ Diploma or certificate from community college or CEGEP (other than trades certificates or diplomas) ○ Some university, or university certificate/diploma below the bachelor's level ○ Bachelor's degree (e.g., BA, BSc) ○ University degree above the bachelor's level (e.g., Master's, professional school, doctorate) ○ Don't know ○ Prefer not to say
Income	**For statistical purposes only, what was your <u>total household income before taxes</u> from all sources in your household, in the past 12-months?** ○ Less than $10,000 ○ $10,000 to less than $20,000 ○ $20,000 to less than $30,000 ○ $30,000 to less than $40,000 ○ $40,000 to less than $50,000 ○ $50,000 to less than $60,000 ○ $60,000 to less than $70,000 ○ $70,000 to less than $80,000 ○ $80,000 to less than $90,000 ○ $90,000 to less than $100,000 ○ $100,000 to less than $150,000 ○ $150,000 and over ○ Don't know ○ Prefer not to say
Perceived income	**Thinking about your <u>total monthly income</u>, how difficult or easy is it for you to make ends meet?** ○ Very difficult ○ Difficult ○ Neither easy nor difficult ○ Easy ○ Very easy

	○ Don't know ○ Prefer not to say
ethnicity	**People in Canada come from many racial and cultural groups. Which cultural or racial group or groups do you consider yourself to be? Please check all that apply.** ○ White ○ South Asian (e.g., East Indian, Pakistani, Sri Lankan) ○ Chinese ○ Black ○ Filipino ○ Latin American ○ Arab ○ Southeast Asian (e.g., Vietnamese, Cambodian, Malaysian, Laotian) ○ West Asian (e.g., Iranian, Afghan) ○ Korean ○ Japanese ○ Aboriginal (e.g., First Nations, Métis, Inuk/Inuit) ○ Other → Specify:________ ○ Don't know ○ Prefer not to say
Health	**In general, would you say your health is:** ○ Poor ○ Fair ○ Good ○ Very good ○ Excellent ○ Don't know ○ Prefer not to say
Stress	**Thinking about the amount of stress in your life, would you say that most days are:** ○ Not at all stressful ○ Not very stressful ○ A bit stressful ○ Extremely stressful ○ Don't know ○ Prefer not to say

[Script: This information is on the back of a container of a pint of ice cream.]



Nutrition Facts

Per 1/2 cup (125 ml)
Servings per container 4

Amount	% Daily Value
Calories 250	
Fat 13 g	20 %
Saturated 9 g + Trans 0.4 g	40 %
Cholesterol 28 mg	
Sodium 55 mg	2 %
Carbohydrate 30 g	12 %
Fibre 2 g	
Sugars 23 g	
Protein 4 g	
Vitamin A	8 %
Vitamin C	0 %
Calcium	6 %
Iron	0 %

*Percent Daily Values (DV) are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

Ingredients: Cream, Skim Milk, Liquid Sugar, Water, Egg Yolks, Brown Sugar, Milkfat, Peanut Oil, Sugar, Butter, Salt, Carrageenan, Vanilla Extract.

[Programmer Note: Show image of Nutrition Facts for each of the following questions.]

Literacy_1	**If you eat the entire container, how many calories will you eat?** Enter number of calories: ○ Don't know ○ Prefer not to say *[Programmer Note: Only allow numerical text entry.]*
Literacy_2	**If you are allowed to eat 60 grams of carbohydrates as a snack, how much ice cream could you have?** Enter number of cup(s): ○ Don't know ○ Prefer not to say *[Programmer Note: Only allow numerical text entry.]*
Literacy_3	**Your doctor advises you to reduce the amount of saturated fat in your diet. You usually have 42 g of saturated fat each day, which includes one serving of ice cream. If you stop eating ice cream, how many grams of saturated fat would you be consuming each day?** Enter number of grams:_____ ○ Don't know

	○ Prefer not to say *[Programmer Note: Only allow numerical text entry.]*
Literacy_4	**If you usually eat 2,500 calories in a day, what percentage of your daily value of calories will you be eating if you eat one serving?** Enter percentage: _____% ○ Don't know ○ Prefer not to say *[Programmer Note: Only allow numerical text entry.]*
Literacy_5 **Literacy_5_No_Reason**	**Pretend that you are allergic to the following substances: penicillin, peanuts, latex gloves, and bee stings.** **Is it safe for you to eat this ice cream?** ○ Yes – *[Skip to **Ever_try**]* ○ No ○ Don't know ○ Prefer not to say [If **No**, ask:] **Why not?** Enter reason: _____ ○ Don't know ○ Prefer not to say
EndSurvey.FirstVisit	Thank you for participating in our study – we really appreciate your help. Please take a moment to go over the following information. As we mentioned earlier, we are interested in people's attitudes and opinions about alcohol. More specifically, the full purpose of this study is to better understand if people notice and use alcohol warning labels displayed on alcohol containers when purchasing and consuming alcohol. **Alcohol Warning Labels** New alcohol warning labels were displayed on alcohol containers sold in the Whitehorse liquor store starting April 13, 2018. The new warning labels contain a Canada's Low-Risk Drinking Guidelines for men and women, and the number of standard drinks in a container of alcohol. The intended purpose of the new alcohol warning labels is to support people in adhering to Canada's Low-Risk Drinking Guidelines, and to make more informed and safer

alcohol choices.

This study is being funded by Health Canada. Results from this study will provide evidence to inform potential alcohol harm reduction strategies in [Yukon] as well as other jurisdictions in Canada.

Hopefully, this additional information does not cause you any discomfort or mistrust.

As a reminder, if you have any questions regarding your rights as a study participant or would like to withdraw your data from the study, you may contact the Research Ethics Coordinator, Tim Westberg, at Public Health Ontario at 647-260-7206 or Ethics@oahpp.ca.

If you have any questions regarding the details of the study or would like any further information about the study, including a copy of our findings as they become available, please contact Dr. Erin Hobin at 647-260-7198 or Erin.Hobin@oahpp.ca.

If you have any alcohol related questions after completing this study, feel free to contact Yukon Alcohol and Drug Services, a free service available to Yukoners by calling 1-866-456-3838 [Should you have any alcohol related questions after completing this study, feel free to contact Northwest Territories Help Line at Toll-Free: 1 (800) 661-0844.]

To thank you for your participation today, we would like to give you a $15 Tim Horton's gift card. **The Research Assistant will ask you to sign a form to confirm that you've received it.**

We really appreciate your participation and hope this is an interesting experience for you.

Canada.ca

- Inequalities in High Alcohol Consumption in Canada- Infographic
  - https://www.canada.ca/en/public-health/services/publications/science-research-data/inequalities-high-alcohol-consumption-canada-infographic.html
- Canadian alcohol and drug use monitoring (2011)
  - 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-2011.html#a7
- What they have to say on alcohol
  - https://www.canada.ca/en/health-canada/services/health-concerns/alcohol-health-concerns.html
- The Chief Public Health Officer's report on alcohol consumption in Canada
  - https://www.canada.ca/en/public-health/services/publications/chief-public-health-officer-reports-state-public-health-canada/2015-alcohol-consumption-canada.html#a4

Canada.ca- Health

- The Chief Public Health Officer's report on alcohol consumption in Canada
  - https://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
- Canada tobacco, alcohol and drugs (2018-2019)
  - https://www.canada.ca/en/health-canada/services/canadian-student-tobacco-alcohol-drugs-survey/2018-2019-summary.html
- Canadian tobacco, alcohol and drugs survey (2017-2013)
  - https://www.canada.ca/en/health-canada/services/canadian-tobacco-alcohol-drugs-survey.html

Statistics Canada

2018-19 sales and volume

- Sales of alcoholic beverages types by liquor authorities and other retail outlets, by value, volume, and absolute volume (Sales went down but volume did not go down much)
- Sales of alcoholic beverages types by liquor authorities and other retail outlets, by value, volume, and absolute volume (Ciders, Coolers, etc)
- Sales of wine went down slightly but volume was no different to 2014/15
- Sales of spirits went up slightly, volume was the same as 2015/16

- Sales of beer went up in value and down in volume 2017-19
- Lower mental health in Canada related with the use of alcohol, cannabis and tobacco
    - https://www150.statcan.gc.ca/n1/pub/45-28-0001/2020001/article/00008-eng.htm#statsinbrief
- Heavy drinking
    - https://www150.statcan.gc.ca/n1/pub/82-625-x/2019001/article/00007-eng.htm

CCSA

- Alcohol (Canadian Drug Summary) 2019
    - https://www.ccsa.ca/alcohol-canadian-drug-summary
- COVID and alcohol
    - https://www.ccsa.ca/more-1-5-canadians-who-drink-alcohol-and-have-been-staying-home-more-have-been-drinking-once-day
    - https://www.ccsa.ca/canadians-under-54-drinking-more-while-home-due-covid-19-pandemic
    - https://www.ccsa.ca/covid-19-and-increased-alcohol-consumption-nanos-poll-summary-report

Statista

- Alcohol consumption by political party in Canada
    - https://www.statista.com/statistics/895369/frequency-of-alcohol-consumption-by-political-party-canada/
- Had more stats on consumption in Canada but requires a membership.
    - https://www.statista.com/topics/2998/alcohol-consumption-in-canada/

The National Alcohol Strategy (NAS)

- *Alcohol labelling could fit in the “health promotion, prevention and education” with no problem. *
- Introduced in 2007
- 41 recommendations to help Canada move toward a culture of moderation for alcohol consumption
- The purpose of the monitoring project is to measure the implementation of NAS
- Low-Risk Alcohol Drinking Guidelines created
    - provide the cornerstone for undertaking a variety of health promotion, prevention and education initiatives
    - developed for youth and women
    - focus on health issues like cancer and chronic illnesses
    - Consensus on standard drink labelling and education guidelines has been reached and documented (couldn’t find anything about labels)
- Since the creation of NAS 3 provinces have adopted alcohol strategies
- In the report they mention findings that link alcohol consumption to several different health issues, including cancer
- Four strategic areas:
    - Health promotion, prevention and education
        - Focuses on communicating the harm of alcohol
        - NGOs, retail alcohol monopolies and public health units and other types of organizations have created social marketing campaigns that focus on low-risk alcohol drinking guidelines, alcohol and cancer, drinking and driving, etc.
        - Does not provide examples of these campaigns
    - Health impacts and treatment
        - Lack of data to monitor how this is going
    - Availability of alcohol
    - Safer communities
        - Communities can foster and create safer drinking
        - Lack of data to show progress
- Source:
    - https://ccsa.ca/sites/default/files/2019-04/CCSA-National-Alcohol-Strategy-Monitoring-Report-2017-en.pdf
- Original strategy launched in 2007, jointly developed by industry
- Not quite done yet
- Labelling is something they are looking at, but call CCSA for more details

