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Research Paper

A comparison of labelling requirements for alcohol, tobacco, and cannabis across WHO regions and implications for alcohol labelling policy in Canada

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ABSTRACT

Background: Alcohol is a leading cause of global death and disability yet labelling requirements for alcohol products remain inconsistent across WHO Member States and comparatively weak in Canada, where Bill S-202 to mandate warnings is currently under review. In contrast, tobacco and cannabis are subject to more rigorous government mandated labelling requirements. This study compares federally-mandated labelling requirements for alcohol, tobacco, and cannabis across WHO regions to contextualize Canada's position within the global landscape and assess whether Canadian alcohol labelling requirements align with the documented health burden.
Methods: A systematic secondary data synthesis and document review of labelling regulations across all 194 WHO Member States was conducted in February 2023. Sources included WHO reports and regulatory databases on alcohol, tobacco, and cannabis labelling. Comparative analyses were undertaken across WHO regions. Labelling requirements were categorized by the presence and content of health warnings, including labelling design elements, and ingredient information, including allergens, calories, and additives, and content displays.
Results: While 32.5% of WHO Member States mandate alcohol health warnings, 84.5% WHO Member States mandate tobacco health warnings. Further, all jurisdictions with legal recreational cannabis require multiple labelling measures, including health warnings and ingredient information. In Canada, alcohol remains the only controlled substance without federally mandated warning labels.
Interpretation: Strengthening alcohol labelling requirements represents a policy strategy with high population reach to support informed decision-making and reduce substance-related harms. Establishing evidence-based minimum international standards for alcohol labelling could strengthen global regulatory coherence, while leadership from countries such as Canada may help catalyse progress internationally.

Introduction

Alcohol, tobacco, and cannabis each contribute to population-level health and economic burdens, though the scale of harm differs significantly across substances. Globally, tobacco remains the leading cause of substance-attributable deaths and disability, followed closely by alcohol, with both far exceeding the burden attributable to cannabis use disorders (He et al., 2022; Shao et al., 2023; World Health Organization, 2024b). In Canada, however, alcohol imposes the greatest overall economic burden, exceeding tobacco in healthcare and criminal justice costs, disability, and hospitalizations, while surpassing cannabis on every measure of harm (Canadian Substance Use Costs & Harms Scientific Working Group, 2023). Table 1 summarizes the comparative burdens of alcohol, tobacco, and cannabis in global deaths, DALYs, and Canadian cost estimates. Despite these well-established differences in population-level harms, it remains unclear whether existing

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government-mandated regulations accurately reflect the relative risks of these substances, and how these approaches compare globally.

Alcohol labelling policies

Global efforts to strengthen alcohol labelling policies are emerging alongside increasing recognition of the significant health, social, and economic burdens associated with alcohol use. In January 2025, the United States Surgeon General called for mandatory cancer warnings on alcohol products (Office of the Surgeon General (US), 2025). More recently, the American Medical Association has adopted new policies supporting alcohol warning labels (American Medical Association (AMA), 2025). Similarly, a recent WHO report emphasized the urgent need to implement mandatory health warnings on alcoholic beverages (World Health Organization, 2025). In alignment with this recommendation, both the *Global Alcohol Action Plan 2022–2030* and the *European Framework for Action on Alcohol 2022–2025* call for the development of comprehensive labelling requirements for alcoholic products (World Health Organization, 2022, 2024a, 2025).

Against the backdrop of the high-profile international calls for alcohol labelling reform, some jurisdictions have begun taking concrete regulatory action in their domestic settings. In Ireland, new regulations will require every alcohol container to display a series of health messages, including the statements "Drinking alcohol causes liver disease" and "There is a direct link between alcohol and fatal cancers" as well as a pictogram warning against alcohol use during pregnancy (Government of Ireland, 2023). Labels will also indicate the amount of alcohol in grams in the container, alongside a reference to a specified public health website providing information on alcohol-related harms. While the labelling requirements were set to be enforced starting 22 May 2026, enforcement has been delayed until 2028 (Movendi International, 2025). In Norway, progress is also underway towards introducing mandatory health warnings on alcoholic beverages. In 2022, the Norwegian Directorate of Health submitted a recommendation to the Ministry of Health and Care, proposing alcohol warning labels (including one that states "Alcohol increases the risk of breast cancer") (Movendi International, 2023; World Health Organization, 2024c). The Ministry has since requested further proposals for design, rotation and implementation of such labels. In the United Kingdom, the *10-Year Health Plan for England* outlines government considerations for mandatory alcohol labelling requirements that would include standardized nutritional information and prominent health warnings, aligning alcohol packaging standards more closely with applied to foodstuffs and tobacco products (United Kindgom Department of Health & Social Care, 2025).

In Canada, the Canadian Centre on Substance Use and Addiction's updated *Guidance on Alcohol and Health* provides consumers improved and accessible information about alcohol and health (Canadian Centre on Substance Use and Addiction (CCSA), 2023). The project further stated that mandatory labelling of alcoholic beverages – with standard drink information, elements of the Guidance, and health warnings – would be an effective policy measure to support Canadians in making informed choices. While health and safety warnings are not federally mandated, two of the Canadian territories have implemented specific post-manufacturer warning labels. The Yukon requires post-manufacture labels to warn about risks of drinking during pregnancy (Naimi, 2023b). The Northwest Territories requires post-manufacture labels to warn about pregnancy harm and has required breast and colon cancer warnings on wine and spirits since April 2024.

Health warning labels

Alcohol warning labels can influence consumer perceptions, knowledge, and behaviors (Giesbrecht et al., 2022; Hobin, 2022; Zuckermann et al., 2024). Although warning labels contribute to increasing awareness of health risks, behavior change is typically driven by a combination of policy measures, including pricing, marketing restrictions, and public health campaigns. While the harms associated with alcohol use are well-established and serious (Babor et al., 2022), many WHO Member States do not mandate alcohol health warning labels, with there being no international standards or guidelines on this matter. This regulatory gap at both the domestic and international levels underscores a striking inconsistency: alcohol, a leading cause of global death and disease, remains largely exempt from the basic public health protections applied to other products. For example, tobacco use is also a significant contributor to the global burden of disease, and the WHO Framework Convention on Tobacco Control (FCTC) mandates packaging and labelling requirements to educate consumers and specific guidelines have been elaborated to assist countries to design and implement effective tobacco labelling laws (World Health Organization, 2013). Tobacco warning labels have been a critical tool for public health promotion (Cunningham, 2022). While the harms associated with cannabis (e.g., psychosis, dependence, and impaired cognitive function) are greatly exceeded by those of tobacco and alcohol (Johnstad, 2022), the packaging and labelling requirements, including warning labels, for cannabis are rigorous (Government of Canada, 2018, n.d.; Government of Uruguay, 2015; Hammond, 2022). There is also evidence that cannabis warning labels can influence consumer behaviour and increase knowledge of health and safety risks (Gantiva et al., 2024; Leos-Toro et al., 2019; Massey et al., 2024).

Ingredient information and content labels

Labelling information beyond health warnings can serve multiple public health functions. WHO policy documents support comprehensive alcohol labels that include health warnings, ingredient lists, and nutritional information, aligning with existing regulations for non-alcoholic beverages and foodstuffs (Jané-Llopis et al., 2020; World Health Organization, 2017). Research shows the possible impact of ingredient labelling on consumer knowledge and purchasing behaviour (Clarke & Rose, 2020; Dimova & Mitchell, 2022). While health warnings are a central focus of this paper, they represent one component of a broader evidence-based framework for alcohol labelling that includes ingredient and risk information, all of which contribute to informed

Table 1
Burden of alcohol, tobacco, and cannabis: Comparing global deaths and DALYs, and Canadian cost estimates.

