

Overview of Evidence-Based Tobacco Control Policies

Addressing the Impact of Tobacco and Alcohol Use on Cancer-Related Health Outcomes
National Cancer Policy Forum
March 17-18, 2025



Geoffrey T. Fong, OC, PhD, FRSC, FCAHS
University of Waterloo
Ontario Institute for Cancer Research

UNIVERSITY OF
WATERLOO



Disclosures and Funding in Past Five Years

- External Peer Reviewer, Center for Tobacco Products, US FDA: one of four experts who evaluated the FDA's scientific evidence review on: (a) the impact of menthol cigarettes on addictiveness, and (b) the potential impact of banning menthol in cigarettes in the US.
- WHO Framework Convention on Tobacco Control (FCTC) Expert Group for Articles 9 and 10 (Tobacco product regulation and product disclosures),
- WHO FCTC Expert Group for Article 2.1 (Forward-Looking Measures)
- WHO Expert Group on COVID-19 and Tobacco Use
- Grant support: US National Cancer Institute, US National Institute on Drug Abuse, Canadian Institutes of Health Research, Ontario Institute for Cancer Research, New Zealand Health Research Council, Australia National Health and Medical Research Council, Korea Health Promotion Institute, Health Canada, National Cancer Center Japan, Dutch Lung Fund, Health Funds for Smokefree Netherlands
- No financial or other relationships with any pharmaceutical, medical, health, healthcare, or communications companies, including tobacco/nicotine companies.

1. The threat of tobacco smoking
2. WHO Framework Convention on Tobacco Control (FCTC)
3. Some FCTC policies relevant to alcohol
4. Very brief evidence on the effectiveness of those FCTC policies
 - Tax, health warnings, advertising/marketing bans
 - Industry interference (Article 5.3)
5. Closing remarks on the nature of alcohol vs. the nature of tobacco in the conceptualization of policies

The Global Tobacco Smoking Pandemic

- Over 1 billion tobacco smokers in the world
- 8.3M deaths/yr: 7.1M in smokers +
1.2M deaths of non-smokers
from secondhand smoke
- Greatest single preventable cause of cancer
- 20th century: 100M deaths
- 21st century: >500M deaths
- Burden is shifting to Low- and Middle-Income Countries
- NOT just a health problem. Total economic cost/year = US\$1.4 trillion,
equal to 1.8% of global GDP

Global COVID-19 deaths in
first 18 months of pandemic

Last Updated at (M/D/YYYY)
10/6/2021, 8:21 AM

Total Deaths

4,819,788

**During that same period,
smoking killed 12.5M**

**WHO: Tobacco is the single greatest preventable cause of death
in the world today**

WHO Framework Convention on Tobacco Control



- First-ever WHO treaty (2005)
- Ratified by >180 countries (90% of world's population)
- Parties obligated to implement these and other policies:
 - Article 6: Higher tobacco taxes
 - ~~Article 8: Comprehensive smoke-free laws~~
 - ~~Article 9/10: Product regulation~~
 - Article 11: Large pictorial warnings
 - ~~Article 12: Communication/education~~
 - Article 13: Marketing/advertising bans
 - ~~Article 14: Cessation~~

The FCTC may be the greatest disease prevention initiative in history

International Tobacco Control Policy Evaluation Project (the ITC Project)



Canada



United States



Australia



United Kingdom



Greece



Vietnam



Ireland



Thailand



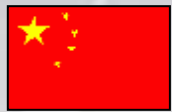
Malaysia



Republic of Korea



Hungary



China



Uruguay



Mexico



New Zealand



Poland



France



Germany



Netherlands



Bangladesh



Romania



Brazil



Mauritius



Bhutan



India



Spain



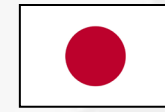
Zambia



Kenya



Abu Dhabi



Japan



Israel

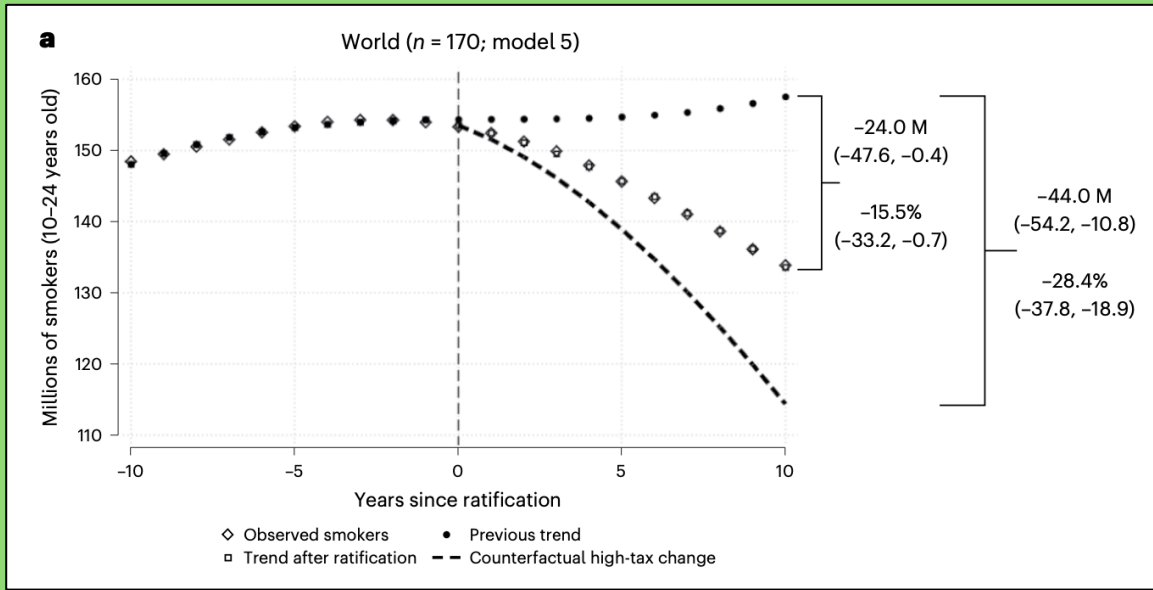
- 31 countries: 1/2 of the world's population and 2/3 of the world's tobacco users
- Only international cohort study of tobacco use
- Key objective: evaluation of tobacco control policies
- Recent objective added: understanding use of other nicotine products across countries with emphasis on evaluating policies on different products

Impact of the overall FCTC on reducing smoking

Reductions in smoking due to ratification of the Framework Convention for Tobacco Control in 171 countries

Guillermo Paraje^{1,2}, Mauricio Flores Muñoz³, Daphne C. Wu⁴ & Prabhat Jha⁴

Nature Medicine | Volume 30 | March 2024 | 683–689



Implementation of key demand-reduction measures of the WHO Framework Convention on Tobacco Control and change in smoking prevalence in 126 countries: an association study

Shannon Gravely, Gary A Giovino, Lorraine Craig, Alison Commar, Edouard Tursan D’Espaignet, Kerstin Schotte, Geoffrey T Fong