Canadian Drugs and Substances Strategy (CDSS)

- *Alcohol labelling could potentially fit into the “prevention” pillar of this strategy. *
- Replaced the National Anti-Drug Strategy in 2016
- Key pillars

    - Harm reduction
        - Supporting measures that reduce negative consequences of drug and substance use
        - Help to address opioid crisis
        - Prevent any new crises
        - Establish hand maintain consumption sites
        - Increase access to naloxone
    - Prevention
        - Preventing problematic drug and substance use
    - Treatment
        - Supporting innovative approaches to treatment and rehabilitation
    - Enforcement
        - Addressing illicit drug production, supply and distribution
    - Evidence
        - Based on Statistics Canada CTADS on behalf of Health Canada. The target population for CTADS is all persons 15 years of age and older living in Canada, excluding residents of the Yukon, Northwest Territories and Nunavut and full-time residents of institutions. (No data for Yukon)
- In 2018 conducted a consultation on strengthening Canada's approach to substance use issues.
    - Common themes post-consumption report:
        - Stigma and discrimination
        - Understanding problematic substance use
        - Services that better meet the needs of individuals and groups
        - Excerpt from article: Duplication may suggest that the participants echoed the organizers' concerns, but Appendix B of the post-consultation report lists that there were other noted themes in participants' responses, including "moving forward with prevention; increasing access to evidence-based treatment; law enforcement and justice, **alcohol policy**, and addressing methamphetamine use."
- Sources:
    - https://www.canada.ca/en/health-canada/services/substance-use/canadian-drugs-substances-strategy.html
    - https://impactethics.ca/2020/02/19/developing-the-canadian-drugs-and-substances-strategy/
- Writing a strategy document that will be released at some point
- It will be based on the What we Heard document
- Projects will come out soon through the same funding mechanism as the label study

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CONFIDENTIAL LQ-07

Session Briefing Note Fall 2017

Alcohol Labelling – "Northern Territories Alcohol Study" Yukon Liquor Corp.

Recommended response:

- The Yukon Liquor Corporation is committed to our government's people-centred approach to wellness through efforts that encourage moderate consumption and reduce alcohol-related harms.
- The Yukon Liquor Corporation and the Northwest Territories Liquor Commission are participating in research to gather baseline data on attitudes, opinions and behaviours related to alcohol use, and to assess the effectiveness of warning labels.
- Funded by Health Canada, the Canadian Institute for Substance Use Research at the University of Victoria and Public Health Ontario are undertaking the research to gather evidence to help inform how we make decisions from warning labels and to inform public policy related to alcohol, programs, and services.
- The first phase of the study began in spring 2017 with a survey at the Whitehorse Liquor Store.
- We are now entering the next phase of the Northern Territories Alcohol Study that will examine the use and effect of warning labels at the Whitehorse liquor store.
- New warning labels will be applied to liquor at the Whitehorse liquor store, which will start November 20, 2017 and run until spring 2018. This phase of the study also includes a supportive social marketing campaign.
- The warning labels will inform consumers about Canada's national Low Risk Drinking Guidelines, standard drink measurements and will caution customers about the link between alcohol use and an increased risk for cancer.
- The next phase begins in spring 2018 with a follow-up survey.

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Session Briefing Note Fall 2017

Alcohol Labelling – "Northern Territories Alcohol Study" Yukon Liquor Corp.

Context—this may be an issue because:

- The liquor industry is generally opposed to the use of warning labels on beverage alcohol and refutes the health concerns being put forward by researchers. The use of labels is controversial in the industry; however, Yukon has used labels since 1991 and is interested in evaluating whether they are effective.

Background:

- Yukon's per capita liquor sales by dollar value and by volume are reported to be the highest in Canada. Consumption rates double in the summer months with the peak tourism season, and during major events or other holidays.
- YLC balances its revenue mandate with social responsibility in practice, and works with a range of partners including the Fetal Alcohol Spectrum Disorder (FASD) interdepartmental and intergovernmental working groups; Fetal Alcohol Syndrome Society Yukon (FASSY); and Mothers Against Drunk Driving (MADD) Whitehorse to support harm reduction.
- The Northern Territories Alcohol Study is a multi-phase study that began in April 2017 with a survey to gather baseline data on attitudes, opinions and behaviours related to alcohol use.
- In November 2017, the labelling initiative (i.e. new warning labels and social marketing campaign) will launch for eight months and will only be at the Whitehorse Liquor Store. Two or three different warning labels will be applied to a limited number of products during the 2017/18 winter.
- The labelling initiative is intended to also help determine the effectiveness of Yukon Liquor Corporation's current labelling practice, while also providing evidence to determine whether labelling alcohol containers with a health message, national drinking guidelines, and standard drink information supports informed decision-making.
- The Northern Territories Alcohol Study includes multiple phases:
  - baseline survey of liquor store customers (voluntary – April 2017);
  - warning label experimental research and social marketing campaign (fall 2017);
  - follow-up survey of liquor store customers (voluntary – est. spring 2018); and
  - data analysis and publishing (est. fall 2018).

CONFIDENTIAL LQ-07

Session Briefing Note Fall 2017

Alcohol Labelling – "Northern Territories Alcohol Study" Yukon Liquor Corp.

- The study includes two test jurisdictions—Yukon will be used to apply a new warning label while NWT will be the control group with no change in its labelling.
- In 2015, a university research team carried out three focus groups in Yukon to examine the merits of such a labelling study. In October 2015, the research team applied for a grant for Health Canada and was successful in obtaining the funding.
- YLC has used warning labels on all wine, spirit and packaged liquor products since 1991. The brightly coloured labels warn the public of the risks of consuming alcohol by pregnant women and raise public awareness of Fetal Alcohol Spectrum Disorder (FASD).

Approved by:

_____ _____

President, Yukon Liquor Corporation [Date approved]

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Decision Note – December 27, 2017

Title: Northern Territories Alcohol Study ("Labelling Study") and the effectiveness of warning labels on alcohol containers

Issue: Whether the pause on the Northern Territories Alcohol Study being carried out in the Yukon Liquor Corporation (YLC) Whitehorse store should be wound down over the next several weeks, or whether the pause should be made permanent immediately with no further work done in relation to the study.

Priority: High. The issue has obtained national media attention. Both the alcohol industry and health researchers are pushing Yukon to know how the study will be resolved.

Commented [AT1]: ATIPP - Cabinet record

Options:

74(1)(a)

Analysis:

74(1)(a)

Pros

74(1)(a)

Northern Territories Alcohol Study – next steps

Cons

74(1)(a)

Option 2:

74(1)(a)

Pros:

74(1)(a)

Cons

74(1)(a)

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Northern Territories Alcohol Study – next steps

Background

- In 2014, the Government of Yukon began working with researchers from Public Health Ontario and the Canadian Institute for Substance Use Research at the University of Victoria to gauge the effectiveness of the labels that it has affixed to alcohol containers in Yukon liquor stores since 1991. Those labels warn of the dangers of drinking while pregnant.
- In 2017, the parties launched the Northern Territories Alcohol Study, which is funded by Health Canada and is led by Public Health Ontario (Dr. Erin Hobin) and the Canadian Institute for Substance Use Research at the University of Victoria (Dr. Tim Stockwell).
- The study is intended to test the impact of alcohol warning labels and whether they increase consumers' understanding of alcohol-related harms.
- Yukon and NWT are the only two jurisdictions using alcohol-warning labels and both agreed to be participants in the study primarily to seek evidence to inform their current labelling practices.
- The labelling study would examine the impact of the current labels but would also introduced other warning labels that would be used on a rotating basis. Those labels included warnings that: alcohol has health impacts; recommended low risk drinking guidelines, and that alcohol has links to several different types of cancer.
- The Whitehorse store is the only location where new labels were introduced. NWT did not introduce new warning labels as it is the "control group" during the study.
- Alcohol lobbying groups (industry), which includes Beer Canada, the Association of Canadian Distillers and the Canadian Vintners Association, were not consulted during the design of the study or the during discussions relating to the nature of the study.
- The rollout of this study received national media including an interview on As It Happens with the lead researcher and substantial coverage in the National Post.
- Upon learning, through the media, of the study, industry made the following points to YLC:
  1. That suppliers and brand owners were not consulted nor briefed in any form by the research team in advance of the study, and neither the researchers nor YLC has consent or permission to use any form of post-manufacturer labels by brand owners.
  2. 74(1)(a)
  3.
  4.
  5.
  6. That the Low Risk Drinking Guideline (LRDG) label is misleading as it is missing support context and the label message might be taken to suggest that it is safe to drive a vehicle after consuming 2 drinks for women or 3 for a man. Industry argues that YLC could be

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Northern Territories Alcohol Study – next steps

held libel in the event of some type of accident occurring after a person has drank in accordance with the LRDG label.

7. The study was not introduced in the context of the National Alcohol Strategy.

- Industry lobbyists advised that 74(1)(a)

- A legal opinion was obtained 74(1)(a)

Commented [AT2]: ATIPP - legal advice should be redacted

- A decision was made to pause the study and on December 19, 2017 YLC staff stopped affixing any labels whatsoever on containers at the Whitehorse liquor store. Labels in respect of the dangers of drinking while pregnant continue to be affixed on containers in community liquor stores.
- Researchers have not been given formal notice in writing of the termination of the study although they were advised in advance, by teleconference, that YLC was pausing its participation in the study. They have been advised of the pause by email and are curious about the meaning of "pause" in this context.
- They are also concerned about the fact there was little discussion with them about the decision to pause and they have advised that they have been contacted by the media but have not given any interviews yet.
- Similarly, industry has advised that they anticipate significant media "blowback "on the pause and they "have their lines ready to go" and do not anticipate to attack either the researchers or the Government of Yukon.
- Media in response to the pause started on December 22 and includes articles in the Whitehorse Star, the Calgary Herald, the Financial Post, several regional newspapers and CTV news where it appeared on the chyron. Further interviews were being conducted by YLC's social responsibility manager today. Her messages were basically as follows:
    - As of this (last) week, the Yukon Liquor Corporation decided take a pause with the application of labels to new product coming into the Whitehorse store.
    - Any labels that are on products will remain; they will not be removed.
    - We have been in contact about this pause with our National Territories Alcohol Study partners to examine concerns brought forward by national brand owners and are working to determine next steps concerning the study.
    - Discussions are ongoing regarding the nature and extent of this pause.
    - We have not yet been in contact with FASSY specifically on this matter yet; however, we look forward to working with FASSY and discussing different ways we can effectively promote not having alcohol when pregnant.