	Global		Canada				
	Deaths *N* (% of all deaths)	DALYs *N* (% of all DALYs)	Deaths (N)	DALYs (N)	Economic burden (CAD, % of total) [a]	Healthcare costs (CAD, % of total) [a]	Criminal justice costs (CAD, % of total) [a]
Alcohol	2.60 million (4.7%)	115.9 million (4.6%)	17,098	103,907	$19,671 million (40.1%)	$6267 million (47.0%)	$3969 million (39.8%)
Tobacco	8.71 million (15.41%)	229.77 million (9.07%)	46,366	52,932	$11,154 million (22.7%)	$5429 million (40.5%)	$5.5 million (0.06%)
Cannabis	— [b]	0.69 million (0.03%)	336	6026	$2381 million (4.85%)	$380 million (2.8%)	$1066 million (10.7%)

[a] Percent of total overall cost of substance use in Canada in 2020.
[b] No directly attributable global mortality quantified in the selected source.
Note. Data taken from the following sources: (Canadian Substance Use Costs & Harms Scientific Working Group, 2023; He et al., 2022; Shao et al., 2023; World Health Organization, 2024).

decision-making and harm reduction.

Research objectives

Accurate and informative labels can play a vital role in public health, equipping consumers with the knowledge to make informed choices and upholding their right to know about the health risks of the substances they consume (Stockwell et al., 2020). At the time of writing, Bill S-202 is under consideration by the Canadian Parliament and would mandate the inclusion of cancer warnings, standard drinks information, and mention of Canada's *Guidance on Alcohol and Health* on all alcohol containers (Senate of Canada, 2025). Importantly, there have been multiple private member's bills proposing alcohol warning labels (e.g., Bills C-206, C-251, C-532) that have been introduced and debated in the Canadian Parliament, reflecting recurrent policy interest (Senate of Canada, 2004, 2006, 2010).

In this context, this paper provides a comparative analysis of labelling requirements for alcohol, tobacco, and cannabis across WHO Member States by region, with a focused examination of requirements in Canada. It is important to note that regulatory capacity and implementation may vary across countries (especially low- and middle-income countries), such that in many settings policies may be less developed or inconsistently enforced, which may influence the actual presence and effectiveness of labels. Tobacco and cannabis were included to provide comparative policy context, allowing for examination of how labelling requirements align with known health risks across substances. While comparisons across all three substances illuminate key regulatory gaps, alcohol remains the central focus of this paper given its disproportionate health and economic burden and the absence of standardized international frameworks for alcohol labelling.

The objectives of this research are to:

1. Examine and compare current government policies for labelling of alcohol, tobacco, and cannabis across WHO member regions.
2. Use these cross-substance and cross-regional comparisons to identify opportunities for strengthening government policies on alcohol labelling, with a focus on Canada.

Method

This study integrated systematic secondary data synthesis and document review methods to examine alcohol, tobacco (cigarette) and cannabis labelling policy across WHO member regions and in jurisdictions where recreational cannabis use is legally permitted. The document search, review, and synthesis were conducted in February 2023. The United States was included in this analysis as it was a WHO member state during the initial document search period and continues to play a significant role in global substance regulation and policy development, despite its current process of withdrawal from the WHO.

Data sources

Data sources were selected to maximize global coverage and regulatory specificity. Data for alcohol and tobacco were extracted at the national level, whereas cannabis regulations were extracted at the national level for Canada and Uruguay and at the state level for U.S. states, where legalization occurs below the federal level.

For alcohol, publicly available global datasets are limited. Industry-compiled datasets (International Alliance for Responsible Drinking [IARD]) were therefore included due to their extensive cataloguing of national labelling requirements. While IARD is an industry-affiliated source, it represents one of the most comprehensive and up-to-date global datasets currently available. Where discrepancies were identified, these were resolved through consultation of official regulatory documents.

For cannabis, peer-reviewed and government sources were prioritized given the limited number of jurisdictions and the absence of global regulatory databases. Jurisdictions were classified as having legalized recreational cannabis based on the presence of legislation permitting the legal sale and use of non-medical cannabis as of February 2023. Identification of eligible jurisdictions was informed by prior syntheses of cannabis regulatory frameworks and verified using government regulatory sources.

Data on labelling requirements for alcohol, tobacco, and cannabis (where recreationally legal) across all WHO Member States were retrieved from:

1. A global resource on alcohol health warning requirements created by an alcohol industry organisation, International Alliance for Responsible Drinking (IARD) (International Alliance for Responsible Drinking, 2021).
2. A detailed compilation of beverage alcohol labelling regulations created by the IARD (International Alliance for Responsible Drinking, 2019).
3. Regulatory data on tobacco packaging and health warnings created by the WHO FCTC and the Tobacco Control Laws database (Campaign for Tobacco-Free Kids; World Health Organization, n.d.).
4. A peer-reviewed article providing a detailed overview of cannabis labelling requirements (in Canada and the United States) (Hammond, 2022).
5. Health Canada's *Packaging and Labelling Guide for Cannabis Products* (Government of Canada, n.d.).
6. Government of Canada's *Tobacco Products Appearance, Packaging and Labelling Regulations* (Government of Canada, 2023).
7. Cannabis packaging and warning requirements reviewed through Uruguay's *Instituto de Regulación y Control del Cannabis* IRCCA regulatory framework (Government of Uruguay, 2015).

Analytical methods

Each data source was systematically reviewed to extract relevant information on government regulations for the labelling of alcohol, tobacco, and cannabis. Data extraction was conducted by one author (SGS) using a structured approach to identify labelling requirements across jurisdictions. Extracted variables included the presence and type of warning label, ingredient information, and content labelling requirements (further details provided below). Coding decisions and variable definitions were reviewed and refined by two members of the research team to ensure consistency. The resulting dataset was aggregated by WHO region for comparative analysis. In cases where discrepancies or conflicting information arose between data sources, the official regulatory documents or communications from the tobacco, alcohol, or cannabis authority in the country of interest were prioritized and considered authoritative. Discrepancies were identified in the primary sources for the following WHO Member States: Angola, Antigua and Barbuda, Argentina, Barbados, Belize, Bolivia, Brazil, Cabo Verde, China, Colombia, Dominica, Ethiopia, Grenada, Guyana, Haiti, Israel, Jamaica, Japan, Kenya, Mauritius, Mexico, Moldova, Mozambique, Nigeria, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Samoa, Slovenia, South Africa, Spain, Suriname, Togo, Trinidad and Tobago, Turkmenistan, Uganda, USA, Uzbekistan, and Zimbabwe. To ensure comparability between regions, labelling requirements for cannabis were sought only from countries or regions where recreational use of cannabis is legal, specifically, Canada, Uruguay, and 24 jurisdictions within the United States.

Labelling requirements

Data from the above-mentioned sources were systematically reviewed by country, aggregated by WHO region, and organized into three product categories: alcohol, tobacco (cigarettes), and cannabis. For each category, the analysis focused on government regulatory requirements for product labelling relating to the following:

1. The presence and content of health warnings, including labelling design elements (size and rotation) and standardized (plain) packaging (for tobacco only).
2. The presence and specificity of ingredient information, including allergens, calories, and additives (not applicable for tobacco).
3. The presence of content information (alcohol, tetrahydrocannabinol (THC) and cannabidiol (CBD) (not applicable for tobacco).