www.thelancet.com/public-health Published online March 21, 2017

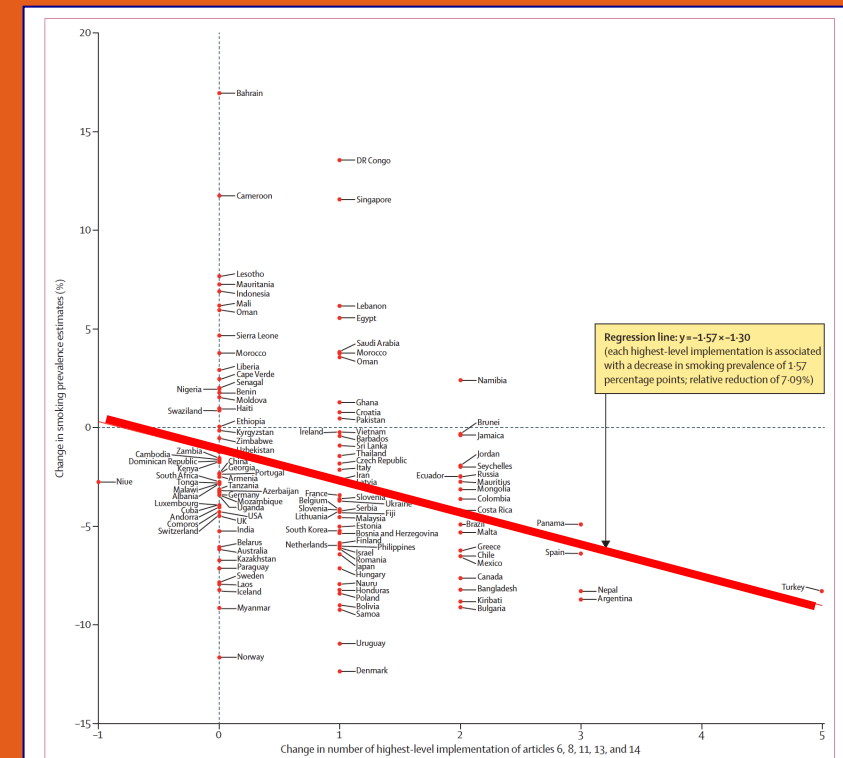
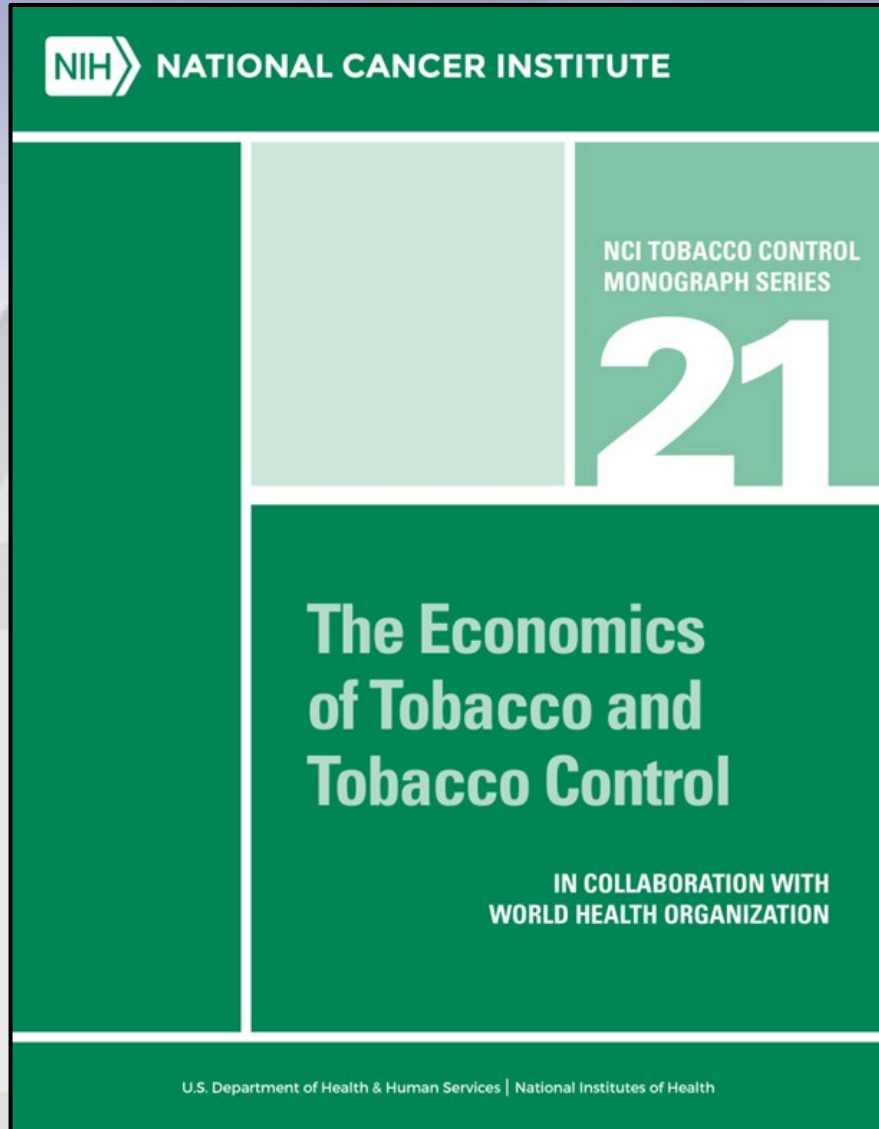


Figure 2: Relation between change in the number of five key WHO FCTC demand-reduction measures implemented at the highest level between 2007 and 2014 (x-axis) and change in smoking prevalence between 2005 and 2015 (y-axis)

Tax increases that raise tobacco product prices is one of most effective strategies to reduce tobacco use



Cigarette prices and consumption



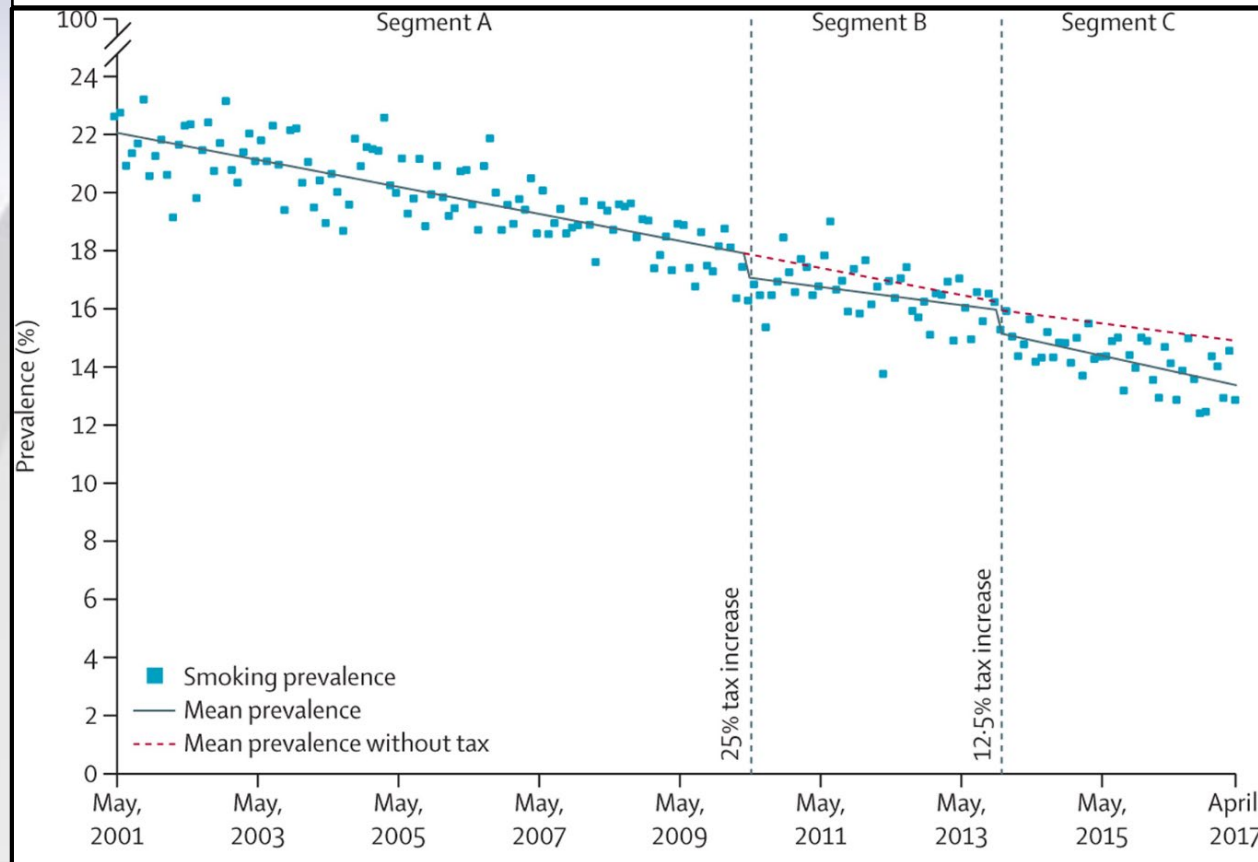
NCI/WHO Monograph (2016):

10% price increase on pack of cigarettes would lead to 3-5% reduction in demand among adults in high-income countries

Tobacco tax increases reduce smoking prevalence

Smoking prevalence following tobacco tax increases in Australia between 2001 and 2017: an interrupted time-series analysis

Anna L Wilkinson, Michelle M Scollo, Melanie A Wakefield, Matthew J Spittal, Frank J Chaloupka, Sarah J Durkin



Wilkinson et al. *Lancet Public Health* (2019):

Large tobacco tax increases led to immediate and sustained reductions in smoking prevalence in Australia.

Beard et al. *Addiction* (2022):

5% above inflation cigarette tax increase associated with 33.1% increase in quit success among adults aged 16+ years in England.