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Northern Territories Alcohol Study – next steps

- The research partners have raised the idea of YLC continuing to label containers for a few more weeks, which would enable the researchers to conduct proper follow-up surveys so that government and industry would be able to use the results to better understand the extent to which evidence-informed alcohol labels can support safer alcohol consumption.
- The President of YLC raised the issue of continuing to label for a few more weeks and then winding the study down in studied manner. One local producer thought that was acceptable yet national industry representatives advised that it would not meet their concerns and an immediate termination of the study, including the termination of warning labels about drinking while pregnant, was also necessary to fully address their concerns.

Decision: Please mark appropriate box.

- ☐ Option 1 (Recommended):
- ☐ Option 2:

Signed:

_____ _____
Lesley McCullough Date
Deputy Minister of Justice

_____ _____
Matt King, President Date
Yukon Liquor Corp.

Yukon Liquor Corporation
PO Box 2703, Whitehorse, Yukon Y1A 2C6

Xx September, 2020

Honourable Minister Patty Hajdu

Email address: HC.Minister.MinistreSC@Canada.ca VIA EMAIL

Dear Minister Patty Hajdu,

Re: Northern Territories Alcohol Label Study

We are writing to urge Health Canada to take the lead in providing guidance to jurisdictions regarding the topic of alcohol warning labels. As you are aware, the Northern Territories Alcohol Label study was conducted in 2017-2018 in Yukon and the Northwest Territories. The study researchers recently published articles in the Journal of Studies on Alcohol and Drugs and submitted a final report to Health Canada.

The Northern Territories Alcohol Label Study is described as "ground-breaking" by Thomas F. Babor, editor of the Journal of Studies on Alcohol and Drugs, a reputable journal in which the researchers published several articles this spring. In his comments about the series of articles, Babor asserts that *"No single study or program of research conducted in one country is likely to provide definitive answers to critical policy questions about alcohol warning labels."* In one of his conclusions about the study, the editor highlights that *"Additional cancer label intervention studies are needed to refine the messages and study their impact in research programs that are not compromised by industry interference."*

Given that additional research needs to be conducted, that there is no one-size-fits-all solution for all countries, and given industry's interest in the matter, we believe that leadership regarding the critical policy questions about alcohol warning labels should come from the national level. We welcome the ongoing strategic work taking place at the national level and ask that alcohol warning labels be considered in these strategies and other national initiatives, with clear guidance for jurisdictions.

We look forward to hearing from you on the matter.

Sincerely,

John Streicker
Minister responsible for the Yukon Liquor Corporation

Pauline Frost
Minister of Health and Social Services

Yukon Liquor Corporation
PO Box 2703, Whitehorse, Yukon Y1A 2C6

June, 2020

Honourable Minister Patty Hadju

Email address:HC.Minister.MinistreSC@Canada.ca VIA EMAIL

Dear Minister Patty Hajdu,

Re: xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

In early 2020, the University of Victoria released reports and journals about the conclusions of the Northern Territories Alcohol Label study conducted in 2017-2018.

The study began in November 2017 to explore the effectiveness of labelling alcohol containers about drinking during pregnancy, cancer and safe drinking guidelines Despite push back from the alcohol industry and a pause in the study, we were able to complete the studyin 2018. The study was a success inraising consumer awareness ofthese alcohol related issues

We recognize that this topic is complex and requires input and involvement from different groups and stakeholders. 1200 people Whitehorse liquor and list recommendation

We believe that addressing alcohol related cancer is a concern to be addressed at the national level. I hope that Health Canada considers taking alcohol labelling on and potentially integrating it to the ongoing national strategies.

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xxxxxxxxxxxxxxxxxxxxx

Sincerely,

John Streicker
Minister responsible for the Yukon Liquor Corporation

Yukon Liquor Corporation
PO Box 2703, Whitehorse, Yukon Y1A 2C6

June, 2020

Honourable Minister Patty Hadju

Email address: HC.Minister.MinistreSC@Canada.ca VIA EMAIL

Dear Minister Patty Hajdu,

Re: Northern Territories Alcohol Label Study

In May 2020, the University of Victoria released a series of publications about the Northern Territories Alcohol Label study conducted in 2017-2018.

From November 2017, researchers applied alcohol warning labels at the liquor store in Whitehorse that included a cancer warning, low-risk drinking guidelines, and standard drink messages. These temporarily replaced previous pregnancy warning labels. Researchers surveyed 1,233 people in Whitehorse (and 816 people in Yellowknife, where labels were not applied) and tested whether the intervention supported more informed and safer alcohol consumption.

In December 2017 we paused the label study. Alcohol producers expressed concerns about the study and in particular, concerns regarding the use of the cancer label. 74(1)(a)

. The project resumed two months later with some modifications.

While the researchers emphasize that no single study or program of research conducted in one country is likely to provide definitive answers to critical policy questions about alcohol warning labels, their main conclusions for the study are that:

- alcohol warning labels, that are designed according to principles for effective product labels and are implemented in a clear and visible way, communicate important health messages to consumers and discourage consumers from purchasing alcohol;
- consumers noticed and processed the new labels, and reported reducing alcohol use because of the labels;

- enhanced alcohol labels are noticed by consumers and may be an effective population-level strategy for increasing awareness and knowledge of cancer risks and national drinking guidelines;
- consumers who became aware that alcohol can cause cancer almost two times more likely to support alcohol minimum unit pricing policy compared to those who were not aware; and
- additional alcohol warning label intervention studies are needed to refine the messages and study their impact in research programs that are not compromised by industry interference.

We believe that the conversation regarding the risks of cancer due to alcohol should be addressed at the national level. The reason I am writing to you today is to ask that Health Canada take the lead on considering this issue.

Sincerely,

John Streicker
Minister responsible for the Yukon Liquor Corporation

Yukon Liquor Corporation
PO Box 2703, Whitehorse, Yukon Y1A 2C6

June, 2020

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In December 2017 ~~we~~ the Government of Yukon paused the label study. Alcohol producers expressed concerns about the study and in particular, concerns regarding the use of the cancer label. 74(1)(a) .

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We believe that the conversation regarding the risks of cancer ~~due to alcohol~~ and the topic of labelling should be addressed at the national level. The reason I am writing to you today is to ask that Health Canada take the lead on considering this issue.

Sincerely,

John Streicker
Minister responsible for the Yukon Liquor Corporation

Yukon Liquor Corporation
PO Box 2703, Whitehorse, Yukon Y1A 2C6

3 July, 2020

Honourable Minister Patty Hadju

Email address:HC.Minister.MinistreSC@Canada.ca VIA EMAIL

Dear Minister Patty Hajdu,

Re: Northern Territories Alcohol Label Study

In May 2020, the University of Victoria released a series of publications about the Northern Territories Alcohol Label study conducted in 2017-2018, and their final report was recently submitted to Health Canada.

Starting in November 2017, researchers applied alcohol warning labels at the liquor store in Whitehorse that included a cancer warning, low-risk drinking guidelines, and standard drink messages. These study labels temporarily replaced previous pregnancy warning labels. Researchers surveyed 1,233 people in Whitehorse (and 816 people in Yellowknife, where labelling practices remained unchanged) and tested whether the intervention changed attitudes, behaviours and beliefs with regard to alcohol consumption.

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While the researchers emphasize that no single research study or program of research conducted in any one country is likely to provide definitive answers to critical policy questions about alcohol warning labels, they offer the following conclusions:

- *alcohol warning labels, that are designed according to principles for effective product labels and are implemented in a clear and visible way, communicate important health messages to consumers and discourage consumers from purchasing alcohol;*
- *consumers noticed and processed the new labels, and reported reducing alcohol use because of the labels;*

Commented [A1]: Hobin
Overall, drinkers exposed to the label intervention recalled the cancer warning message, and the warning label increased knowledge of the alcohol–cancer link. Increases in knowledge that alcohol can cause cancer in the comparison site and, to some degree, in the intervention site likely reflect the considerable public interest in the media coverage of the alcohol industry's actions to disrupt the study and remove the cancer warning label.

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Minister responsible for the Yukon Liquor Corporation

Commented [A2]: Schoueri-
Examining the Impact of Alcohol Labels on Awareness and Knowledge of National Drinking Guidelines: A Real-World Study in Yukon, Canada
Alcohol labels with national drinking guidelines, standard drink information, and a cancer warning may be an effective population-level strategy for increasing awareness of drinking guidelines and knowledge of drink limits

Commented [A3]: Conference #8: Improving knowledge of alcohol as a carcinogen using alcohol labels is associated with public support for alcohol policies: findings from a Canadian quasi-experimental study.
Poster presentation accepted for The Ontario Public Health Convention, March 25 – 27, 2020: Toronto, Canada. (Conference cancelled)

To reduce the problems associated with drinking alcohol, to what extent do you support or oppose setting a minimum unit price below which a standard drink of alcohol cannot be sold?

To reduce the problems associated with drinking alcohol, to what extent do you support or oppose government minimum prices of at least $1 per standard drink of alcohol?

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Yukon Liquor Corporation
PO Box 2703, Whitehorse, Yukon Y1A 2C6

3 July, 2020

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Email address: HC.Minister.MinistreSC@Canada.ca VIA EMAIL

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~~We~~ I believe that the conversation regarding the risks of cancer and the topic of labelling should be addressed at the national level. I understand that there is ongoing work on the Canadian Drugs and Substances Strategy as well as the National Alcohol Strategy, and I encourage~~. The reason I am writing to you today is to ask that~~ Health Canada take the lead on considering this issue through the strategies and other pan-jurisdictional tools.

Sincerely,

John Streicker
Minister responsible for the Yukon Liquor Corporation

Yukon Liquor Corporation
PO Box 2703, Whitehorse, Yukon Y1A 2C6

6 July, 2020

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Here are some of the key results of the study:

- *Prior to the new labels, consumer awareness of alcohol's cancer risk, of Canada's national drinking guidelines, and of the number of standard drinks in containers was low.*
- *After the new labels were introduced in the main liquor store in Whitehorse, consumer awareness of alcohol's cancerrisk and Canada's national drinking guidelines increased in Whitehorse compared to Yellowknife, where no new labels had been added.*

- *Consumers who became aware that alcohol can cause cancer were twice as likely to express support policies to increase the price of cheap alcohol as those who were unaware of the alcohol-cancer link.*
- *Analysis of the sales data showed that average alcohol consumption in Whitehorse decreased by 6 per cent during the study period compared to NWT and neighbouring regions in Yukon.*
- *Average consumption of alcohol sold in labelled alcohol containers decreased by 7 per cent while average consumption of alcohol from the many fewer unlabeled containers increased by 7 per cent.*

I believe that the conversation regarding the risks of cancer and the topic of labelling should be addressed at the national level. I understand that there is ongoing work on the Canadian Drugs and Substances Strategy as well as the National Alcohol Strategy, and I encourage Health Canada to take the lead on considering this issue through these strategies and other national initiatives.