The results are categorized by WHO regions, and the number (n) and percentage (%) of WHO Member States meeting each of the labelling requirements outlined as (1) – (4) above were calculated for each region. The findings are synthesized to illustrate regional and global trends, emphasizing commonalities and divergences in labelling policies across WHO Member States. Data discrepancies or gaps in the primary sources about labelling requirements are noted.

Results

Alcohol labelling requirements

Health warning labels

Alcohol labelling rules vary widely across WHO Member States, with health warning labels including written, pictorial, or icon-based messages addressing risks such as harms in pregnancy, underage drinking, and impaired driving. Overall, one-third of WHO Member States (32.5%) require some form of warning label, with 17% requiring minimum sizes for the warning labels. The sizes typically range from small message font sizes of 1.5–3 mm (e.g., India) to larger prescribed areas such as 45 × 15 mm or 30% of the total label surface (e.g., Ireland, Kenya) (International Alliance for Responsible Drinking, 2021). There is significant regional variation in the requirement for health warning labels; 80% of WHO Member States in the Americas mandate such labelling, compared to none in the East Mediterranean region. Far fewer WHO Member States (11.9%) require warnings to include images, the majority of which (69.6%) are in the Americas. Table 2 and Fig. 1 illustrate the requirements for alcohol and tobacco warning labels in WHO Member States.

Globally, the most common warning messages include pregnancy warnings (21.1%), general non-specific health warnings (e.g., "excessive consumption of alcohol is harmful to your health") (16.0%), underage drinking messages (13.4%), and drunk driving warnings (12.4%) (see Table 3 and Fig. 2 for details). Notably, only two WHO Member States include a cancer warning in their labelling requirements (Ireland and South Korea, although in Ireland, the May 2026 enforcement has been delayed to 2028 (Movendi International, 2025) and in South Korea, the cancer warning is one of several alternative labels from which producers may choose (Stockwell et al., 2020)).

In Canada, health and safety warnings are not federally mandated, though two of the Canadian territories have implemented specific post-manufacturer warning labels: The Yukon requires post-manufacture labels to warn about risks of drinking during pregnancy; Northwest Territories requires post-manufacture labels to warn about breast and colon cancer, and pregnancy harm.

Table 2
Requirements for alcohol and tobacco warning labels by WHO region, as of February 2023.

WHO regions and number of member states		Warning Label		Minimum Label Size [a]	
	N	Alcohol *n* (%)	Tobacco *n* (%)	Alcohol *n* (%)	Tobacco *n* (%)
Americas	35	28 (80.0)	26 (74.3)	20 (57.1)	8 (22.9)
Africa	47	10 (21.4)	31 (66.0)	0 (0)	11 (23.4)
E. Mediterranean	21	0 (0)	20 (95.2)	0 (0)	11 (52.4)
Europe	53	16 (30.2)	53 (100.0)	9 (17.0)	37 (69.8)
South-East Asia	11	3 (27.3)	9 (81.8)	1 (9.1)	7 (63.6)
Western Pacific	27	6 (22.2)	24 (88.9)	3 (11.1) [g]	10 (37.0)
Total	**194**	**63 (32.5)**	**164 (84.5)**	**33 (17.0)**	**82 (42.3)**

[a] Includes Member States where there is a set label size or set surface area (e.g., requirement in Australia for warning label to cover 75% of the front and 90% of the back of tobacco packaging).

Note. Warning labels include any mandated text, pictorial, or symbolic message communicating health or safety risks (e.g., pregnancy, impaired driving, underage drinking, or general health warnings). See Table 3 for details on warning message types. Discrepancies were identified in the primary sources for the following Member States; official regulatory documents or communications from the national authority were used as the definitive source: Angola, Antigua and Barbuda, Argentina, Barbados, Belize, Bolivia, Brazil, Cabo Verde, China, Colombia, Dominica, Ethiopia, Grenada, Guyana, Haiti, Israel, Jamaica, Japan, Kenya, Mauritius, Mexico, Moldova, Mozambique, Nigeria, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Samoa, Slovenia, South Africa, Spain, Suriname, Togo, Trinidad and Tobago, Turkmenistan, Uganda, USA, Uzbekistan, and Zimbabwe.

Ingredient information labels

Alcohol is ingested into the body, and it is therefore relevant also to consider how the requirements that commonly apply to other foodstuffs translate to alcohol. The requirements for standardized nutritional information labels on alcohol containers vary significantly, as presented in Table 4. Only 15% of WHO Member States mandate standardized nutritional information, such as calories and additives, on alcohol containers. Ingredient lists are more commonly required, with 39.2% of WHO Member States mandating such information, predominantly in Europe. Similarly, allergen labelling (e.g., gluten, sulphites) is required in 23.2% of WHO Member States, similarly most of which are European countries as well.

In contrast, Canada only mandates allergen labelling for alcohol containers. Standardized nutrition labelling is not required unless the manufacturer makes a nutritional or energy benefit claim on the packaging or if unstandardized beverages (e.g., a maple-syrup liquor) contain added sweeteners. Of note, recent research suggests that nutritional information on alcohol containers can influence consumer perceptions and foster beliefs that alcohol products are healthier (Vanderlee et al., 2025). Alcohol containers are also exempt from including ingredient lists.

Alcohol content labels

Requirements for alcohol content labelling vary across WHO Member States (see Table 5). A total of 39.7% of WHO Member States mandate percentage alcohol by volume (% ABV) labels to indicate the strength of alcoholic drinks, while 4.1% require the alcohol content to be displayed as the volume in grams of ethanol. Two WHO Member States, Australia and New Zealand, mandate labels to indicate the alcohol content in "standard drinks" (defined as 10 g of ethanol) (Australian Government Department of Health, 2025). Only 15% of WHO Member States specify minimum sizes for % ABV labels, including 24 (68.6%) in the Americas, 4 (8.5%) in the African Region, and 1 (3.7%) in the Western Pacific.

In Canada, alcohol containers are required to display % ABV with a minimum type size of 1.6 mm. Additional requirements about alcohol content may differ based on provincial jurisdiction; for example, regulations in Saskatchewan include additional requirements related to label typeface and location on container of the % ABV information.

Tobacco (Cigarette) labelling requirements

Health warning labels

Tobacco labelling rules vary widely across WHO Member States, with requirements such as pictorial warnings, minimum warning label sizes, warning label rotations, and standardized (plain) packaging (World Health Organization, n.d.). The majority of WHO Member States (84.5%) require warnings on tobacco products, including all WHO Member States in the European region (100%) and the vast majority in the Eastern Mediterranean region (95.2%). In many WHO Member

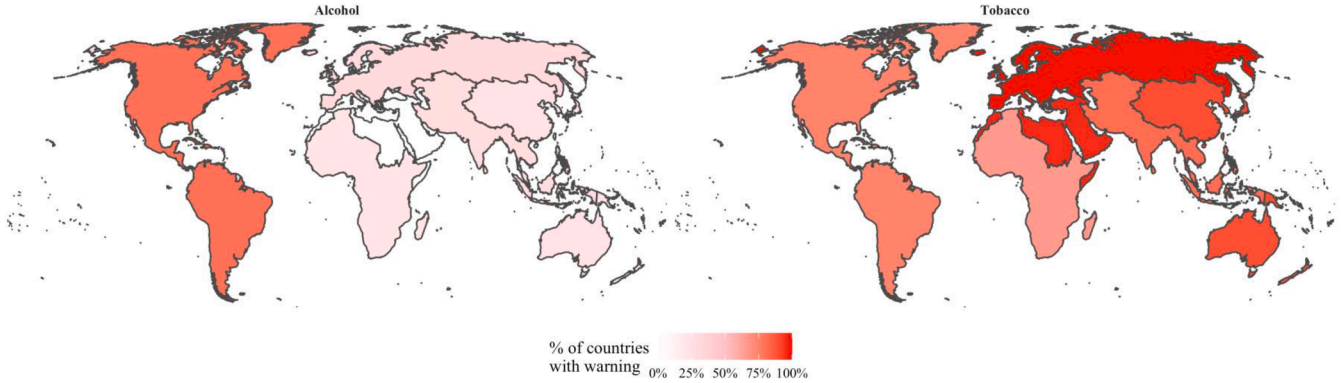

Fig. 1. Requirements for alcohol and tobacco warning labels by WHO region (% of member states with a warning label).
Note. See Table 2 for corresponding numerical data.