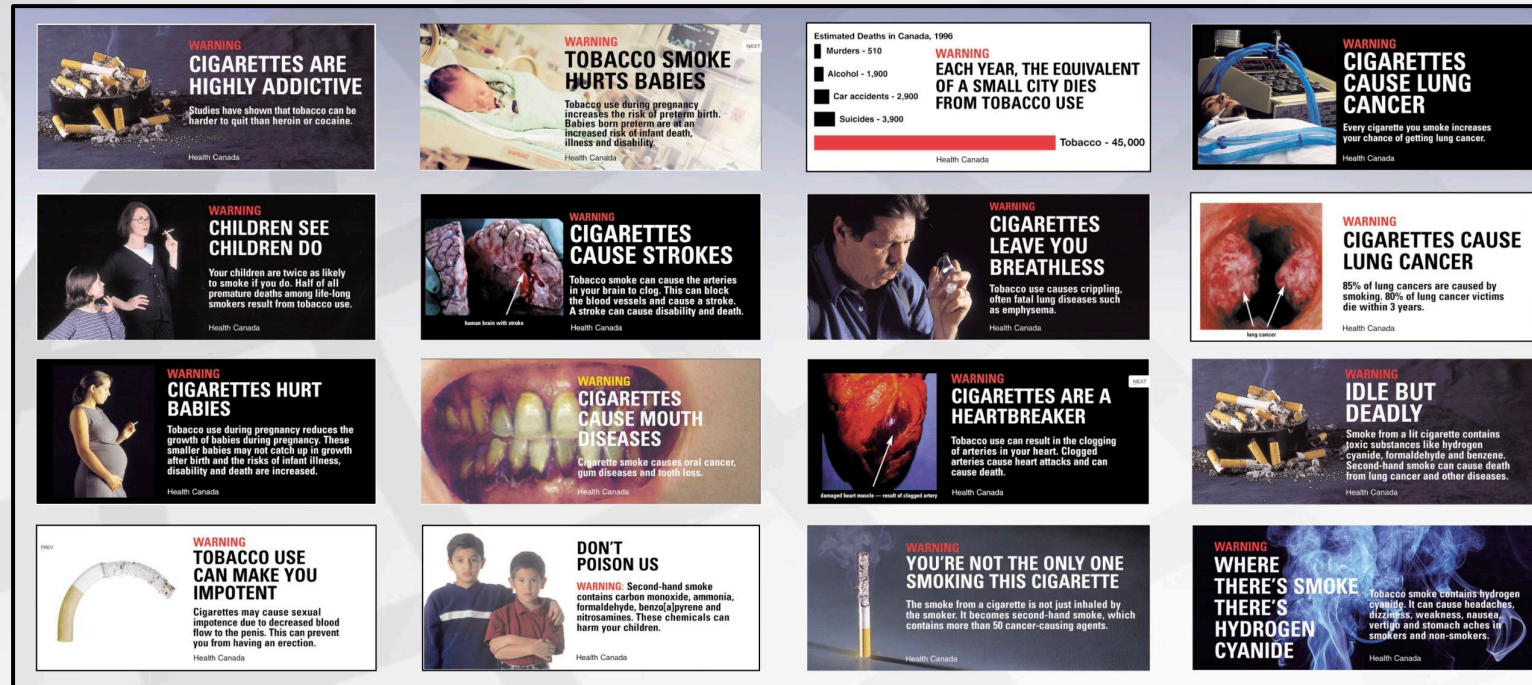
Canadian warnings: from pathetic to powerful

1980s

Warning: Health and Welfare Canada advises that danger to health increases with amount smoked—avoid inhaling.
Av./Moyenne "Tar"/"Goudron" 9 mg. Nic. 0.6 mg.
Avis: Santé et Bien-être social Canada considère que le danger pour la santé croît avec l'usage—éviter d'inhaler.

Text only
Side of pack
"US Style"

2001



Graphic
images
50% of front
and back

Canadian warnings: 2023-25: the definitive system



Outside of pack: New Set of 14 graphic warnings



Edges of pack: Toxicity information



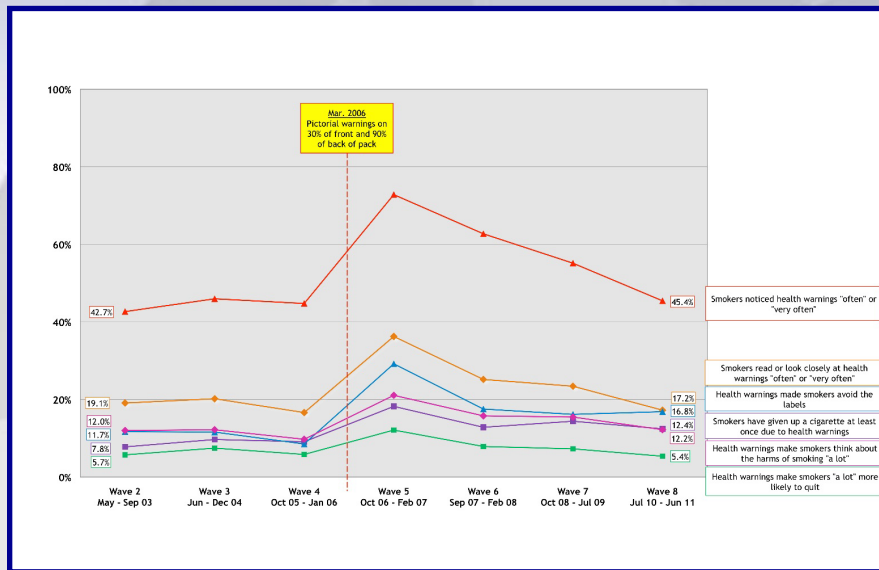
Pack Inserts: Health information messages



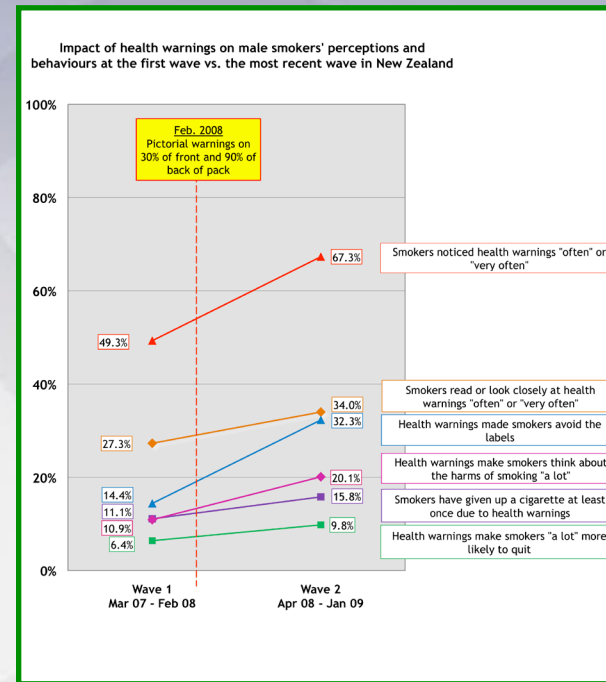
Cigarettes: Warnings on sticks



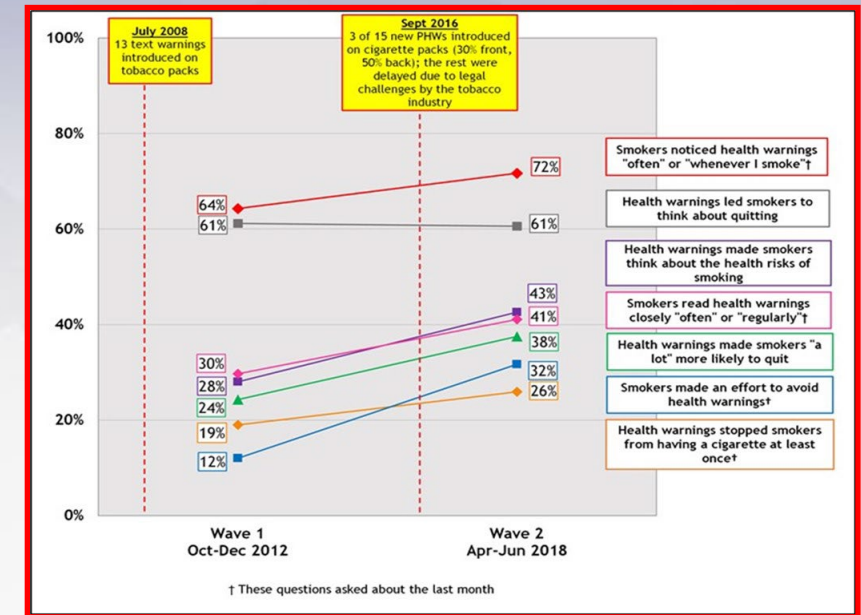
ITC: Many pre-post/difference-in-differences evaluations: Graphic warnings greatly increase warning effectiveness