Sincerely,

John Streicker
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PO Box 2703, Whitehorse, Yukon Y1A 2C6

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Sincerely,

John Streicker
Minister responsible for the Yukon Liquor Corporation

Northern Territories Alcohol Label Study- Options Paper

Purpose: To review options for the next steps on the implementation of the recommendations of the Northern Territories Alcohol Label Study.

Background:

The purpose of the Northern Territories Alcohol Label Study was to test, in the real-world, if highly visible labels on alcohol containers with a cancer message, Canada's low-risk drinking guidelines (LRDG), and standard drink information support more informed and safer alcohol consumption.

Methodology review

Alcohol and food labelling around the world

Options:

Commented [AT1]: ATIPP: THIS SHOULD BE REDACTED, IT IS ADVICE TO THE MINISTER

74(1)(a)

Option 1 [RECOMMENDED]: always put your recommended option first – this is the one that is most responsive to direction, best option for government, taxpayer, etc.

Pro	Con

Option 2: your next best option – for this one, you should have more cons than pros

Pro	Con

Option 3: least favoured option – definitely more cons than pros

Northern Territories Alcohol Label Study- Options Paper

Pro	Con

Recommendation

Other Considerations

This category not necessarily required, but if there is something you want to add that is important information, e.g.

Northern Territories Alcohol Label Study- Options Paper

Purpose: To review options for next steps on the Northern Territories Alcohol Label Study.

Background:

The purpose of the Northern Territories Alcohol Label Study was to test if large, highly visible labels on alcohol containers with a cancer message, Canada's low-risk drinking guidelines (LRDG), and standard drink information support more informed and safer alcohol consumption. The labels were applied in rotation, and participants were approached at Liquor Stores in Whitehorse and Yellowknife (the comparison site) to participate in three survey "waves". The study ran from May 2017 to July 2018.

Researchers Tim Stockwell and Erin Hobin released a series of articles[i] from the study as part of a special section in the Journal of Studies on Alcohol and Drugs on May 4, 2020. They also provided YLC with a copy of a draft of the final report submitted to Health Canada in April 2020. In an e-mail to YLC, the researchers summarized key study results as follows:

- *About 300,000 labels were applied to 98 per cent of alcohol containers sold in the liquor store in Whitehorse over the study period.*
- *Prior to the new labels, Yukon consumer awareness of alcohol's cancer risk, of Canada's national drinking guidelines, and of the number of standard drinks in containers was low.*
- *After the new labels were introduced in the main liquor store in Whitehorse, consumer awareness of alcohol's cancer risk and Canada's national drinking guidelines increased in Whitehorse compared to Yellowknife, where no new labels were added.*
- *Consumers who became aware that alcohol can cause cancer were twice as likely to express support for policies to increase the price of cheap alcohol.*
- *Analysis of the sales data showed that average alcohol consumption in Whitehorse decreased by 6% during the study period compared to NWT and neighbouring regions in Yukon.*
- *Average consumption of alcohol sold in labelled alcohol containers decreased by 7 per cent while average consumption of alcohol from the many fewer unlabeled containers increased by 7 per cent.*
- *Expert legal analysis showed that the Canadian alcohol industry lobbyists statements about the legality of alcohol warning labels were flawed. Instead, the analysis showed that Canadian territories and provinces have a duty to inform consumers about the health risks of a product they are involved in distributing, promoting and selling. Failure to adequately inform consumers exposes governments to future civil lawsuits as happened with tobacco.*

Commented [A1]: Single containers of beer
<650ml local beer
<200 ml alcohol products

Northern Territories Alcohol Label Study- Options Paper

Methodology review:

YLC sought a review of the study's methodology from the Yukon Bureau of Statistics and Executive Council Office Science Policy Advisors. Both branches received the series of articles in the Journal of Studies on Alcohol and Drugs released in May, and the draft final report to Health Canada. Below is a summary combining their analysis.

The Journal of Studies on Alcohol and Drugs' is a reputable journal. The authors' decision to publish the findings of interrelated articles within the same issue will likely result in the work, as a whole, having a greater impact within the scientific community. This impact is also encouraged by the Journal editor's introduction to the issue, where the studies are described as ground-breaking. Together, this will increase the impact of this work.

The sales data and the population samples are not fully representative of the situation in Yukon. There is little information available in the articles around the high refusal to participate in the survey (91.5% in waves 2 and 3) and the survey drop-outs, and their potential effect on the survey. The small survey sample size in Yukon and NWT, as well as the pause in the study and associated media coverage, led to smaller differences in knowledge between the intervention and comparison sites, though this is highlighted by Hobin et al.[ii]

Zhao et al[iii] downplays, to some degree, the media attention surrounding the suspension of the study and the role this may have played in the results. There is brief mention of this in the discussion portion, but a fairly strong conclusion ("Applying new alcohol warning labels was associated with reduced population alcohol consumption") is drawn despite this cautionary note.

Overall, relevant authors across the articles are open about those study limitations that they see as most important and their impact on the results. The conclusions are appropriately softened based on these limitations. It would be challenging for any government agency or industry group to get any traction on issues they may have with the methodology or the findings of these studies outside of the credibility of a peer review process. If there are flaws that are great cause for concern, the best way to address them would be through the scientific community as a whole.

Alcohol labelling worldwide:

Stockwell et al[iv] identify 47 World Health Organization member countries with some requirements for warning labels, and highlight that only South Korea and Ireland currently require these to mention cancer (See table in Annex 1).

Yukon and NWT were among the earliest adopters of alcohol labelling with the 1991 pregnancy warning label. The idea of alcohol labelling as a tool to improve public health is

Commented [A2]: An important piece to take away. Tim Stockwell's other works, for instance on minimum pricing for alcohol, have been cited in policy best practice papers from the Organisation for Economic Co-operation and Development for years now.

Commented [A3]: The researchers acknowledge the limitations of the sales data. Other sources such as home made, travellers imports, purchases at the Whitehorse store from rural communities, no control for the volume of tourism. They tried to make some adjustments for seasonal variation in the data

Commented [A4]: Small sample sizes
Study pause
Intervention site as per below

Commented [A5]: With a 91.5% refusal rate and about 2% non-eligibility in recruitment and a non-randomized sampling, the results cannot be claimed as representative.

growing. On July 31 2020, New Zealand and Australia announced the start of a three-year transition period for mandatory pregnancy warning labels on alcohol. Ireland introduced the Public Health Alcohol Act in 2018, which includes requirements to label alcohol products with health, pregnancy and cancer warning messages. Both these labelling decisions involved controversial discussions with industry.

Some governments and institutions launch non-binding initiatives when addressing alcohol labelling. The European Commission has worked closely with the alcohol industry to encourage them to voluntarily commit to nutrition and ingredients listing.[v] In the United Kingdom, the Public Health Responsibility Deal sought non-binding pledges from the alcohol industry to implement labels with National Health Service Drinking Guidelines and a warning about drinking when pregnant on 80 per cent of products, among other measures. Non-binding measures such as these generally do not gain the support of health advocates and healthcare stakeholders question the intent, industry commitment and effectiveness of the measures.

Canada is in the midst of revising and expanding national-level strategies covering alcohol: the National Alcohol Strategy and the Canadian Drugs and Substances Strategy. The National Alcohol Strategy, first developed in 2007, is under review since 2019 by a new committee which no longer includes industry.[1] Alcohol labelling is on the agenda for discussion. Health Canada leads the Canadian Drugs and Substances Strategy, a high-level strategy launched in 2016, and is developing a detailed strategy based on their public engagement document, which includes feedback on alcohol labelling.[vi] There is no timeline yet on the release of either set of updated strategies.

Research on warning label effectiveness:

Zhao et al highlight that there is currently limited evidence that cancer warning labels affect population alcohol consumption: "With limited uptake worldwide, the effectiveness of cancer warning labels on alcohol remains largely unstudied (Martin-Moreno et al., 2013)." Zhao's article contends that there is a growing literature on the characteristics of effective warning labels (salience, colour, etc.) and that the Northern Alcohol Labels Study labels are informed by this literature as well as consultations with local and international health experts and community stakeholders. As mentioned in the methodology review above, a fairly strong conclusion is drawn ("Applying new alcohol warning labels was associated with reduced

[1] The committee is co-chaired by Canadian Centre on Substance Use and Addiction, MADD Canada, Government of Alberta. It includes CIHR, people with lived experience, Institute national de santé publique du Québec, Transport Canada, Office of Alcohol Policy, Health Canada, University of Calgary, Community Addictions Peer Support Association, Health PEI, Société des alcools du Québec, Manitoba Health, Seniors and Active Living, Éduc'alcool, BC Ministry of Health, First Peoples Group, CanFASD, Canadian Public Health Association, Chief Medical Officer of Health, Nova Scotia, Public Health Agency of Canada, Canadian Association of Emergency Physicians, College of Family Physicians of Canada, CALJ.

population alcohol consumption") despite the role media coverage could have played in the result. In his commentary on Stockwell and Hobin's series of articles, Babor concedes that "no one country is likely to provide definitive answers to critical policy questions about alcohol warning labels." However he contends that the articles offer "a clear set of conclusions that cannot be ignored" including the fact that "additional cancer label intervention studies are needed to refine the messages and study their impact in research programs that are not compromised by industry interference."[vii]

France has required pregnancy warning labels on bottles since 2006, and has reported increased awareness of the harms of drinking during pregnancy as part of a broader public information strategy. This included information for students in schools, a national media campaign, and information for pregnant women, epidemiological monitoring and training for professionals.[viii]

From the perspective of industry, a 2019 paper by International Alliance for Responsible Drinking, a not-for-profit supported by global beer, wine, and spirits producers contends that "Many studies attempt to address health warning label effectiveness by analyzing participants' self-reported awareness of labels or motivation and intention to change drinking habits. However, broader research indicates that not all of those who declare intentions to change a particular behavior actually do so."[ix]

Options:

74(1)(a)

Commented [AT6]: ATIPP: THIS AND THE **ASSOCIATED COMMENTS** SHOULD BE REDACTED, IT IS ADVICE TO THE MINISTER

Northern Territories Alcohol Label Study- Options Paper

74(1)(a)

Northern Territories Alcohol Label Study- Options Paper

74(1)(a)

Northern Territories Alcohol Label Study- Options Paper

74(1)(a)

Northern Territories Alcohol Label Study- Options Paper

	74(1)(a)

Other Considerations

The Yukon Liquor Corporation already conducts the following social responsibility initiatives that help to inform Yukoners of the health risks of alcohol consumption:

- The Rethink that Drink initiative aims to help Yukoners think about safer alcohol consumption patterns and limits. In winter 2019, the Yukon Liquor Corporation delivered in-store information sessions at its liquor stores Whitehorse, Haines Junction, Faro, Mayo, Dawson City and Watson Lake.
- The Corporation has added shopping cart and basket cards, with Low Risk Drinking Guidelines and standard drink messaging in all its stores.
- Installed a social responsibility rack card shelf at the Whitehorse Liquor Store with information about Low Risk Drinking Guidelines. A digital screen will soon be available and will display messaging about responsible alcohol consumption.
- The Corporation provides FASSY with ongoing support for a range of Fetal Alcohol Spectrum Disorder (FASD) awareness initiatives, such as participating on the FASD Interagency Advisory Committee and helping to create marketing materials to encourage a safe pregnancy without alcohol or cannabis.
- Messaging about responsible consumption (liquor and cannabis) is shared on social media and in store.
- Safe Grad funding, to encourage schools to discuss substance use with youth and host alcohol-free graduation.