States (42.3%), the warning labels must adhere to minimum size requirements, primarily in the European region (69.8%). Additionally, the majority of WHO Member States (58.8%) employ multiple health warning messages that are rotated to enhance their impact. The warnings include lung cancer, emphysema, death, harms in pregnancy, harms of second-hand smoke, and stroke. Table 2 and Fig. 1 illustrate the requirements for alcohol and tobacco warning labels in WHO regions.

The WHO FCTC suggests standardized (plain) packaging to reduce the attractiveness and appeal of tobacco products, to enhance the visibility and impact of health warnings, and to eliminate design features that could mislead consumers regarding the harmfulness of tobacco products (World Health Organization, 2013). Standardized (plain) packaging is mandated in 11.3% of WHO Member States.

In Canada, tobacco products are required to display rotating pictorial health warnings covering 75% of the front and back panels of packages, accompanied by standardized (plain) packaging (Government of Canada, 2023). In addition, since 2024, health warnings must appear directly on individual cigarettes, cigarette tubes, and cigars with tipping paper.

Cannabis labelling requirements

Cannabis labelling requirements are not presented by WHO region, as so few jurisdictions have legalized cannabis for recreational purposes. While other countries and jurisdictions have moved towards legalization, as of February 2023, only two countries, Canada, and Uruguay, permitted the legal, regulated sale and use of cannabis for recreational purposes. In the US, cannabis has not been legalised at the federal level but has been legalised in 24 states; the regulations in these 24 states are included in the results.

Health warning labels

All these jurisdictions require cannabis products to bear a rotating health and safety warning, along with a prominent cannabis symbol to indicate the nature of the product. All jurisdictions require a minimum label size. The most common warnings are safety risk (e.g., driving or operating machinery) (100%), health risk and impairment risk (76.9% each), and dependence risk (42.3%) (see Table 6 for details). In Canada, cannabis health warnings have been revised twice since legalization, with broad changes made to the wording, number, and thematic emphasis of required warnings in both 2019 and 2025 (Government of Canada, 2025). Revisions included changes to product categorization and associated warnings, moving from broad groupings in 2018 (dried cannabis vs. other products), to more specific categories in 2025 (e.g., edibles, extracts, topicals). Within these broader revisions, the cancer-related warning introduced in 2019 was removed in the 2025 update.

Ingredient information labels

The majority of jurisdictions require allergen (80.8%) and ingredient (88.5%) information to be displayed on cannabis products, though only 34.6% require nutritional information (calories and additives). Of the 24 US states with legal recreational cannabis, 8 states (33.3%) mandate nutritional information, 22 (91.7%) require an ingredient list, and 20 (83.3%) require allergen information. Illinois further specifies that packaging must include the statement: "This product was produced in a facility that cultivates cannabis and may also process common food allergens". Canada requires ingredient information on cannabis extracts, topicals, and edible products; allergen information is required for extract and edible products; and nutritional information is required only for edible products. Uruguay does not require nutritional information labels.

Cannabis content labels

All jurisdictions require THC content labelling and serving size indications. CBD content labelling is required in 20 (83.3%) US states, Canada, and Uruguay. Uruguay additionally requires cannabis variety labels by name (e.g., ALFA, BETA, GAMMA) (Government of Uruguay, 2015).

Limitations

This review relied on publicly available regulatory databases that vary in completeness and update frequency across WHO Member States. Local, provincial, or state alcohol labelling rules beyond Canada and the United States were not captured. Cannabis comparisons were restricted to jurisdictions with legal non-medical markets, limiting global generalizability. This analysis does not consider the population size of each WHO Member State. As such, the findings do not reflect the proportion of the global population covered by labelling policies. Future work should incorporate population-weighted analyses to better estimate global exposure to labelling requirements. In addition, labeling policies may differ in their implementation and enforcement, which may influence their real-world effectiveness. These differences were not captured in the present analysis. These findings apply only to formal regulatory frameworks and do not account for informal or unregulated alcohol markets, where labelling requirements may be absent or inconsistently applied.

Discussion

Across WHO Member States, the extent of mandated alcohol warnings is not well-aligned with alcohol's documented risks. This misalignment may contribute to public underestimation of alcohol-related harms. Although alcohol is responsible for 4.7% of global deaths and 4.6% of global DALYs, only 32.5% of WHO Member States

Table 3
Warning message types for alcohol warning labels by WHO region, as of February 2023.

WHO member country regions		Warning types[a]								
		Cancer risk	Pregnancy	Underage drinking	Drunk driving	Responsible consumption[b]	General harm	Other specific health risk[c]	Operation of machinery	Website for more health information
	N	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)	*n* (%)
Americas	35	0 (0)	18 (51.4)	23 (65.7)	17 (48.6)	16 (45.7)	12 (34.2)	0 (0)	3 (8.6)	14 (40.0)
Africa	47	0 (0)	3 (6.4)	5 (10.6)	3 (6.4)	0 (0)	7 (14.9)	2 (4.3)	3 (6.4)	0 (0)
E. Mediterranean	21	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Europe	53	1 (1.9)[d]	15 (28.3)	12 (22.6)	2 (3.8)	1 (1.9)	8 (15.1)	9 (17.0)	0 (0)	2 (3.8)
South-East Asia	11	0 (0)	1(9.1)	1 (9.1)	2 (18.2)	0 (0)	2 (18.2)	1(9.1)	0 (0)	0 (0)
Western Pacific	27	1 (3.7)	4 (14.8)	2 (7.4)	0 (0)	1 (3.7)	2 (7.4)	1 (3.7)	0 (0)	0 (0)
Total	**194**	**2 (1.0)**	**41 (21.1)**	**26 (13.4)**	**24 (12.4)**	**18 (9.3)**	**31 (16.0)**	**13 (6.7)**	**6 (3.1)**	**16 (8.2)**

[a] Requirements may include text *and* icon warnings (e.g., WIRSPA labelling guidelines) or text warning only (e.g., Republic of Korea). Countries may allow producers to select which warnings to display and may not require all types on one label (e.g., labels in Angola must include one of the following messages: 'To be consumed with moderation' *or* 'Forbidden for sale to individuals under 18 years of age').
[b] Statements include: 1) Consume in moderation; 2) Drink sensibly; 3) Know your limits.
[c] Other specific health risks include liver disease and death.
[d] Effective May 2028.