Australia



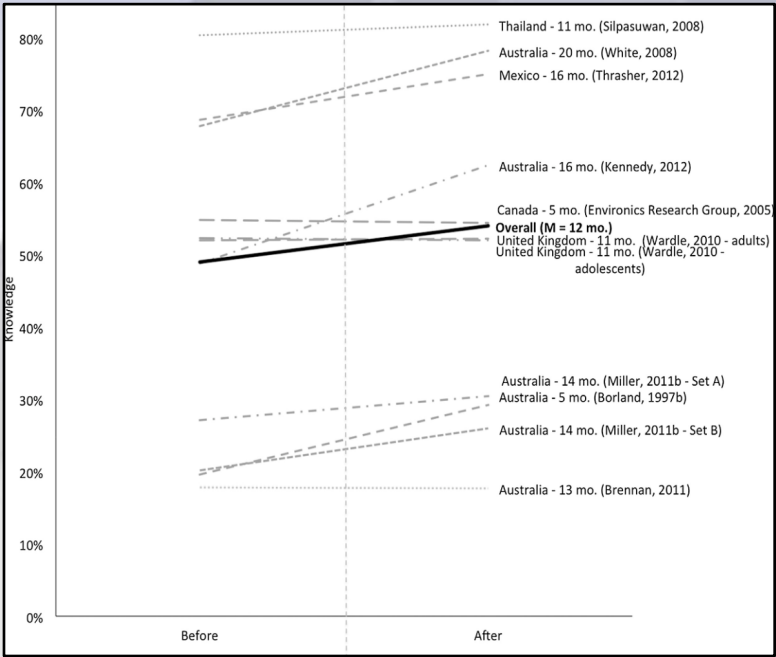
New Zealand



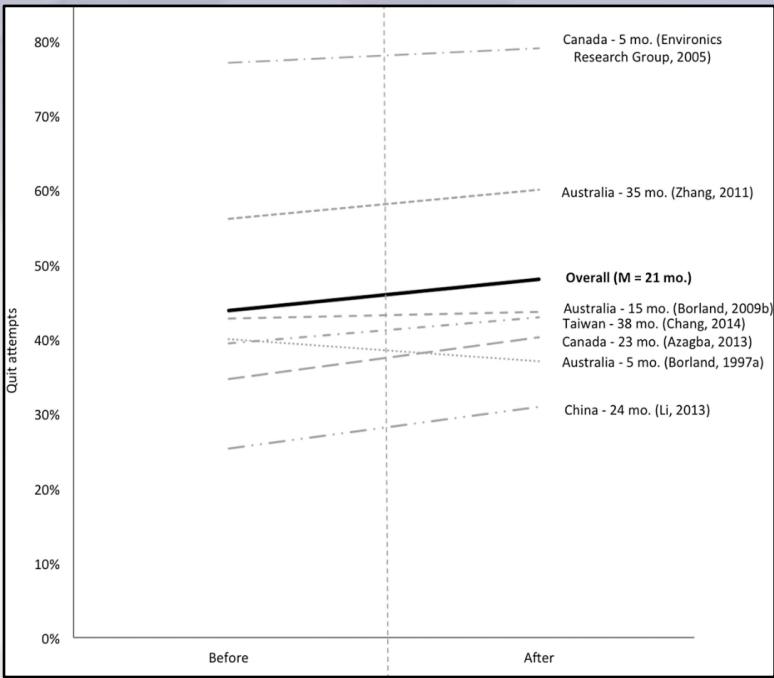
Kenya

Effectiveness of health warnings on cigarette packs

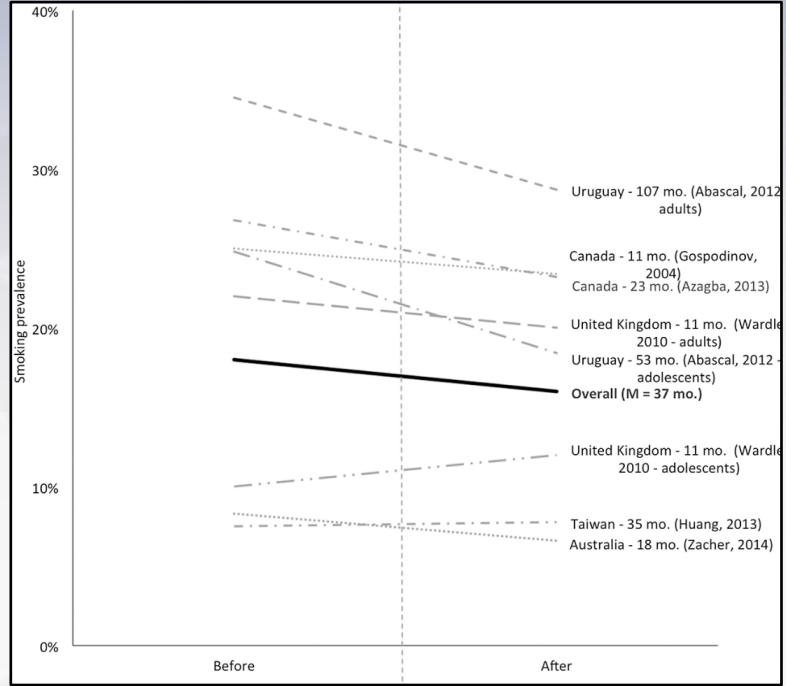
Noar et al. *Tobacco Control* (2016): Systematic review of 32 longitudinal observational studies in 20 countries: assess the impact of changing (enhancing) warnings



Increase in knowledge about health effects of smoking (e.g., oral cancer, lung cancer)



Increase in quit attempts



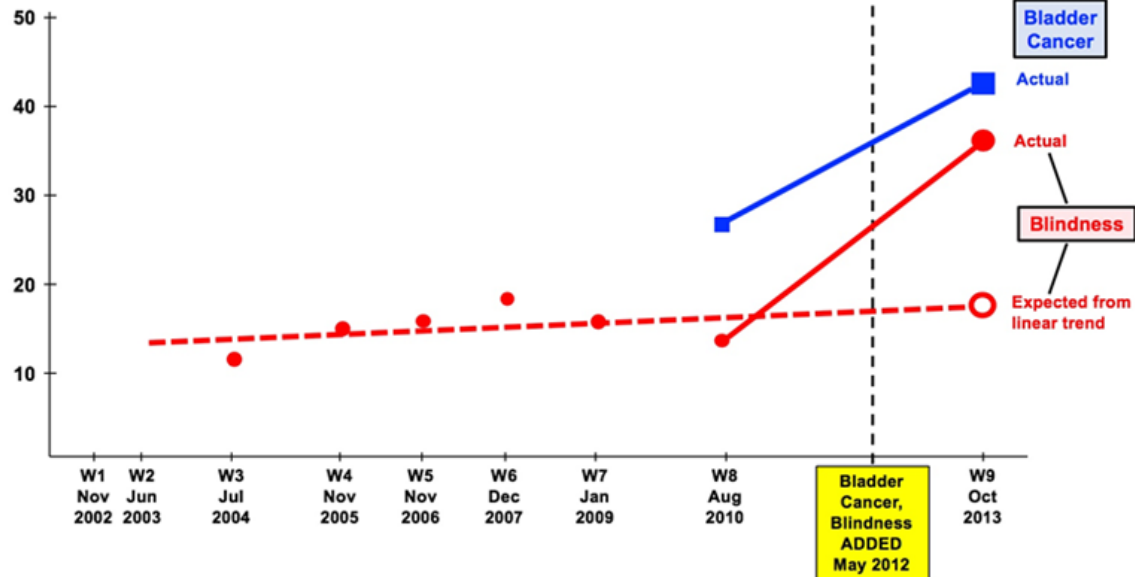
Decrease in cigarette consumption and prevalence

ADDING a health harm increases knowledge

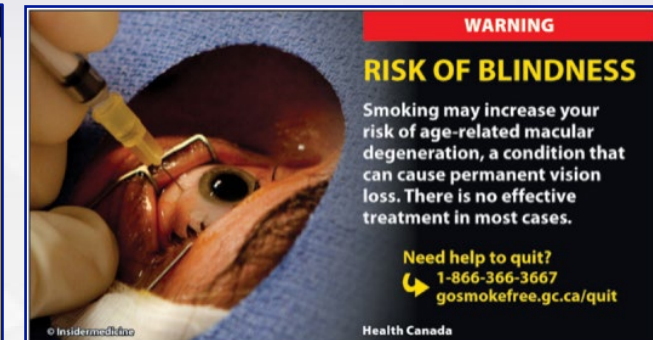
Impact of adding and removing warning label messages from cigarette packages on adult smokers' awareness about the health harms of smoking: findings from the ITC Canada Survey

Annika C Green,¹ Pete Driezen,¹ Seth M Noar,^{2,3} David Hammond,⁴ Geoffrey T Fong^{5,6}

Green et al. *Tobacco Control* (2019): Adding new health harms on warnings increases knowledge and awareness.