Next steps (if recommended option is approved)

74(1)(a)

Commented [AT13]: ATIPP: THIS SHOULD BE REDACTED, IT IS ADVICE TO THE MINISTER

Northern Territories Alcohol Label Study- Options Paper

74(1)(a)

Annex 1

Table 1 of 1

Table 1. Types of warning label requirements in World Health Organization (WHO) member countries

Country			Health warning types		
	WHO Member countries *n*	Health warnings *n* (%)	Pregnancy *n* (%)	Underage drinking *n* (%)	Drink driving *n* (%)
Americas	35	13 (37.1)	5 (14.3)	6 (17.1)	5 (14.3)
Africa	46	11 (23.9)	6 (13.0)	14 (30.4)	9 (19.6)
Eastern Mediterranean	21	2 (9.5)	1 (4.8)	1 (4.8)	0 (0.0)
Europe	53	13 (24.5)	13 (24.5)	12 (22.6)	11 (20.8)
Southeast Asia	11	2 (18.2)	0 (0.0)	1 (9.1)	1 (9.1)
Western Pacific	28	6 (21.4)	2 (7.1)	7 (25.0)	5 (17.9)
Total	194	47 (24.2)	27 (13.9)	41 (21.1)	31 (16.0)

Source: WHO Global Information System on Alcohol and Health.

[i] The Arrogance of Power: Alcohol Industry Interference With Warning Label Research Thomas F. Babor 81(2), pp. 222–224; The Effects of Alcohol Warning Labels on Population Alcohol Consumption: An Interrupted Time Series Analysis of Alcohol Sales in Yukon, Canada Jinhui Zhao, Tim Stockwell, Kate Vallance, Erin Hobin 81(2), pp. 225–237; Baseline Assessment of Alcohol-Related Knowledge of and Support for Alcohol Warning Labels Among Alcohol Consumers in Northern Canada and Associations With Key Sociodemographic Characteristics Kate Vallance, Tim Stockwell, Jinhui Zhao, Simran Shokar, Nour Schoueri-Mychasiw, David Hammond, Thomas K. Greenfield, Jonathan McGavock, Ashini Weerasinghe, Erin Hobin 81(2), pp. 238–248; Testing Alcohol Labels as a Tool to Communicate Cancer Risk to Drinkers: A Real-World Quasi-Experimental Study Erin Hobin, Ashini Weerasinghe, Kate Vallance, David Hammond, Jonathan McGavock, Thomas K. Greenfield, Nour Schoueri-Mychasiw, Catherine Paradis, Tim Stockwell 81(2), pp. 249–261; Examining the Impact of Alcohol Labels on Awareness and Knowledge of National Drinking Guidelines: A Real-World Study in Yukon, Canada Nour Schoueri-Mychasiw, Ashini Weerasinghe, Kate Vallance, Tim Stockwell, Jinhui Zhao, David Hammond, Jonathan McGavock, Thomas K. Greenfield, Catherine Paradis, Erin Hobin 81(2), pp. 262–272; News Media and the Influence of the Alcohol Industry: An Analysis of Media Coverage of Alcohol Warning Labels With a Cancer Message in Canada and Ireland Kate Vallance, Alexandria Vincent, Nour Schoueri-Mychasiw, Tim Stockwell, David Hammond, Thomas K. Greenfield, Jonathan McGavock, Erin Hobin 81(2), pp. 273–283; Cancer Warning Labels on Alcohol Containers: A Consumer's Right to Know, a Government's Responsibility to Inform, and an Industry's Power to Thwart Tim Stockwell, Robert Solomon,Paula O'Brien, Kate Vallance, Erin Hobin 81(2), pp. 284–292

[ii] Testing Alcohol Labels as a Tool to Communicate Cancer Risk to Drinkers: A Real-World Quasi-Experimental Study Erin Hobin, Ashini Weerasinghe, Kate Vallance, David Hammond, Jonathan McGavock, Thomas K. Greenfield, Nour Schoueri-Mychasiw, Catherine Paradis, Tim Stockwell 81(2)

Northern Territories Alcohol Label Study- Options Paper

[iii] The Effects of Alcohol Warning Labels on Population Alcohol Consumption: An Interrupted Time Series Analysis of Alcohol Sales in Yukon, Canada Jinhui Zhao, Tim Stockwell, Kate Vallance, Erin Hobin 81(2)
[iv] Cancer Warning Labels on Alcohol Containers: A Consumer's Right to Know, a Government's Responsibility to Inform, and an Industry's Power to Thwart Tim Stockwell, Robert Solomon,Paula O'Brien, Kate Vallance, Erin Hobin 81(2), pp. 284–292
[v] European Commission (2019) Labelling of Alcoholic Beverages in the EU https://ec.europa.eu/food/safety/labelling_nutrition/labelling_legislation/alcohol_en
[vi] Government of Canada (2019) What we heard https://www.canada.ca/content/dam/hc-sc/documents/services/publications/healthy-living/what-we-heard-strengthening-approach-substance-use-issues/What-We-Heard-Report-Opioids-EN.pdf
[vii] The Arrogance of Power: Alcohol Industry Interference With Warning Label Research Thomas F. Babor 81(2), pp. 222–224.
[viii] Institut National de Prevention et d'éducation pour la santé (2009) Labelling on alcoholic drinks https://ec.europa.eu/health/archive/ph_determinants/life_style/alcohol/documents/ev_20090217_co08_en.pdf
[ix] IARD, *Policy Review of Health Warning Labels on Alcohol Beverages* (2019) https://iard.org/getattachment/079bd825-7d47-41b7-b9df-3613e6f0ee16/iard-policy-review-health-warning-labels-on-alcohol-beverages-april-2019.pdf

September 23, 2016

Dear Health Canada Substance Use and Addictions Program Review Panel:

Re: Examining alcohol warning labels as a tool to increase public awareness of alcohol-related health risks and reduce alcohol intake at the population level: Evidence to inform alcohol labelling policy and practice.

The Yukon Liquor Corporation (YLC) is pleased to support the above grant being submitted by Drs. Erin Hobin and Tim Stockwell to Health Canada Substance Use and Addictions Program grant competition. This letter serves to confirm our endorsement of the project.

YLC's vision is to ensure liquor products are enjoyed in a safe, legal, and socially responsible manner. Under YLC's mission, we are responsible for the purchase, distribution, and responsible sale of liquor products in Yukon. The Corporation has a monopoly on the distribution and retail sale of liquor products through our six liquor stores across the territory. One of our key strategic goals is to reduce alcohol related harm to the public through regulation, education and enforcement, and promotion of a culture of moderation and social responsibility. In addition to federal regulations requiring %ABV information on alcohol labels in Canada, the Yukon currently requires an additional black and orange alcohol warning label cautioning consumers about drinking while pregnant. However, since the implementation of the warning labels in 1992 in Yukon, no evaluation of these alcohol warning labels has been conducted. Given the incessantly high prevalence of high risk alcohol use in Yukon, the YLC is seeking evidence to inform revisions to our alcohol warning labels to better educate drinkers of alcohol-related health risks and to promote low-risk alcohol use.

Given our keen interest in learning more about effective alcohol warning labels, we have agreed to provide several in-kind contributions to the project. First, we agree to post the intervention alcohol warning labels on alcohol containers in our Whitehorse liquor store and will contribute 10% of liquor store staff time at that site towards the process of affixing the alcohol warning labels on alcohol containers over the 8-month intervention period. In addition, we will also launch a territory-wide social marketing campaign that aligns with the timing and messaging of the labels, which research suggests may increase label effectiveness. Next, we will allow Dr. Hobin and her team to approach our liquor store customers in Whitehorse to invite them to participate in an exit survey to determine individuals' alcohol purchases and to assess their awareness, recall, and use of the alcohol warning labels.

Finally, we will provide Dr Stockwell and his team with weekly liquor store sales data that include total units sold by liquor type, brand, volume, and quantity as well as the time and date of

purchase, store location, and price as described in the protocol.

Results of this innovative project will provide valuable real-world information about the impact of alcohol warning labels in Yukon and Canada. We are pleased to provide our endorsement and commitment to this project and look forward to hearing the results of the competition.

Sincerely,

Proen
Marketing and Social Responsibility Coordinator

YUKON LIQUOR CORPORATION

CONFIDENTIAL LQ-03

Session Briefing Note Spring 2018

Alcohol Warning Labels – "Northern Territories Alcohol Study" Yukon Liquor Corp.

Recommended response:

- We consider social responsibility when developing materials to inform Yukoners about responsible consumption – whether through warning labels or other tools.
- We have balanced the competing interests of industry and brand-owners and the public health community in arriving at our decision to resume participation in the study.
- By resuming participation in the study, we aim to gather evidence on the effectiveness of labelling to support future public health policy related to the use of labels – a practice in place for more than 27 years in Yukon.

Call to Action

- The public health warnings about cancer and alcohol are beyond the scope of our interests in the study; however it represents a vitally important issue that warrants a national conversation led by Health Canada – the federal government agency with jurisdiction over labelling.
- The issue needs to be elevated beyond individual small jurisdictions like Yukon and NWT, and take focus at the national level. As governments, we have a responsibility to inform citizens about the health and social impacts of alcohol consumption and to encourage health choices.
- The Government of Canada in consultation with industry and public health professionals should examine whether to incorporate warnings as a labelling requirement at the manufacturer level.