Note. Discrepancies were identified in the primary sources for the following countries; official regulatory documents or communications from the national authority were used as the definitive source: Angola, Antigua and Barbuda, Argentina, Barbados, Belize, Bolivia, Brazil, Cabo Verde, China, Colombia, Dominica, Ethiopia, Grenada, Guyana, Haiti, Israel, Jamaica, Japan, Kenya, Mauritius, Mexico, Moldova, Mozambique, Nigeria, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Samoa, Slovenia, South Africa, Spain, Suriname, Togo, Trinidad and Tobago, Turkmenistan, Uganda, USA, Uzbekistan, and Zimbabwe.

require alcohol health warnings. Cancer warning labels are rare: Ireland's cancer labels are not yet in force; South Korea has three options for alcohol warning labels from which producers may choose and one of those options includes mention of cancer. Comparatively, tobacco labelling rules are more aligned with the extent of attributable harms; tobacco is responsible for 15.41% of global deaths and 9.07% of global DALYs, and 84.5% of WHO Member States require tobacco health warning labels. Requirements for minimum label sizes also follow this trend, with more WHO Member States regulating labelling size for tobacco than for than alcohol. Globally, alcohol is responsible for more deaths and DALYs than cannabis, though international data on cannabis-related harms remains limited. In a striking regulatory gap, all jurisdictions with legal cannabis require THC content labelling, cannabis health warnings, and minimum cannabis label sizes. Of jurisdictions with legal cannabis, only the US requires national alcohol health warnings, however, the mandated warning has remained unchanged since 1988 and does not reflect current evidence about the health risks of alcohol (Alcohol & Tobacco Tax & Trade Bureau, 2025).

A similar misalignment between alcohol-attributable harms and government mandated labelling requirements is evident in the Canadian context. In Canada, alcohol poses almost double the economic burden of tobacco and over 8 times that of cannabis (Canadian Substance Use Costs & Harms Scientific Working Group, 2023), and yet there are no federal rules mandating alcohol warning labels in Canada. This pattern is not unique to Canada, but reflects a broader global gap, with many WHO Member States similarly lacking mandatory alcohol warning labels despite substantial alcohol-related health burdens. In contrast, tobacco and cannabis products are subject to strict packaging and labelling requirements including health warnings. It is also important to distinguish between informational labels (e.g., % ABV, ingredient lists) and health warnings, and to note that the effectiveness of a warning label is also influenced by label design, prominence, and framing (Hobin, 2022). This discrepancy suggests that the regulatory response to alcohol is not properly calibrated to its harms, with serious implications for public awareness and consumer behavior and therefore public health. Importantly, this point does not diminish the need for strong labelling on tobacco and cannabis; rather, it highlights that alcohol has not yet been brought into alignment with similarly evidence-based labelling approaches. Despite strong evidence for an alcohol-cancer link, most Canadians are unaware that alcohol use can cause cancer. For example, only 26% of Canadians know that alcohol is linked to mouth cancer (Government of Canada, 2024). Comparatively, a recent survey found that over 90% of adult Canadian respondents recognized that smoking cigarettes and exposure to second-hand cigarette smoke are risk factors for cancer (Rydz et al., 2024).

Current labelling rules for alcohol fail to align with its documented risks on a global scale. The gap in alcohol policy with respect to labelling not only undermines public health messaging but also limits consumers' ability to make informed choices about their alcohol use. Alcohol poses harm equivalent to tobacco and significantly exceeds the harm associated with cannabis yet is subject to far less stringent labelling requirements. The comprehensive labelling requirements implemented alongside cannabis legalization highlight what is possible when public health is prioritized in regulatory design. Of note, policymakers in Canada were able to access consolidated modern evidence on cannabis health effects and risk communication, while also leveraging decades of tobacco-control practice to inform packaging and labelling (Canadian Public Health Association, 2017; Haden & Emerson, 2014; National Academies of Sciences, 2017; Usidame et al., 2022). The advantage of the well-developed scientific literature as it related to tobacco and cannabis enabled the integration of contemporary public health principles from the outset of legalization of cannabis and overtime with tobacco.

The alcohol industry is a powerful commercial determinant of health (Adams et al., 2023; Gilmore et al., 2023; Mialon, 2020; Swahn et al., 2025). Despite the well-established harms of alcohol, corporate actors

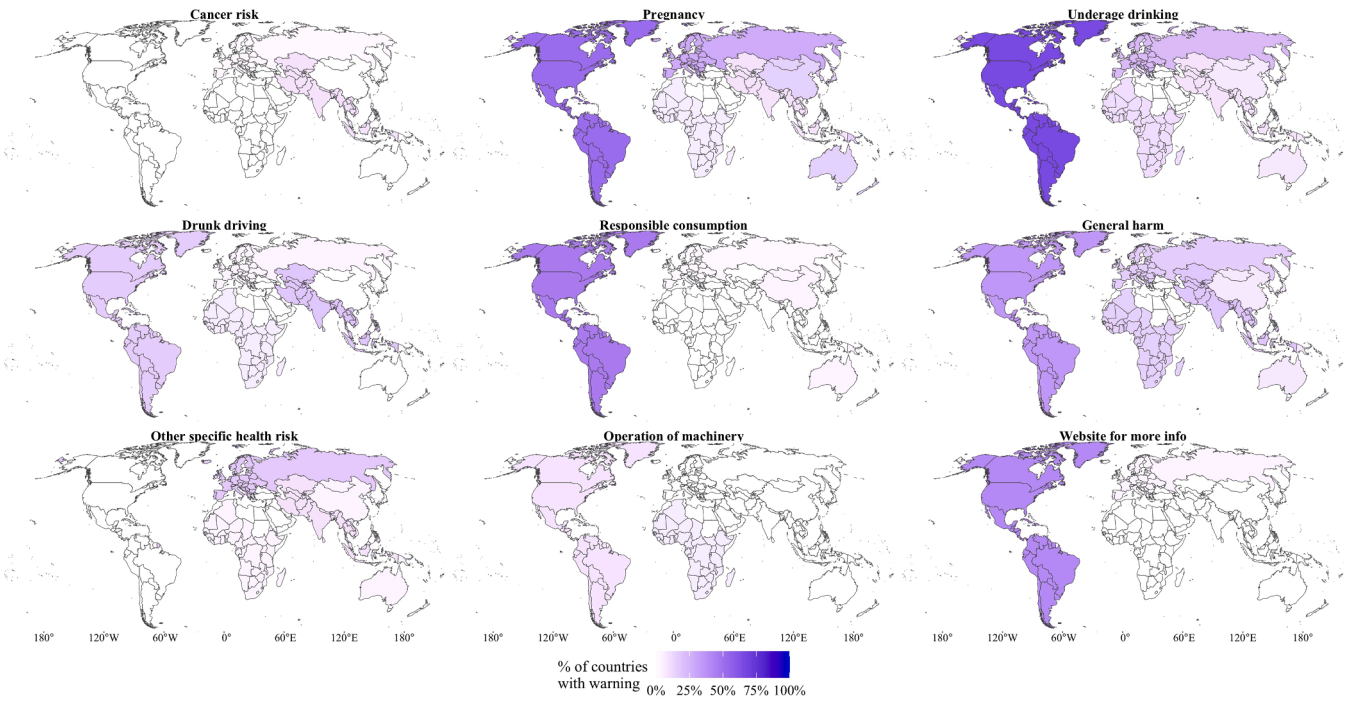

Fig. 2. Requirements for alcohol warning label types by WHO region (% of member states with a warning label) Note. See Table 3 for corresponding numerical data.

Table 4
Requirements for ingredient and nutritional information labels on alcohol containers by WHO region, as of February 2023.