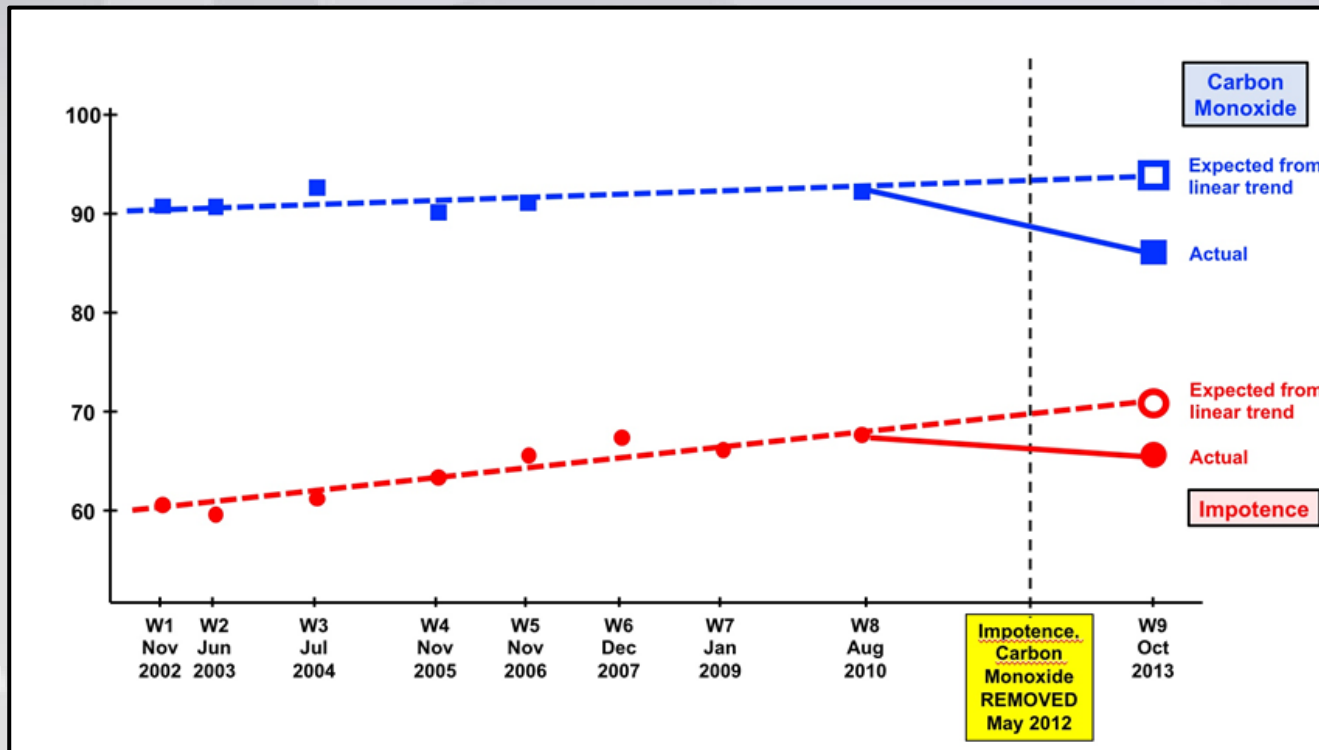
Bladder cancer
Knowledge increased:
18% to 37%
(1.1 million smokers)
KR: +1.55M smokers



Blindness
Knowledge increased:
27% to 44%
(1.0 million smokers)
KR: +1.44M smokers

REMOVING a health harm decreases knowledge

Removing a health harm from warnings
DECREASES knowledge and awareness.



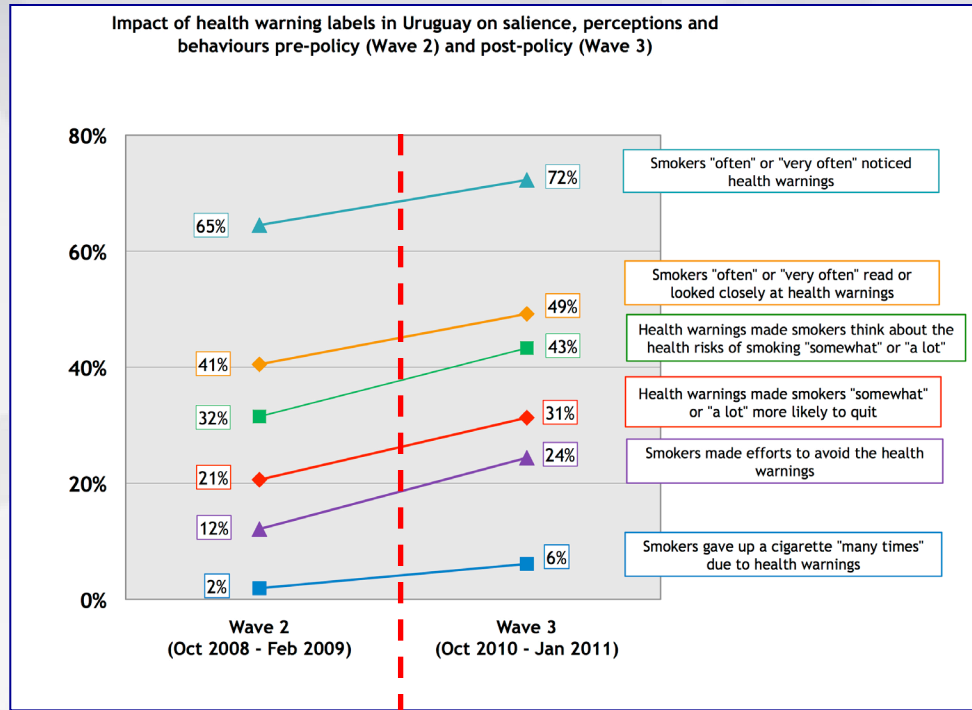
Increase warning size: ITC evidence from Uruguay

- PMI challenges Uruguay's increase in warning size from 50% to 80%.
- PMI claims that there's no evidence that increasing warning size above 50% (Article 11 Guidelines) is more effective.

The impact of the 2009/2010 enhancement of cigarette health warning labels in Uruguay: longitudinal findings from the International Tobacco Control (ITC) Uruguay Survey

Shannon Gravely,¹ Geoffrey T Fong,^{1,2,3} Pete Driezen,¹ Mary McNally,¹ James F Thrasher,⁴ Mary E Thompson,⁵ Marcelo Boado,⁶ Eduardo Bianco,⁷ Ron Borland,⁸ David Hammond²

Conclusions The 2009/2010 changes to HWLs in Uruguay, including a substantial increment in size, led to increases of key HWL indicators, thus supporting the conclusion that enhancing HWLs beyond minimum guideline recommendations can lead to even higher levels of effectiveness



Size increased
from 50% to 80%



Strong evidence that alcohol consumption causes cancer

Global burden of cancer in 2020 attributable to alcohol consumption: a population-based study

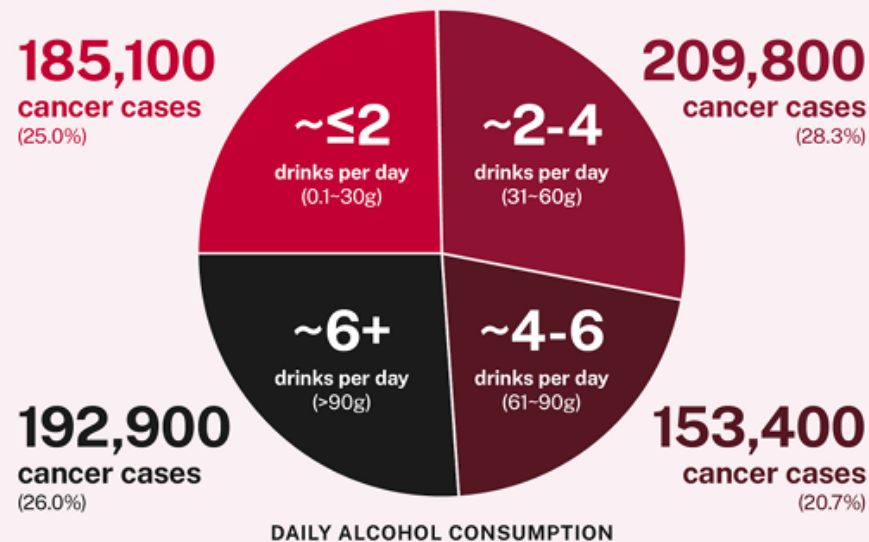
Harriet Rungay, Kevin Shield, Hadrien Charvat, Pietro Ferrari, Bundit Sornpaisarn, Isidore Obot, Farhad Islami, Valery E P P Lemmens, Jürgen Rehm, Isabelle Soerjomataram

Rungay et al. *Lancet Oncology* (2021):

- 2020: 741,300 global cancer cases related to alcohol consumption.
- Decreasing alcohol use in European countries
- Increasing alcohol use predicted in Africa and Asia.
- Taxation policies that have led to decrease population alcohol consumption in central/eastern Europe could be implemented in other countries.

741,300 cancer cases worldwide were attributable to alcohol consumption in 2020

The risk of cancer is lower at lower levels of consumption. However, many more people consume ≤ 2 drinks per day, thus leading to a similar number of overall cancer cases at lower levels as higher levels of consumption.