Context—this may be an issue because:

- Yukon "paused" participation in the study due to concerns raised by the alcohol industry with respect to 74(1)(a)

  The study garnered extensive media attention at the local, national and international levels.

CONFIDENTIAL LQ-03

Session Briefing Note Spring 2018

Alcohol Warning Labels – "Northern Territories Alcohol Study" Yukon Liquor Corp.

Background:

- As one of two jurisdictions in Canada that uses labels, Yukon agreed to participate in the Health Canada funded Northern Territories Alcohol Study led by UVic and Public Health Ontario.
- Yukon government's interest is in evaluating whether use of warning labels are an effective way to raise awareness and influence consumer behaviour. The third party academic level study presents an opportunity to evaluate whether labels have any effect in changing consumer behaviors leading toward responsible consumption and healthier choices. The evidence would inform future policy decisions with respect to use of labels.
- The Northern Territories Alcohol Study is as a multi-phase study that began in April 2017 with a survey to gather baseline data on attitudes, opinions and behaviours related to alcohol use. The study was designed to run for eight months and included two test jurisdictions with Yukon applying new labels and NWT being the control group and not changing its labels.
- Yukon Liquor Corporation (YLC) engaged with researchers in 2014 and in 2015 assisted the research team to carry out three focus groups in Yukon to examine the merits of such a labelling study. In October 2015, the research team applied for a grant for Health Canada and was successful in obtaining the funding in 2017.
- YLC has used warning labels since 1991 on all wine, spirit and packaged liquor products. The brightly coloured labels warn the public of the risks of consuming alcohol by pregnant women and raise public awareness of Fetal Alcohol Spectrum Disorder (FASD).
- YLC is developing a low risk drinking guideline awareness campaign, incorporating priorities with respect to reducing drinking and driving and FASD. The multi-channel campaign will aim to inform Yukoners about healthy drinking and to encourage moderation. It is yet to be determined how any warning labels might be used as a tool in this or future campaigns.

Approved by:

_____ _____

President, Yukon Liquor Corporation [Date approved]

CONFIDENTIAL LQ-07

Session Briefing Note Spring 2019

Warning Labels Yukon Liquor Corp.

Recommended response:

- The field portion of the multi-phase Northern Territories Alcohol Study concluded in July 2018.
- Yukon Liquor Corporation continues to affix labels about the risk of drinking and pregnancy, as per past policy and practice. We use a number of different tools to encourage healthier choices, and raise awareness about responsible consumption, standard drink information and Canada's low-risk drinking guidelines.
- The corporation continues to work with researchers as they further analyze and compare their in-field data and we expect to see the results of the study in 2019 after peer review and related research processes unfold.
- We appreciate the researchers' work and public participation, and acknowledge the sensitivities around the study and practice of labelling with industry.
- We are hopeful that Yukon's participation in the study can offer new evidence to Health Canada and at the national level help inform the dialogue about the effectiveness of labelling as a tool and raising consumer awareness about responsible consumption.

Context—this may be an issue because:

- The field portion of the Northern Territories Alcohol Study concluded on July 31, 2018. Yukon Liquor Corporation has returned to past practice and is affixing past warning labels about the risk of drinking and pregnancy.

CONFIDENTIAL LQ-07

Session Briefing Note Spring 2019

Warning Labels Yukon Liquor Corp.

- Yukon "paused" participation in the warning label study, which generated extensive media attention at the local, national and international levels.

Background:

- Researchers are analyzing data and will develop reports to be posted on a University of Victoria's website (www.alcohollabels.cisur.ca):
- In January 2018 researchers published two articles based on this study and research in a special issue on alcohol warning labels in *Alcohol and Alcoholism.*
- The study is led by researchers from Public Health Ontario and the University of Victoria. Researchers began work on this project in 2015.
- The field portion of the Northern Territories Alcohol Study—a multi-phase study—began in April 2017 with a survey to gather baseline data on attitudes, opinions and behaviours related to alcohol use. It concluded July 31, 2018; overall three surveys were conducted.
- The study was originally designed to run for eight months and included two test jurisdictions with Yukon applying new labels and NWT being the control group and not changing its labels.
- The study is controversial and garnered extensive media attention at the local, national and international levels. On December 19, 2017, Yukon "paused" its participation in the study due to concerns raised by the alcohol industry with respect to 74(1)(a)

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- On April 13, 2018, Yukon resumed its participation in the study but excluded use of the most controversial "cancer" warning label. Standard drink and low risk drinking guideline labels have been in use during the study period.

CONFIDENTIAL LQ-07

Session Briefing Note Spring 2019

Warning Labels Yukon Liquor Corp.

- The original warning labels are brightly coloured and caution about the risks of consuming alcohol by pregnant women and raise public awareness of Fetal Alcohol Spectrum Disorder (FASD).
- In future, the study will offer evidence that may inform whether to continue with use of post-manufacturer labels in future. Evidence may also help to inform Health Canada who has a leadership role in this regard at the national level, as it does in mandating tobacco and cannabis manufacturer warning label requirements.
- Future actions will be informed by: *Liquor Act* review progress report and results; researchers' findings; body of evidence on the effectiveness of labelling; cost considerations associated with label affixation; social responsibility role when developing materials to inform Yukoners about responsible consumption; and input from industry, the National Alcohol Strategy table, and Health Canada.

Approved by:

Matt King	January 30, 2019
President, Yukon Liquor Corporation	[Date approved]

CONFIDENTIAL LQ-08

Session Briefing Note Fall 2018

Warning Labels Yukon Liquor Corp.

Recommended response:

- The field portion of the Northern Territories Alcohol Study has now concluded. Researchers are the analyzing data based on their findings during the multi-phase review.
- The third party research study was always to be a time-limited research intervention with a defined study period. With the in-field study now done, the Yukon Liquor Corporation has returned to affixing past warning labels about the risk of drinking and pregnancy.
- We appreciate the researchers' work and public participation, and acknowledge the sensitivities around the study and practice of labelling with industry.

Additional response:

- We are hopeful that our participation in the study can offer new evidence to help inform the dialogue about the effectiveness of labelling as a tool and raising consumer awareness about responsible consumption.
- In particular, this label study brought to light a critical issue that the topic of labelling warrants a national conversation led by Health Canada, the federal government agency with jurisdiction over labelling.
- As governments, we have a responsibility to inform citizens about the health and social impacts of alcohol consumption and to encourage healthier choices, and we are doing so through a social marketing campaign about standard drinks and Canada's low-risk guidelines.

Context—this may be an issue because:

- The field portion of the Northern Territories Alcohol Study concluded on July 31, 2018. Yukon Liquor Corporation has returned to past practice and is affixing past warning labels about the risk of drinking and pregnancy.
- Yukon "paused" participation in the warning label study, which generated extensive media attention at the local, national and international levels.

CONFIDENTIAL LQ-08

Session Briefing Note Fall 2018

Warning Labels Yukon Liquor Corp.

Background:

- Researchers are analyzing data and will develop reports to be posted on a University of Victoria's website (www.alcohollabels.cisur.ca):
    - Wave 1 baseline report, explains the project and July 2017 survey results
        - Anticipated release timing: September 2018
    - Wave 2 data report, explains study pause and February 2018 survey results
        - Anticipated release timing: October 2018
    - Wave 3 report, explains July 2018 survey data and a full analysis of the study.
        - Anticipated release timing: early 2019
- The study is led by researchers from Public Health Ontario and the University of Victoria. Researchers began work on this project in 2015.
- The field portion of the Northern Territories Alcohol Study—a multi-phase study—began in April 2017 with a survey to gather baseline data on attitudes, opinions and behaviours related to alcohol use. It concluded July 31, 2018; overall three surveys were conducted.
- The study was originally designed to run for eight months and included two test jurisdictions with Yukon applying new labels and NWT being the control group and not changing its labels.
- The study is controversial and garnered extensive media attention at the local, national and international levels. On December 19, 2017, Yukon "paused" its participation in the study due to concerns raised by the alcohol industry with respect to 74(1)(a)

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- On April 13, 2018, Yukon resumed its participation in the study but excluded use of the most controversial "cancer" warning label. Standard drink and low risk drinking guideline labels have been in use during the study period.
- The original warning labels are brightly coloured and caution about the risks of consuming alcohol by pregnant women and raise public awareness of Fetal Alcohol Spectrum Disorder (FASD).
- In future, the study will offer evidence that may inform whether to continue with use of post-manufacturer labels in future. Evidence may also help to inform Health Canada who

has a leadership role in this regard at the national level, as it does in mandating tobacco and cannabis manufacturer warning label requirements.

- Future actions will be informed by: *Liquor Act* review progress report and results; researchers' findings; body of evidence on the effectiveness of labelling; cost considerations associated with label affixation; social responsibility role when developing materials to inform Yukoners about responsible consumption; and input from industry, the National Alcohol Strategy table, and Health Canada.

Approved by:

_____ _____

President, Yukon Liquor Corporation [Date approved]

CONFIDENTIAL LQ-17

Session Briefing Note Fall 2020

Warning Labels Yukon Liquor Corp.

Recommended response:

- The Northern Territories Alcohol Study researchers have determined that alcohol warning labels, when implemented in a clear and visible way, can communicate important health information to consumers and discourage them from purchasing alcohol.
- This warrants a national conversation led by Health Canada, the federal government agency with jurisdiction over labelling, and I have written to the Minister responsible.
- In the meantime, I have discussed the study results with the researchers, and the Corporation is conducting additional research on different and effective ways of informing Yukoners about the health risks of consuming alcohol.
- The Yukon Liquor Corporation continues its practice of applying labels warning that drinking alcohol during pregnancy can cause birth defects.

Context—this may be an issue because:

- This label study sparked controversy as Yukon "paused" participation in study due to concerns raised by industry. This generated extensive media attention at the local, national and international levels. The alcohol beverage industry is sensitive about this study and the practice of labelling. Governments worldwide are exploring effective alcohol labelling including nutrition information, ingredients, health and cancer warning labels, with mixed participation from industry.

Background:

- The alcohol label study is led by researchers from Public Health Ontario and the University of Victoria. Researchers began work on this project in 2015.

CONFIDENTIAL **LQ-17**

Session Briefing Note **Fall 2020**

Warning Labels Yukon Liquor Corp.