WHO regions and number of member states		Allergens	Ingredients list	Standardized nutritional information (incl. calories and additives)[a,b]
	N	*n* (%)	*n* (%)	*n* (%)
Americas	35	3 (8.6)	13 (37.1)	13 (37.1)
Africa	47	5 (10.6)	11 (23.4)	4 (8.5)
Eastern Mediterranean	21	1 (4.8)	1 (4.8)	1 (4.8)
Europe	53	31 (58.5)	37 (69.8)[c]	2 (3.7)
South-East Asia	11	0 (0)	3 (27.3)[d]	3 (27.3)
Western Pacific	27	6 (22.2)	9 (33.3)	6 (22.2)
Total	**194**	**45 (23.2)**	**76 (39.2)**	**29 (15.0)**

[a] Additives include sulphites, colours, and preservatives.
[b] These values include only Member States that mandate standardized nutritional information on all alcohol containers. In Europe, requirements vary by beverage type and country: 3 Member States (5.7%) require labels on beer, 30 (56.6%) on wine, and 28 (52.8%) on spirits. In South-East Asia, only India requires standardized nutritional information on wine.
[c] 29 European Member States (57.72%) require a liquorice label (14.9% of all Member States).
[d] Total includes required non-vegetarian logo in India.

Table 5
Requirements for alcohol content labelling by WHO region, as of February 2023.

WHO regions and number of member states		# Standard drinks displayed on containers	% Alcohol displayed on containers	Grams (net content) alcohol displayed on containers
	N	*n* (%)	*n* (%)	*n* (%)
Americas	35	0 (0)	26 (74.3)	1 (2.9)
Africa	47	0 (0)	5 (10.6)	2 (4.3)
Eastern Mediterranean	21	0 (0)	0 (0)	0 (0)
Europe	53	1 (1.9) [a]	37 (69.8)	1 (1.9)
South-East Asia	11	1 (9.1) [a]	2 (18.2)	1 (9.1)
Western Pacific	27	2 (7.4)	7 (25.9)	3 (11.1)
Total	**194**	**2 (1.0)**	**77 (39.7)**	**8 (4.1)**

[a] Optional.

have repeatedly delayed, weakened, or opposed labelling reforms through lobbying and framing strategies that emphasize individual responsibility for alcohol harms, deny the impacts of industry marketing on consumption, and target government intervention as paternalistic over-reach (Babor & Robaina, 2013; CBC News, 2017). There are historical, political, and commercial influences that have shaped the regulation of each substance. Tobacco control has benefited from the formalization of international standards through the WHO FCTC and its accompanying guidelines (WHO Framework Convention on Tobacco Control, 2024). Cannabis regulation, though more recent, has occurred

Table 6
Warning types for cannabis warning labels in 24 US States, Uruguay, and Canada, as of February 2023.

Countries		Warning types[a]					
	N	Health risk *n* (%); Yes/No	Impairment risk *n* (%); Yes/No	Safety risk *n* (%); Yes/No	Dependence risk *n* (%); Yes/No	Cancer risk *n* (%); Yes/No	Heart disease risk *n* (%); Yes/No
United States[b]	24	18 (75%)	18 (75%)	24[c] (100%)	9 (37.5%)	1 (4.2%)	1 (4.2%)
Uruguay	1	Yes[d]	Yes	Yes[d]	Yes	No	No
Canada[e]	1	Yes	Yes	Yes	Yes	No	Yes
Total	**26**	**20 (76.9%)**	**20 (76.9%)**	**26 (100%)**	**11 (42.3%)**	**1 (3.8%)**	**1 (3.8%)**

[a] Health risks include pregnancy, mental health, health risks (general), and smoke as harmful; impairment risks include high THC content, delayed onset of effects, and long-lasting effects; safety risks include driving or operating machinery, harm to adolescents and young adults, pregnancy and breastfeeding risk, and adults only (21+).

[b] Warnings are required in Virginia but have yet to be defined by the Virginia Cannabis Control Authority.

[c] "Not Safe for Kids" icon warning required in addition to the other written safety warnings in Delaware, Massachusetts, Vermont, and Virginia.

[d] Pregnancy, driving, adults only (18+), and prohibition of use in the workplace warning icons required in addition to written warnings. Packaging also includes recommendations for safer use.

[e] Cannabis health warning messages in Canada were updated on March 12, 2025 and the changes are reflected in the present results (Government of Canada, 2025). Previously, one warning referred to carcinogenic chemicals found in cannabis smoke. The 2025 revision removed this reference and now warns that cannabis smoke contains toxic chemicals that increase the risk of heart and lung disease.

Note. United States data on warning types reported as *n* (%) of jurisdictions to account for differing state laws. Official regulatory documents or communications from the relevant state authority were used as the definitive source for the following jurisdictions: Delaware, Maryland, Minnesota, Missouri, Ohio, Rhode Island, Virginia.

in the context of decriminalisation/legalisation and been guided by a precautionary approach to minimize harm, communicate risks, and reduce appeal to youth of a previously illicit substance, while maintaining product transparency (Government of Canada, 2018, n.d.). In contrast, alcohol remains deeply embedded in many cultural and economic systems, and it is not subject to the countervailing influence of a strongly normative international public health instrument such as tobacco has with the FCTC. These are serious barriers to alcohol policy progress, especially when they are coupled with strong industry opposition (Farkouh et al., 2024; Naimi, 2023a; Sanci, 2025).

Ireland has most recently attempted to introduce new regulations that will require every alcohol container to display health messages communicating the direct link between alcohol and cancer (Government of Ireland, 2023). Some producers are already complying with this new law voluntarily. However as previously noted, the enforcement has been delayed until September 2028, with the alcohol industry arguing that the instability in the global trading environment due to the Trump Administration's changes to the tariff rules necessitated a rethink of the labelling requirement (Movendi International, 2025).

Findings from this comparative analysis underscore that Canada's experience reflects a broader global challenge. There is an urgent need for harmonized international alcohol labelling standards to enhance consistency across jurisdictions, improve consumer understanding, and support broader public health objectives. Taking guidance from the FCTC Article 11 guidelines on effective labelling of tobacco products (World Health Organization, 2013), international alcohol labelling standards should require rotating, specific health warnings – including those about cancer risk – that meet minimum size requirements and are prominently displayed in a consistent location on alcoholic beverage containers, in addition to ingredient and standardized nutritional information. Strengthening alcohol labelling requirements represents a low-cost, high-impact strategy to support informed decision-making and reduce substance-related harms on a global scale. Beyond improving consumer information, international standards can also help governments defend evidence-based labelling policies against industry legal challenges by providing a clear, authoritative global framework for action (Mitchell, 2022). Such standards could be included in the *Codex Alimentarius*, which is not legally binding but represents an important mechanism of global governance that can support WHO Member States in developing alcohol labelling policies. Recent scholarship highlights that work within the Codex Committee on Food Labelling is slowly advancing discussion of alcohol-specific standards, offering additional potential for policy alignment and trade-related legitimacy (Food & Agriculture Organization of the United Nations & World Health Organization, 2024).

In Canada, the findings of this paper can inform ongoing policy efforts such as Bill S-202, which seeks to introduce mandatory, science-based alcohol health warnings. Recent evidence from WHO Europe shows that such measures are well-received by both policymakers and the public across European WHO Member States, demonstrating the feasibility and acceptability of comprehensive labelling reforms (Kokole et al., 2025).