One standard drink in the U.S. contains 14 grams (0.6 fl oz) of pure alcohol:



Source: Rungay, H., Shield, K., Charvat, H., Ferrari, P., Sornpaisarn, B., Obot, I., Islami, F., Lemmens, V. E. P. P., Rehm, J., & Soerjomataram, I. (2021). Global burden of cancer in 2020 attributable to alcohol consumption: a population-based study. *The Lancet Oncology*, 22(8), 1071-1080. [https://doi.org/10.1016/S1470-2045\(21\)00279-5](https://doi.org/10.1016/S1470-2045(21)00279-5)

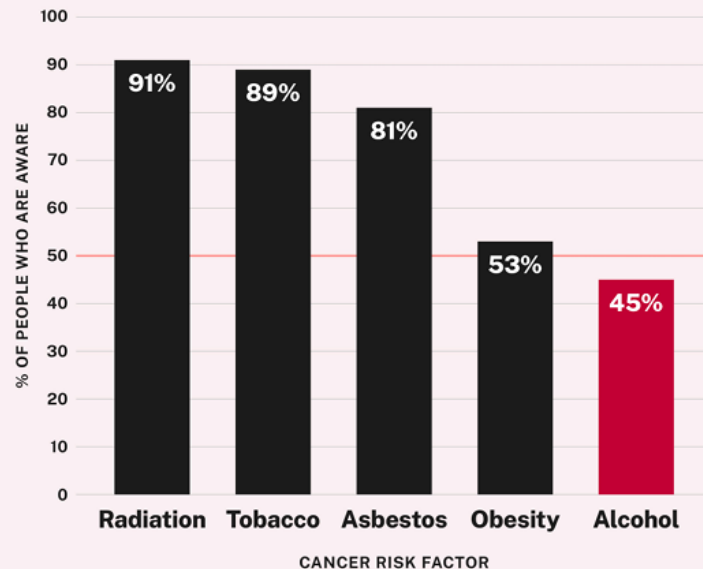
Gap in knowledge about alcohol use and cancer risk

2019 AICR Cancer Risk Awareness Survey

Only 45% of Americans are aware that alcohol causes cancer

Less than half of Americans are aware that alcohol consumption increases cancer risk

Survey of a nationally representative sample of U.S. adults ages 18 and older*

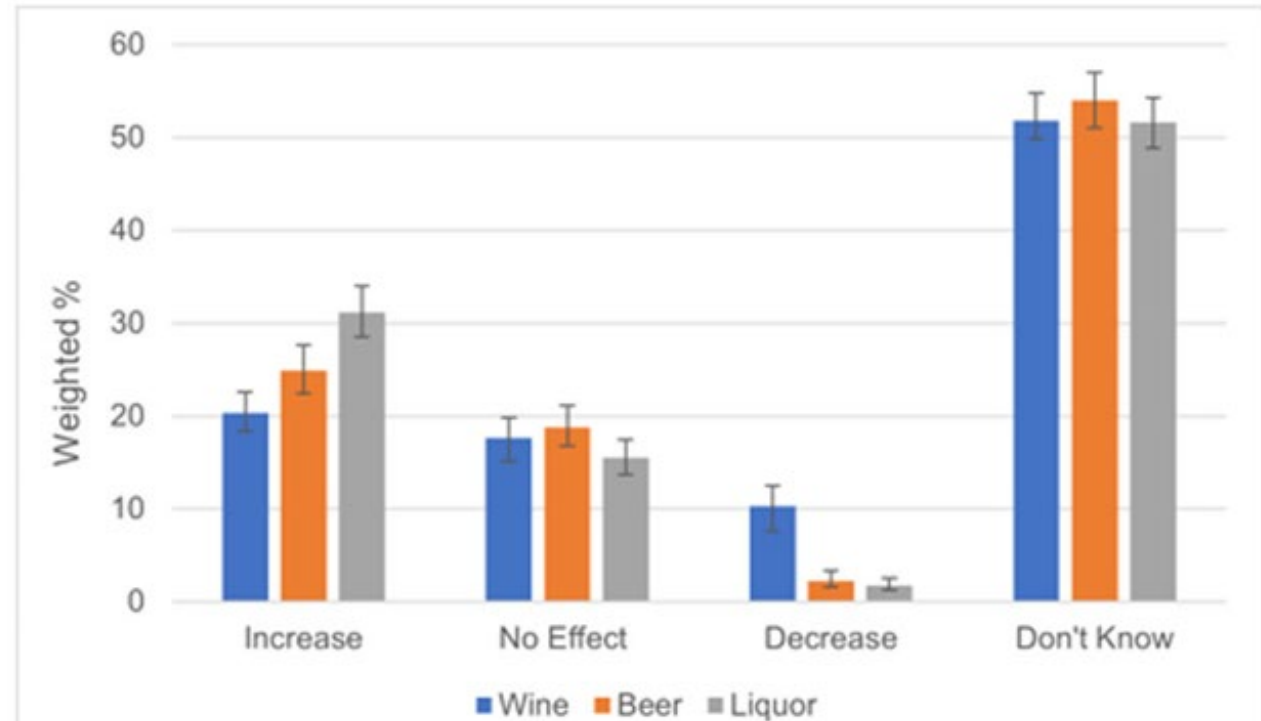


*n=1,009

Source: 2019 AICR Cancer Risk Awareness Survey, American Institute for Cancer Research, <https://www.aicr.org/wp-content/uploads/2020/02/2019-Survey.pdf>
The survey question asked, "Do you believe [risk factor] has a significant effect on whether or not the average person develops cancer?"

Seidenberg et al. *CEBP* (2023):

>50% of US adults do not know how liquor, beer, and wine affected cancer risk



Updating current alcohol health warnings in the US

Alcohol and Cancer Risk 2025

The U.S. Surgeon General's Advisory



US Surgeon General's Advisory (2025):

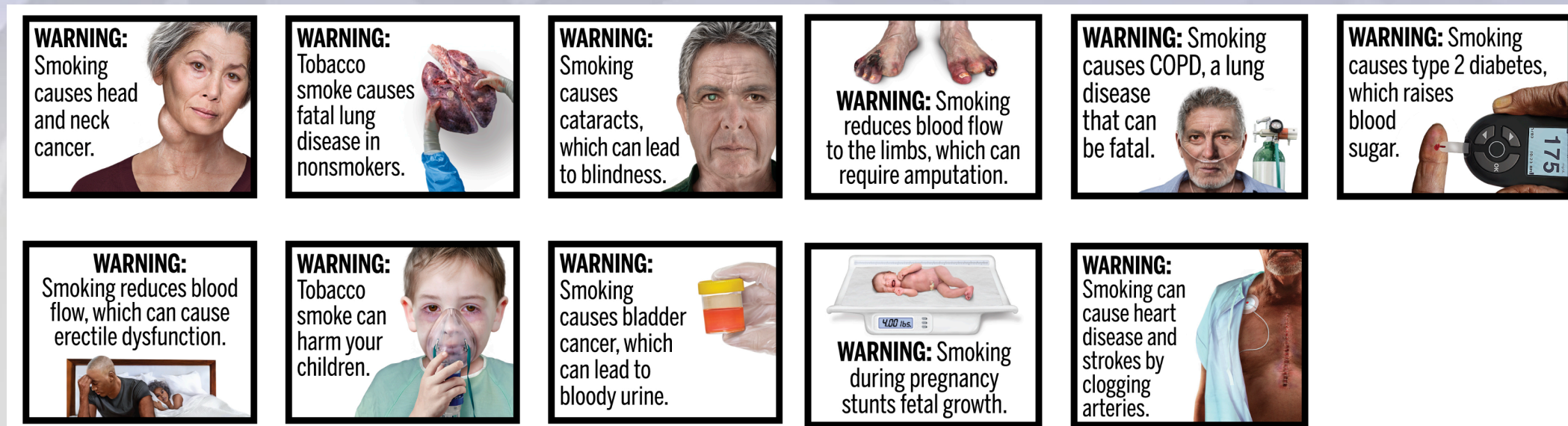
Among its recommendations:

“GOVERNMENT WARNING: (1) According to the Surgeon General, women should not drink alcoholic beverages during pregnancy because of the risk of birth defects. (2) Consumption of alcoholic beverages impairs your ability to drive a car or operate machinery, and may cause health problems.”

- Update existing US Surgeon General's health warning label on alcoholic beverages (in place since 1988) to include warning about risk of cancer association with alcohol use.
- Changes to make warning label more visible, prominent, and effective for increasing awareness about alcohol use and cancer.