- The field portion of the Northern Territories Alcohol Study—a multi-phase study—began in April 2017 and concluded July 31, 2018; overall three surveys were conducted. Researchers are posting reports, and presentations, on the University of Victoria's website (www.alcohollabels.cisur.ca).
- Lead researchers Tim Stockwell and Erin Hobin released a series of articles from the study as part of a special section in the Journal of Studies on Alcohol and Drugs on May 4, 2020. They also provided YLC with a copy of a draft of the final report submitted to Health Canada in April 2020. The Corporation met with the Minister and researchers to discuss their findings.
- Based on the study data, researchers have determined that alcohol warning labels, when implemented in a clear and visible way, can communicate important health information to consumers and discourage them from purchasing alcohol.
- The National Alcohol Strategy is being updated with a new committee that does not include industry. Alcohol labelling is on the agenda.
- Health Canada leads the Canadian Drugs and Substances Strategy, a high-level strategy launched in 2016, and is developing a detailed strategy based on their public engagement document, which includes feedback on alcohol labelling.
- There is no timeline yet on the release of either set of updated strategies.
- The Canadian Centre on Substance Use and Addiction (CCSA) is leading a collaborative initiative to update Canada's Low-Risk Alcohol Drinking Guidelines by March 2022. The label study researchers are involved in the initiative and have indicated that the maximum drink limit could be lowered.

Approved by:

Manon Moreau	September 24, 2020
President, Yukon Liquor Corporation	[Date approved]

CONFIDENTIAL LQ-18

Session Briefing Note Fall 2019

Warning Labels Yukon Liquor Corp.

Recommended response:

- The field portion of the multi-phase Northern Territories Alcohol Study concluded in July 2018.
- The corporation continues to work with researchers as they further analyze and compare in-field data. We expect to see the results of the study later this year.
- Yukon Liquor Corporation continues to affix labels in all its stores, about the risk of drinking and pregnancy, as per past policy and practice.
- Currently the Yukon Liquor Corporation is encouraging healthier consumption choices by raising awareness about standard drinks and Canada's low-risk drinking guidelines through other means.
- We appreciate the public's participation in the researchers' work and we acknowledge there are sensitivities around the study and the practice of labelling with industry.
- We are hopeful Yukon's participation in the study can offer new evidence at the national level and help inform the dialogue about the effectiveness of labelling as an information tool.

Context—this may be an issue because:

- The field portion of the Northern Territories Alcohol Study concluded on July 31, 2018. Yukon Liquor Corporation has returned to past practice and is affixing past warning labels about the risk of drinking and pregnancy.
- Yukon "paused" participation in the warning label study, which generated extensive media attention at the local, national and international levels.

CONFIDENTIAL
LQ-18
Session Briefing Note
Fall 2019
Warning Labels
Yukon Liquor Corp.

Background:

- Researchers are analyzing data and will develop reports to be posted on a University of Victoria's website (www.alcohollabels.cisur.ca). For example, in January 2018 researchers published two articles based on this study and research in a special issue on alcohol warning labels in *Alcohol and Alcoholism.*
- The study is led by researchers from Public Health Ontario and the University of Victoria. Researchers began work on this project in 2015.
- The field portion of the Northern Territories Alcohol Study—a multi-phase study—began in April 2017 with a survey to gather baseline data on attitudes, opinions and behaviours related to alcohol use. It concluded July 31, 2018; overall three surveys were conducted.
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- The study is controversial and garnered extensive media attention at the local, national and international levels. On December 19, 2017, Yukon "paused" its participation in the study due to concerns raised by the alcohol industry with respect to 74(1)(a)

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- On April 13, 2018, Yukon resumed its participation in the study but excluded use of the most controversial "cancer" warning label. Standard drink and low risk drinking guideline labels have been in use during the study period.
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does in mandating tobacco and cannabis manufacturer warning label requirements.

- Future actions will be informed by: *Liquor Act* review progress report and results; researchers' findings; body of evidence on the effectiveness of labelling; cost considerations associated with label affixation; social responsibility role when developing materials to inform Yukoners about responsible consumption; and input from industry, the National Alcohol Strategy table, and Health Canada.

Approved by:	
Paul McConnell	November 4, 2019
President, Yukon Liquor Corporation	[Date approved]

Speaking points
Briefing on label study

- I am pleased to have the opportunity to hear about your research first-hand and want to thank you for the publications and materials you have shared with YLC and I over the last few months.
- The Yukon Liquor Corporation continues its practice of applying labels, warning that drinking alcohol during pregnancy can cause birth defects.
- Informed by your study, the Corporation will be conducting further research on different and effective ways of informing Yukoners about the health risks of consuming alcohol.
- The topic of labelling warrants a national conversation led by Health Canada.
- I have written to the Minister responsible, and will be sending another joint letter, together with Yukon's Minister of Health.
- I understand that strategies such as the National Alcohol Strategy and the Canadian Drugs and Substances Strategy are being updated and in my recent letter I urged the Minister responsible to ensure labelling is included in those discussions as well as any other appropriate national initiatives.
- This, together with the research we plan to conduct in Yukon, will help us update our approach to communicating the health risks associated with alcohol in a way that is effective for Yukoners.
- In the meantime, the Corporation supports a variety of initiatives designed to make the public aware of the health risks associated with alcohol consumption.

Message Box

Subject: Release of labels study report (May 4/20)

Lead department: ~~TBA~~ Yukon Liquor Corporation

Spokesperson: [name and phone number]

- The Corporation welcomes the release of the alcohol labels study.
- We are reviewing the recommendations made in the report and related ~~the~~ impacts ~~they would have on Yukoners~~.
- The Corporation supports a variety of initiatives designed to make the public aware of the health risks that may be associated with liquor consumption.
- The *Yukon Liquor Act* is being modernized to balance social responsibility with economic opportunities for businesses.

Q&As

Q: Will the Corporation adopt the labels?
A: We are reviewing the recommendations made in the report and the related impacts ~~they would have on Yukoners~~. The topic of labeling is a federal responsibility and ~~We believe this is~~ a discussion best led ~~to be had Canada wide and led~~ by Health Canada. At present, our store staff are still applying ~~We will continue to apply~~ the orange warning labels about drinking while pregnant ~~on an ongoing basis~~, as we have done since 1991.

Q: The materials say that the Yukon Government responded to pressure by lobbyists by pausing the study and removing the cancer label. Why did you do this?
A: We needed to understand everyone's position, including that of industry whose brands were directly impacted, before deciding to continue with the study ~~went ahead~~.

Q: The ~~materials~~ new release says Canadians are at risk of drinking too much during COVID-19; what is the Corporation doing to reduce this risk?
A: We continue to raise awareness about Canada's low-risk drinking guidelines, standard drink information, and related public health messages.

Q: This seems like a ground-breaking study. Are you going to allow further studies on alcohol to take place in the territory?
A: We support a variety of initiatives designed to make the public aware of the health risks that may be associated with liquor consumption, and ~~would~~ may consider ~~review any~~ future studies on a case-by-case basis.

Commented [P1]: Comms? Me? Minister?

Commented [P2]: Do you want me to confirm if this is the final, final report for the study? I do not know any longer …

Commented [P3]: What labels – the study labels? Likely not because too large.

Commented [P4R3]: From old BN

- Future actions will be informed by: Liquor Act review progress report and results; researchers' findings; body of evidence on the effectiveness of labelling; cost considerations associated with label affixation; social responsibility role when developing materials to inform Yukoners about responsible consumption; and input from industry, the National Alcohol Strategy table, and Health Canada.

Q: One paper recently released ahead of this study suggests that consumers who become aware of alcohol-related cancer risks have almost 2 times higher odds of supporting alcohol minimum unit pricing policies. Will YLC implement minimum pricing?
A: ~~Minimum pricing requires careful consideration due to its wide-ranging impact including on low-income users. During the~~ The new Liquor Act, yet to enter into force, has provided YLC the ability to create minimum pricing rules; however, ~~-~~minimum pricing is a complex topic that requires careful consideration due to its wide-ranging impacts. ~~review we heard xxxx and we are doing xxx~~

Q: Does the Government of Yukon think alcohol causes cancer?
A: The Yukon's Chief Medical Officer of Health was party to developing the cancer label, advising that alcohol can cause cancer such as breast and colon cancers, of which was informed by scientific evidence. Scientific evidence indicates a causal link between alcohol and seven types of cancer including colorectal and breast cancers, which are two of the most common cancers.

Q: What do you think of the researchers'~~s~~ assertion that Canadian governments actually expose themselves to potential civil liability by failing to inform consumers of such serious health risks?
A: This is something we would have to explore and consider further. The new liquor act has outlined a new purposes of the act which balances economic opportunities and ~~-and in the meantime we continue to make the public aware of the health risks that may be associated with liquor consumption through our~~ social responsibility ~~initiatives~~. In this manner, we will continue to inform the public of the alcohol-related risk in many forms

Commented [A5]: From CMOH cancer incidence report. How did we coordinate with HSS/CMOH on the label study media attention the last time around; did you and who was it?

Commented [P6R5]: Check top three cancers on label

Developed by:	Scott Westerlaken, SR and M 667 3709
Routed by:	Name, position and date
Approved by:	Name, position and date
	Name, position and date
	Paul McConnell, President and date

Message Box

Subject: **Release of labels study report (May 4/20)**

Lead department: **Yukon Liquor Corporation**

Spokesperson: **TBC**

- The Corporation welcomes the release of a series of publications from the Yukon alcohol labelling study. We are reviewing their conclusions.
- The Corporation supports a variety of initiatives designed to make the public aware of the health risks that may be associated with alcohol consumption.
- Yukon's *Liquor Act* is being modernized to balance economic opportunities for businesses with social responsibility.

Q&As

Q: Will the Corporation adopt the labels?
A: At the moment we are closely reviewing the conclusions made in the publications. The topic of labeling is a federal responsibility and we would welcome a nationwide discussion led by Health Canada.

Q: The materials say that the Yukon Government responded to pressure by lobbyists by pausing the study and removing the cancer label. Why did you do this?
A: We needed to understand everyone's position, including that of industry, before deciding to continue with the study.

Q: The news release says Canadians are at risk of drinking too much during COVID-19; what is the Corporation doing to reduce this risk?
A: We continue to raise awareness about Canada's low-risk drinking guidelines, standard drink information, and related public health messages.

Q: This seems like a ground-breaking study. Are you going to allow further studies on alcohol to take place in the territory?
A: We support a variety of initiatives designed to make the public aware of the health risks that may be associated with liquor consumption, and may consider future studies on a case by case basis.

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Commented [A1]: Language is from CMOH cancer incidence report

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Q: Will you still be applying the orange warning labels?
A: At present, our store staff are still applying the orange warning labels about drinking while pregnant, as we have done since 1991.