Glossary

Health Warning Label: Required information displayed on product packaging including a mandated message communicating product health risks.

Alcohol by Volume (ABV): Amount of pure alcohol in a beverage expressed as the percentage of the total volume.

Standard Drink: A unit of alcohol measurement used to quantify alcohol consumption, typically defined in Canada as containing 17.05 mL of pure ethanol.

Tetrahydrocannabinol (THC): The main psychoactive compound found in cannabis.

Cannabidiol (CBD): A non-psychoactive compound found in cannabis.

Standardized packaging (plain packaging): Packaging that excludes all branding elements including colours, logos, and design elements, and requires standardized font, colour, and style for package information.

Disability-Adjusted Life Year (DALY): A comprehensive measure of impact on public health combining Years of Life Lost (YLL) due to premature mortality and Years Lived with Disability (YLD) from chronic conditions.

WHO Member State: Countries formally affiliated with the World Health Organization.

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Sybil Goulet-Stock: Writing – review & editing, Writing – original

draft, Methodology, Investigation, Formal analysis, Conceptualization. **Tim Stockwell:** Writing – review & editing, Supervision, Resources, Methodology, Conceptualization. **Paula O'Brien:** Writing – review & editing, Resources, Conceptualization. **David Hammond:** Writing – review & editing, Resources, Conceptualization. **Erin Hobin:** Writing – review & editing, Resources, Conceptualization. **Catherine Paradis:** Writing – review & editing, Resources, Conceptualization. **Ashley Wettlaufer:** Writing – review & editing, Resources, Conceptualization.

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References

Adams, J., Asiasiga, L., & Neville, S. (2023). The alcohol industry-A commercial determinant of poor health for Rainbow communities. *Health Promotion Journal of Australia: Official Journal of Australian Association of Health Promotion Professionals, 34*(4), 903–909. https://doi.org/10.1002/hpja.665

Alcohol and Tobacco Tax and Trade Bureau. (2025). *Distilled spirits labeling: Health warning statement*. U.S. Department of the Treasury. https://www.ttb.gov/regulated-commodities/beverage-alcohol/distilled-spirits/ds-labeling-home/ds-health-warning.

American Medical Association (AMA). (2025). *AMA Adopts new public health policies to improve health of nation*. https://www.ama-assn.org/press-center/ama-press-releases/ama-adopts-new-public-health-policies-improve-health-nation-9.

Australian Government Department of Health. (2025). *Standard drinks guide*. https://www.health.gov.au/topics/alcohol/about-alcohol/standard-drinks-guide?language=en.

Babor, T. F., Casswell, S., Graham, K., Huckle, T., Livingston, M., Österberg, E., Rehm, J., Room, R., Rossow, I., & Sornpaisarn, B. (2022). *Alcohol: No ordinary commodity* (3rd ed.). Oxford University Press.

Babor, T. F., & Robaina, K. (2013). Public health, academic medicine, and the alcohol industry's corporate social responsibility activities. *American Journal of Public Health, 103*(2), 206–214. https://doi.org/10.2105/ajph.2012.300847

Campaign for Tobacco-Free Kids. *Tobbacco control laws*. https://www.tobaccocontrollaws.org/.

Canadian Centre on Substance Use and Addiction (CCSA). (2023). *Canada's guidance on alcohol and health: Final report*. https://ccsa.ca/canadas-guidance-alcohol-and-health.

Canadian Public Health Association. (2017). *A public health approach to the legalization, regulation and restriction of access to cannabis: Position statement*. https://www.cpha.ca/public-health-approach-legalization-regulation-and-restriction-access-cannabis.

Canadian Substance Use Costs and Harms Scientific Working Group. (2023). *Canadian substance use costs and harms 2007-2020*.

CBC News. (2017). *Liquor industry calls halt to cancer warning labels on Yukon booze*. https://www.cbc.ca/news/canada/north/yukon-liquor-label-backlash-1.4466330.

Clarke, N., & Rose, A. K. (2020). Impact of labeled glasses in a bar laboratory setting: No effect on Ad libitum alcohol consumption. *Alcohol Clinical and Experimental Research, 44*(8), 1666–1674. https://doi.org/10.1111/acer.14392

Cunningham, R. (2022). Tobacco package health warnings: A global success story. *Tobacco Control, 31*(2), 272. https://doi.org/10.1136/tobaccocontrol-2021-056560

Farkouh, E. K., Vallance, K., Wettlaufer, A., Giesbrecht, N., Asbridge, M., Farrell-Low, A. M., Gagnon, M., Price, T. R., Priore, I., Shelley, J., Sherk, A., Shield, K. D., Solomon, R., Stockwell, T. R., Thompson, K., Vishnevsky, N., & Naimi, T. S. (2024). An assessment of federal alcohol policies in Canada and priority recommendations: Results from the 3rd Canadian Alcohol Policy Evaluation Project. *Canadian Journal of Public Health, 115*(4), 640–653. https://doi.org/10.17269/s41997-024-00889-3

Food and Agriculture Organization of the United Nations & World Health Organization. (2024). *Report of the forty-eighth session of the codex committee on food labelling (REP24/FL)*. https://www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FMeetings%252FCX-714-48%252F%25E2%2598%2585Final%252520Report%252FREP24_FLe.pdf.

Gantiva, C., Illidge-Cortes, J., González-Millares, D., Maldonado-Hoyos, V., & Valencia, L. (2024). Health warning labels on cannabis products. What is the best design? *International Journal of Drug Policy, 126*, Article 104355. https://doi.org/10.1016/j.drugpo.2024.104355

Giesbrecht, N., Reisdorfer, E., & Rios, I. (2022). Alcohol health warning labels: A rapid review with action recommendations. *International Journal of Environmental Research and Public Health, 19*(18), Article 11676. https://www.mdpi.com/1660-4601/19/18/11676.

Gilmore, A. B., Fabbri, A., Baum, F., Bertscher, A., Bondy, K., Chang, H.-J., Demaio, S., Erzse, A., Freudenberg, N., & Friel, S. (2023). Defining and conceptualising the commercial determinants of health. *The Lancet, 401*(10383), 1194–1213.

Government of Canada. (2018). *Cannabis regulations (SOR/2018-144)*. https://laws-lois.justice.gc.ca/eng/regulations/sor-2018-144/page-14.html#h-848579.

Government of Canada. (2023). *Tobacco products appearance, packaging and labelling regulations (SOR/2019-107)*. https://laws.justice.gc.ca/eng/regulations/SOR-2019-107/page-1.html.

Government of Canada. (2024). *Public awareness of alcohol-related harms survey 2023*. https://health-infobase.canada.ca/alcohol-related-harms-survey/#a2.

Government of Canada. (2025). *Cannabis health warning messages*. https://www.canada.ca/en/health-canada/services/drugs-medication/cannabis/laws-regulations/regulations-support-cannabis-act/health-warning-messages.html.

Government of Canada. (n.d.). *Packaging and labelling guide for cannabis products*. https://www.canada.ca/content/dam/hc-sc/documents/services/cannabis-regulations-licensed-producers/packaging-labelling-guide-cannabis-products/Packaging_and_labelling_guide_for_cannabis_products_rev.pdf.

Government of Ireland. (2023). *Public Health (Alcohol) (Labelling) regulations 2023, S.I. No. 249/2023*.

Government of Uruguay. (2015). *Decree 2/2015: Cannabis packaging and labelling regulations*. https://ircca.gub.uy/marco-normativo/decretos/2/.