U.S. Proposed tobacco warnings: Still not implemented

Important component of the 2009 Family Smoking Prevention and Tobacco Control Act



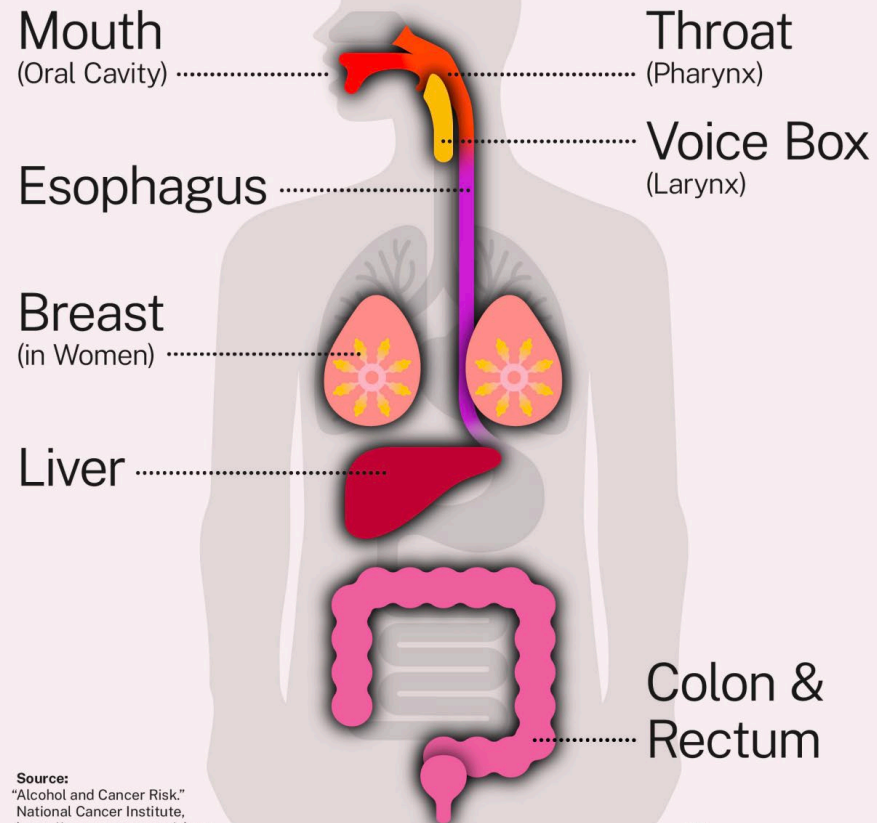
Cigarette graphic warning labels and smoking prevalence in Canada: a critical examination and reformulation of the FDA regulatory impact analysis

Jidong Huang,¹ Frank J Chaloupka,¹ Geoffrey T Fong^{2,3,4}

“The implementation of graphic warning labels in Canada reduced smoking rates by 2.87–4.68 percentage points...if the USA had adopted GWLs in 2012, the number of adult smokers in the USA would have decreased by 5.3-8.6 million in 2013.

Would graphic images be considered appropriate for alcohol warnings?

Consuming alcohol increases the risk of developing at least 7 types of cancer



Source:
"Alcohol and Cancer Risk,"
National Cancer Institute,
<https://www.cancer.gov/about-cancer/causes-prevention/risk/alcohol/alcohol-fact-sheet>

Office of the
U.S. Surgeon General

CHIEF MEDICAL OFFICER
OF HEALTH ADVISES
MISE EN GARDE DU MÉDECIN
HYGIÉNISTE EN CHEF

**Alcohol can
cause cancer**
including breast and
colon cancers

**L'alcool peut
causer le cancer**
y compris le cancer du
sein et du côlon

INFO: WWW.YLC.YK.CA/LABELS
HELP/AIDE: 1-855-667-5777

Label 1 – Cancer Warning

To reduce health risks,
drink no more than:

2 standard drinks
a day.
Plan two or more
non-drinking days
each week.

3

Pour réduire les risques
pour la santé,
ne pas boire plus de :

2 verres standards
par jour.
Prévoir deux
jours ou plus
sans alcool par
semaine.

3

INFO: WWW.YLC.YK.CA/LABELS
HELP/AIDE: 1-855-667-5777

Label 2 – Canada's National
Drinking Guidelines

How many
standard
drinks? ? Combien
de verres
standards?

750ml 12% ALC = **5**

750ml 15% ALC = **7**

INFO: YLC.YK.CA/LABELS
HELP/AIDE: 1-866-456-3838

Label 3 – Standard Drink
Information (example for wine)

WARNING

ORAL CANCER

These white spots are a
form of oral cancer caused
primarily by smoking. Even
if you survive, you may lose
part or all of your tongue.

Need help to quit?
1-866-366-3667
gosmokefree.gc.ca/quit

© Dr. Martin T. Tyler

Health Canada

WARNING

Cigarettes
cause
**NECK
CANCER**

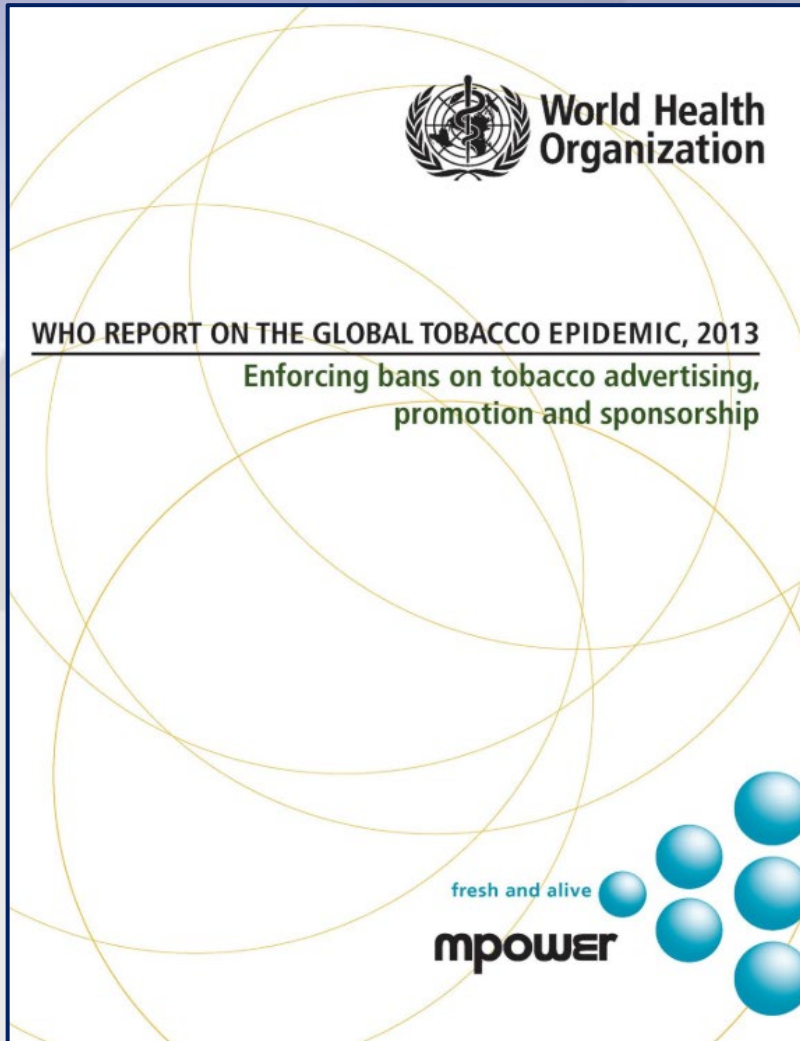
© Kevin T. Kavanagh

You can quit.
We can help.

gosmokefree.gc.ca/quit
1-866-366-3667

Health Canada

TAPS ban reduces tobacco consumption by eliminating exposure to cues for tobacco smoking



WHO Report Global Tobacco Epidemic (2013):

- TAPS ban reduces tobacco consumption by up to 7%, independent of other tobacco control policies
- Need complete ban on all forms of TAPS, including point of sale advertising, event sponsorships, price discounts, Internet advertising.
- TAPS ban reduces/eliminates exposure to cues for tobacco use, but overall adoption of complete TAPS ban is low.

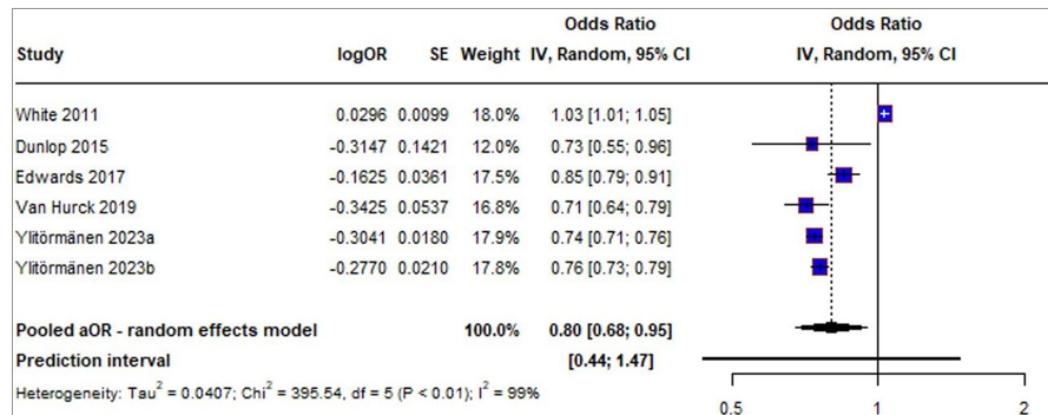
TAPS bans reduce smoking and risk of smoking uptake

Effectiveness of tobacco advertising, promotion and sponsorship bans on smoking prevalence, initiation and cessation: a systematic review and meta-analysis

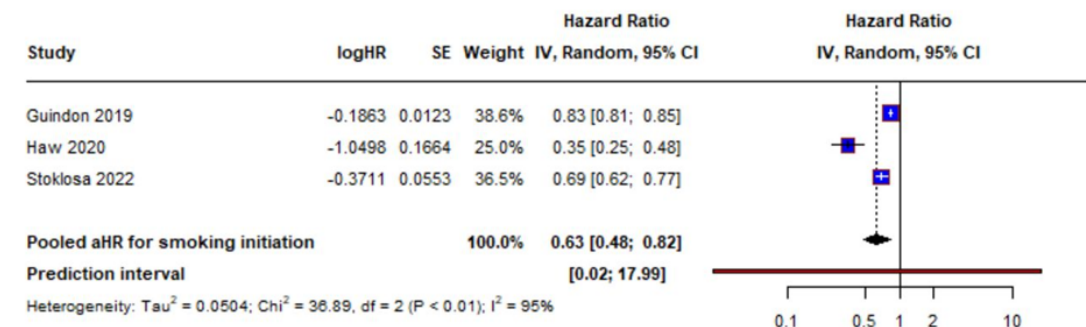
Christina Saad , Brandon (Hsu-Chen) Cheng, Ryo Takamizawa, Arya Thakur, Chae-Weon Lee, Lachlan Leung, J Lennert Veerman, Leopold Ndemnge Aminde 

Saad et al., *Tobacco Control* (2025):
 TAPS bans associated with 20% lower
 odds of current smoking, and 37%
 reduced risk of smoking initiation

Forest plot of adjusted ORs depicting the impact of tobacco advertising, promotion, and sponsorship (TAPS) bans on current smoking.