Developed by:	Scott Westerlaken, SR and M 667 3709
Routed by:	Amelie Quirke-Tomlins, Director Policy and Communications
Approved by:	Patch Groenewegen, Director Liquor Act
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	Amelie Quirke-Tomlins, Director Policy and Communications
	Paul McConnell, President and date

Message Box

Subject: **Release of labels study publications (05/04/20)**

Lead department: **Yukon Liquor Corporation**

Spokesperson: **TBC**

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	Amelie Quirke-Tomlins, Director Policy and Communications
	Paul McConnell, President and 5 May 2020

Media Request — Yukon Liquor Corporation

Subject: Labeling of alcohol products

Inquiry date:	March 20, 2020		**Time:**	10:05 a.m.
Reporter name:	Taylor Charlebois & Quinn Button		**Outlet:**	Calgary Journal
Telephone:			**Email:**	tchar192@mtroyal.ca
Inquiry to:	PG		**Interview type:**	Phone/email
Deadline:	March 31, 2020		**Story will appear:**	

Statement and questions:

- Why this form of labeling is important and why Canada stands at an advantage in adopting it?
- The survey report claims that 65% of Canadians support warning labels on alcohol containers and yet nothing is really being done about it. Is Yukon implementing new labels and if not why?

MESSAGES:

- Alcohol product labeling is a federal responsibility.
- Alcohol labelling has been a topic of discussion within the alcohol industry and by public health officials for some time now. The Northern Territories Alcohol Study provided opportunity for the Yukon Liquor Corporation to evaluate the effectiveness of its current labelling practice to inform future public policy decisions related to social responsibility.
- For over 25 years, we have applied warning labels on the alcohol we sell in our stores throughout Yukon to warn the public that drinking during pregnancy can cause birth defects.
- The study's focus was on the effectiveness of alcohol warning labels while also providing an opportunity to raise awareness about low-risk drinking guidelines, standard drink information, and public health warnings.

Spokesperson: Scott Westerlaken

Approved by:

Manager of SRPP:	AQT	Date:
YLC president:	Paul McConnell	Date:

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- The survey report claims that 65% of Canadians support warning labels on alcohol containers and yet nothing is really being done about it. Is Yukon implementing new labels and if not why?

MESSAGES:

- Product labeling remains a federal respons bility.
- For over 25 years, the Yukon Liquor Corporation has applied warning labels on the alcohol sold in its stores throughout Yukon, which warn the public that drinking during pregnancy can cause birth defects
- Alcohol labelling has been a topic of discussion within the alcohol industry and by public health officials for some time now.
- The Northern Territories Alcohol Study provided opportunity for the Yukon Liquor Corporation to evaluate the effectiveness of its labelling practice to inform future public policy decisions related to social respons bility.
- The study also provided an opportunity to raise awareness about Canada's low-risk drinking guidelines, standard drink information, and related public health messages.
- Presently the Yukon Liquor Corporation is labeling products at the stores as per its usual practice.

Spokesperson: Scott Westerlaken

Approved by:

Director of LAI:	PG	Date:
Manager of SRPP:	AQT	Date:
YLC president:	Paul McConnell	Date:

Commented [P1]: Do we know what study / report the reporter is referring to?

Commented [P2]: Where?

Commented [P3]: Inferring new labels from the study? Maybe our messages need to address this question.

Commented [P4]: This could move up under the first line in Bullet 2

Northern Territories Alcohol Labelling Study

The primary objective was to test if highly visible labels on alcohol containers with a cancer message, Canada's low-risk drinking guidelines (LRDG), and standard drink information support more informed and safer alcohol consumption.

The final sample consists of 2,049 unique participants, 1,233 in Whitehorse and 816 in Yellowknife (Table 2), who completed at least one survey across the three survey waves.

Ideally someone not familiar with the study, probably need a social scientist?

Methodology review

Conclusions

- Alcohol warning labels, that are designed according to principles for effective product labels and are implemented in a clear and visible way, communicate important health messages to consumers and discourage consumers from purchasing alcohol.
    - Consumers noticed and processed the new labels, and reported reducing alcohol use because of the labels.
- Enhanced alcohol labels are noticed by consumers and may be an effective population-level strategy for increasing awareness and knowledge of cancer risks and national drinking guidelines.[19]
    - Consumers who became aware that alcohol can cause cancer almost 2 times more likely to support alcohol minimum unit pricing policy compared to those who were not aware.
- Additional alcohol warning label intervention studies are needed to refine the messages and study their impact in research programs that are not compromised by industry interference.

- In total, approximately 300,000 labels were applied to 97% of alcohol containers sold in the liquor store in Whitehorse over the intervention period.
- ***Per capita alcohol sales in Whitehorse decreased by 6.31% ($p<0.001$) during the intervention period (Figure 3).
- Per capita sales of labelled products reduced by 6.99% ($p<0.001$), while sales of unlabeled products increased by 6.91% ($p<0.05$).

Sabrina Kinsella, Science Policy

Rachel Westfall YBS social scientist

Social Scientist position YBS Rebecca Johnson- social stats and demography.

CMOH

Yukon U – research centre. No social scientist on staff. Dawn MacDonald, Institutional Research Officer.

Commented [P1]:
Strange font and layout variations

Again, why isn't there mention of the very likely influence of regional, national and international media attention to the market during this time and impacted the study site?

Commented [P2]: This is dollar values ... what about actual unit or litre values?

Consumers may have shifted purchasing choices due to seasonality (going from colder to warmer product choices), different products with different dollar values, etc.

It would be interesting to see if the two data types correlate and support each other. I see litres are referenced in Conference #3, but why not here?

Confidential And Privileged Advice To the Minister

Northern Territories Alcohol ~~Liquor~~ Study – Trade Implications

INFORMATION NOTE

Issue Statement:

74(1)(a)

-

Current Situation:

- On February 15, 2018 YLC announced the continuation of a Health Canada funded research project that includes the affixation of sticker-labels to alcoholic beverages in Yukon.
- Concerns with this project have previously been raised by trade representatives of the United States in the context of the World Trade Organization Agreement on Technical Barriers to Trade.
- While the current iteration of the research project has changed from the one announced in November~~,~~ 2017, it is possible that the project is not compliant with internal and international trade obligations.

Background:

- YLC has used warning labels since 1991 on all wine, spirit and packaged liquor products. The brightly coloured labels warn the public of the risks of consuming alcohol by pregnant women and raise public awareness of Fetal Alcohol Spectrum Disorder (FASD).
- Yukon agreed to patriciate in the Health Canada funded Northern Territories Alcohol Study—led by UVic and Public Health Ontario—as one of two jurisdictions in Canada that affixes labels.
- The Northern Territories Alcohol Study is as a multi-phase study that began in April 2017 with an in-store survey to gather baseline data on attitudes, opinions and behaviours related to alcohol use (announced May 2017). The Health Canada-funded study was designed to run for eight months and included two test jurisdictions with Yukon applying new labels and NWT being the control group and not changing its labels.
- On November 22, 2017, YLC announced ~~involvement in a~~ the next phase of the research project that included ~~, amongst other things, would see warning labels~~ affixing labels ~~ed~~

Department Briefing Note		Approved by Deputy Minister	Yukon Economic Development
Prepared By	Policy Planning and Communication		
Date Prepared	March 7, 2018		

Confidential And Privileged Advice To the Minister

Northern Territories Alcohol ~~Liquor~~ Study – Trade Implications

~~to~~ alcoholic beverage containers. Two labels were introduced to inform customers about the ~~to warn consumers about "the~~ link between alcohol use and an increased risk of cancer, as well as Canada's Low Risk Drinking Guidelines.~~"~~ A standard drink label was a part of the study, but was not ready to launch at that time.

- On December 18, 2017 the study was temporarily halted after concerns were raised by national brand owners and alcoholic beverage manufacturers about whether 74(1)(a)

- Prior to the announcement of the study being "paused," the Technical Barriers and Regulations Branch of Global Affairs Canada was contacted by their American counterpart to raise concerns about the study in the context of the World Trade Organization Agreement on Technical Barriers to Trade.
- Global Affairs Canada (GAC) contacted Yukon Government, and YLC provided information to GAC about the study and informed them that Yukon would be "pausing its participation" in the study.
- On February 15, 2018 YLC announced by news release that the study would resume without the cancer label and could continue with the other two labels: low risk drinking guideline and standard drink labels ~~different labels being affixed to alcoholic beverages~~.
- YLC has indicated ~~that~~ the study is to proceed and labelling will ~~the study may now~~ exclude "small ~~manufacturers~~producer" products, which naturally ~~would have the impact of~~ excludes ~~ing all~~ Yukon manufacturers.
- Researchers are presently conducting in-store surveys, which started February 16 and will likely run until end of March.
- YLC and the researchers are in the process of negotiating next steps for the study: ~~YLC has indicated that, at present, only the survey component of the research project is being implemented,~~ when to ~~and that the affixing of labels will not~~ recommence affixing labels and if the YLC warning label will be applied to all small producers' products to ensure breadth of label application for study purposes and to possibly alleviate trade concerns regarding small producer exclusion~~until later in March~~.
- Labels will be affixed starting about the last week of March until end of June 2018; the study labelling will occur for three months. The study will wrap-up in June/July 2018 with another six-week, in-store survey.
- ~~—~~
- From a trade perspective, applying ~~The application of the~~ the research ~~project~~ labels to some alcoholic beverage containers, but not to others, ~~raises~~ concern both ~~from a trade perspective~~ in terms of ~~both~~ internal and international trade agreements.

Department Briefing Note		**Approved by Deputy Minister**	Yukon Economic Development
Prepared By	Policy Planning and Communication		
Date Prepared	March 7, 2018		

Confidential And Privileged Advice To the Minister

Northern Territories Alcohol ~~Liquor~~ Study – Trade Implications

- It is unknown if the adjusted study and new labels will allay the initial concerns identified in December by the USA Department of Commerce, or if the new study will introduce additional concerns due to the exclusion of "small manufacturers".

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Next Steps:

- Economic Development will work with YLC to determine how the research project is being implemented and will provide advice about compliance with internal and international trade agreements.
- YLC has indicated they will notify Canada of the current status of the research project and Economic Development will liaise with GAC to determine compliance with international trade agreements.
- ~~YLC has indicated that it is possible that the survey component of the research study could resume without the affixing of labels.~~

Department Briefing Note		Approved by Deputy Minister	Yukon Economic Development
Prepared By	Policy Planning and Communication		
Date Prepared	March 7, 2018		

CONFIDENTIAL

CABINET COMMITTEE ON PRIORITIES AND PLANNING

ECO Cabinet Committee Secretariat Report

67(3)(a)

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67(3)(a)