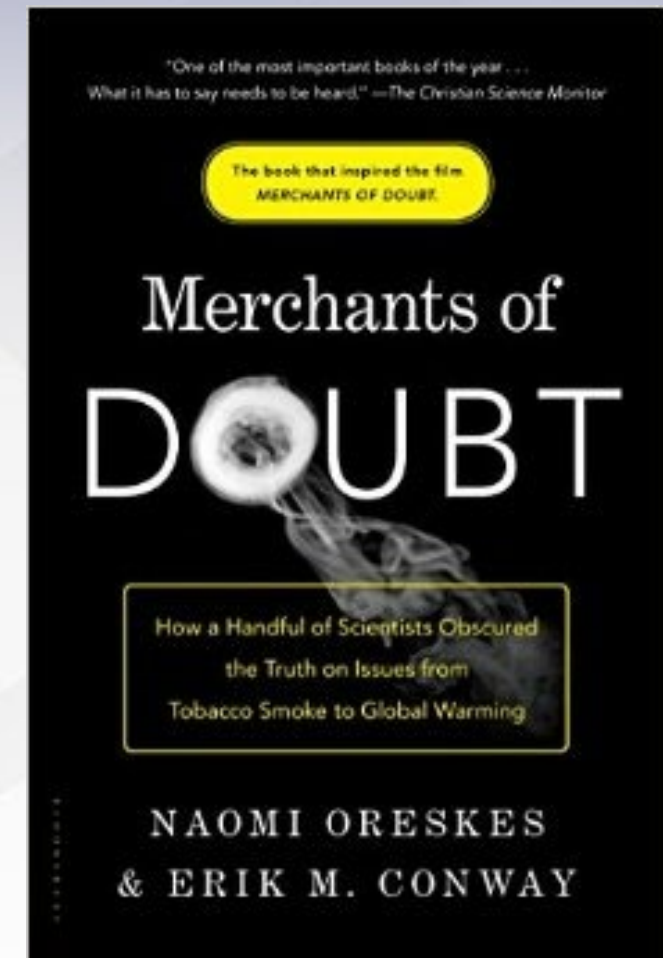
Forest plot of adjusted HRs depicting the impact of tobacco advertising, promotion, and sponsorship (TAPS) bans on smoking initiation.



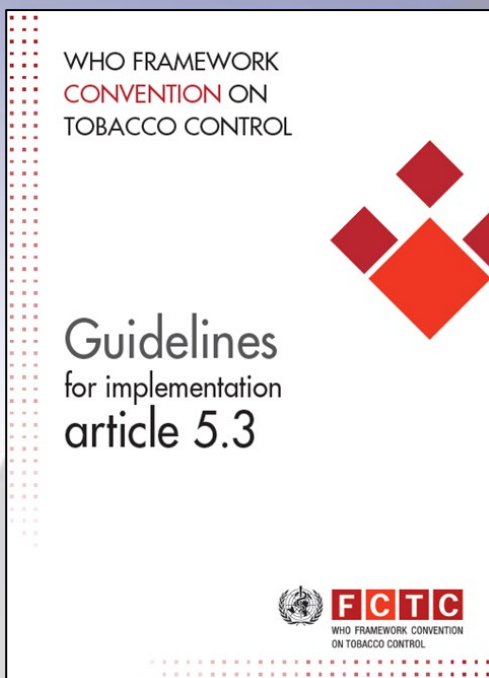
Tobacco industry misinformation efforts

- Creation of front groups to cast doubt on the evidence of the harms of smoking and then of second-hand smoke
- Payment to “neutral” scientists for results-directed research
- Creation of entire research programs to “generate a body of scientific and technical knowledge [through research] undertaken by whitecoats.”

“Doubt is our product.”



Article 5.3: Tobacco industry interference

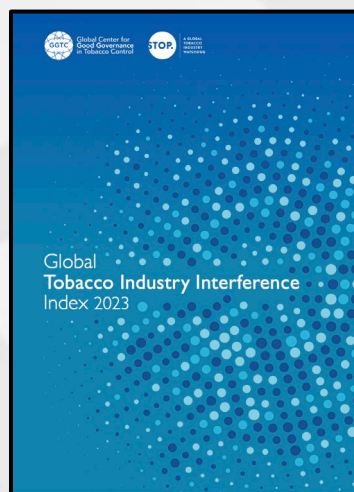
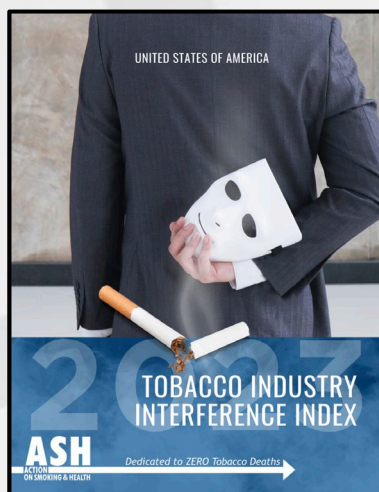
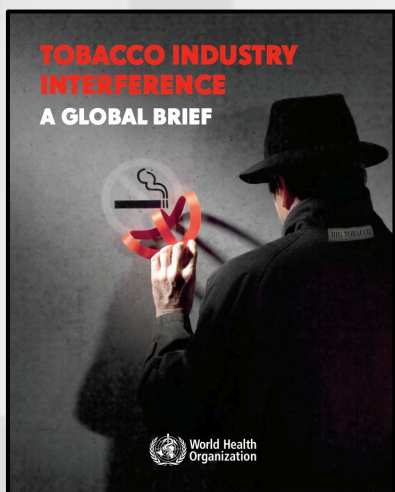


“in setting and implementing their public health policies with respect to tobacco control, Parties shall act to protect these policies from commercial and other vested interests of the tobacco industry in accordance with national law”.

- Principle 1:** There is a fundamental and irreconcilable conflict between the tobacco industry's interests and public health policy interests.
- Principle 2:** Parties, when dealing with the tobacco industry or those working to further its interests, should be accountable and transparent.
- Principle 3:** Parties should require the tobacco industry and those working to further its interests to operate and act in a manner that is accountable and transparent.
- Principle 4:** Because their products are lethal, the tobacco industry should not be granted incentives to establish or run their businesses.

Forms of tobacco industry interference

- manoeuvring to hijack the political and legislative process;
- exaggerating the economic importance of the industry;
- manipulating public opinion to gain the appearance of respectability;
- fabricating support through front groups;
- discrediting proven science; and
- intimidating governments with litigation or the threat of litigation.



1. Among risk factors for NCDs, tobacco (smoking) has had a decades-long history of evidence, with initial measures from leading-edge countries (Canada's graphic warnings, Ireland's comprehensive smoke-free laws)
2. The FCTC is a powerful global instrument for the development and implementation of policies that have been found to be effective in reducing tobacco use. The FCTC has created an epistemic community of governments, Civil Society, researchers.
3. Important foundation for tobacco control: Article 5.3—barriers to industry interference. Without strong action against such interference, strong regulations will be difficult.
4. The negative physical characteristics of smoking have (likely) enhanced both the incentive for policies and the approach taken (graphic warnings).
5. Applying tobacco control policies to alcohol: Although the scientific rationale is strong, the specific measures and implementation strategies will be shaped by public and policymaker perceptions of alcohol, which differ significantly from those of tobacco.

ITC Project Research Organizations and Grant Support



US National Cancer Institute:
P01 CA200512



Canadian Institutes of Health Research:
FDN-148477



National Health and Medical Research Council of Australia: APP1106451, GTN1198301



Ontario Institute for Cancer Research:
Senior Investigator Award (2007-2027)

ITC Project Research Organizations



ITC Project Research Support