Haden, M., & Emerson, B. (2014). A vision for cannabis regulation: A public health approach based on lessons learned from the regulation of alcohol and tobacco. *Open Medicine : A Peer-Reviewed, Independent, Open-Access Journal, 8*(2), e73–e80.

Hammond, D. (2022). *Cannabis warnings and labelling report*. https://www.canada.ca/content/dam/hc-sc/documents/services/cannabis-regulations-licensed-producers/packaging-labelling-guide-cannabis-products/Packaging_and_labelling_guide_for_cannabis_products_rev.pdf.

He, H., Pan, Z., Wu, J., Hu, C., Bai, L., & Lyu, J. (2022). Health effects of tobacco at the global, regional, and national levels: Results from the 2019 global burden of disease study. *Nicotine & Tobacco Research : Official Journal of the Society for Research on Nicotine and Tobacco, 24*(6), 864–870. https://doi.org/10.1093/ntr/ntab265

Hobin, E., Jansen, R., Vanderlee, . L., & Berenbaum, E. (2022). *Enhanced alcohol container labels: A systematic review*. https://www.ccsa.ca/sites/default/files/2022-02/CCSA-Enhanced-Alcohol-Container-Labels-Systematic-Review-Report-en.pdf.

International Alliance for Responsible Drinking. (2019). *Beverage alcohol labeling requirements*. https://iard.org/science-resources/detail/Beverage-Alcohol-Labeling-Requirements.

International Alliance for Responsible Drinking. (2021). *Health warning labelling requirements*. https://iard.org/science-resources/detail/Health-Warning-Labeling-Requirements.

Jané-Llopis, E., Kokole, D., Neufeld, M., Hasan, O. S. M., & Rehm, J. (2020). *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? (Health Evidence Network (HEN) synthesis report 68)*. https://iris.who.int/server/api/core/bitstreams/cf560338-474a-4d3e-90f7-820d377db2da/content.

Johnstad, P. G. (2022). Comparative harms assessments for cannabis, alcohol, and tobacco: Risk for psychosis, cognitive impairment, and traffic accident. *Drug Science, Policy and Law, 8*, Article 20503245221095228. https://doi.org/10.1177/20503245221095228

Kokole, D., Correia, D., Neufeld, M., Rehm, J., Tran, A., & Ferreira-Borges, C. (2025). *Alcohol health warning labels: A public health perspective for Europe*. WHO Regional Office for Europe. https://iris.who.int/server/api/core/bitstreams/60c1964c-a890-4007-bcc8-b80d3e582879/content.

Leos-Toro, C., Fong, G. T., Meyer, S. B., & Hammond, D. (2019). Perceptions of effectiveness and believability of pictorial and text-only health warning labels for cannabis products among Canadian youth. *International Journal of Drug Policy, 73*, 24–31. https://doi.org/10.1016/j.drugpo.2019.07.001

Massey, Z. B., Hammond, D., & Froeliger, B. (2024). A systematic review of cannabis health warning research. *Preventive Medicine Reports, 37*, Article 102573. https://doi.org/10.1016/j.pmedr.2023.102573

Mialon, M. (2020). An overview of the commercial determinants of health. *Globalization and Health, 16*(1), 74.

Mitchell, A. D. (2022). *Tobacco plain packaging in Australia: Implications of the WTO disputes*. https://iris.who.int/server/api/core/bitstreams/dc0301de-e794-4244-a959-fb1327ba6f81/content.

Movendi International. (2023). *Norway one step closer to alcohol warning labels*. https://movendi.ngo/policy-updates/2023/01/11/norway-one-step-closer-to-alcohol-warning-labels/?utm_source=chatgpt.com.

Movendi International. (2025). *Alcohol cancer warnings delayed: Ireland prioritises big booze interests over people's health and rights*. https://movendi.ngo/policy-updates/2025/07/23/alcohol-cancer-warnings-delayed-ireland-prioritises-big-booze-interests-over-peoples-health-and-rights/.

Naimi, T., Stockwell, T., Giesbrecht, N., Wettlaufer, A., Vallance, K., Farrell-Low, A., Farkouh, E., Ma, J., Priore, B., Vishnevsky, N., Price, T., Asbridge, M., Gagnon, M., Hynes, G., Shelley, J., Sherk, A., Shield, K., Solomon, R., Thomas, G., & Thompson, K. (2023a). *Canadian alcohol policy evaluation 3.0: Federal results*. https://www.uvic.ca/research/centres/cisur/assets/docs/cape/cape3/fed-results-en.pdf.

Naimi, T., Stockwell, T., Giesbrecht, N., Wettlaufer, A., Vallance, K., Farrell-Low, A., Farkouh, E., Ma, J., Priore, B., Vishnevsky, N., Price, T., Asbridge, M., Gagnon, M., Hynes, G., Shelley, J., Sherk, A., Shield, K., Solomon, R., Thomas, G., & Thompson, K. (2023b). *Canadian alcohol policy evaluation (CAPE) 3.0 project: Policy domain results summary (provincial/territorial)*. https://www.uvic.ca/research/centres/cisur/assets/docs/cape/cape3/pt-domainresults-en.pdf.

National Academies of Sciences, E., and Medicine. (2017). *The health effects of cannabis and cannabinoids: The current state of evidence and recommendations for research*. The National Academies Press. https://doi.org/10.17226/24625

Office of the Surgeon General (US). (2025). *Alcohol and cancer risk: The U.S. Surgeon General's Advisory [Internet]*. US Department of Health and Human Services. https://www.ncbi.nlm.nih.gov/books/NBK614463/.

Rydz, E., Telfer, J., Quinn, E. K., Fazel, S. S., Holmes, E., Pennycook, G., & Peters, C. E. (2024). Canadians' knowledge of cancer risk factors and belief in cancer myths. *BMC Public Health, 24*(1), 329. https://doi.org/10.1186/s12889-024-17832-3

Sanci, T. (2025). *Health Canada's alcohol guidelines are 14 years old, despite new ones issued in 2023*. https://www.hilltimes.com/story/2025/11/24/health-canadas-alcohol-guidelines-are-14-years-old-despite-new-ones-issued-in-2023/482876/.

Senate of Canada. (2004). *Bill C-206: An act to amend the Food and Drugs Act (warning labels regarding the consumption of alcohol)*. https://www.parl.ca/documentviewer/en/38-1/bill/C-206/first-reading?utm_source=chatgpt.com.

Senate of Canada. (2006). *Bill C-251: An act to amend the Food and Drugs Act (warning labels regarding the consumption of alcohol)*. https://www.parl.ca/DocumentViewer/en/39-2/bill/C-251/first-reading/page-24?utm_source=chatgpt.com.

Senate of Canada. (2010). *BILL C-532: An act to amend the Food and Drugs Act (warning labels regarding the consumption of alcohol)*. https://www.parl.ca/documentviewer/en/40-3/bill/C-532/first-reading.

Senate of Canada. (2025). *Bill S-202: An Act to amend the Food and Drugs Act (warning label on alcoholic beverages) [Bill, first reading]*. https://www.parl.ca/documentviewer/en/45-1/bill/S-202/first-reading.

Shao, H., Du, H., Gan, Q., Ye, D., Chen, Z., Zhu, Y., Zhu, S., Qu, L., Lu, J., Li, Y., Duan, J., Gu, Y., & Chen, M. (2023). Trends of the global burden of disease attributable to cannabis use disorder in 204 countries and territories, 1990-2019: Results from the disease burden study 2019. *International Journal of Mental Health and Addiction*, 1–23. https://doi.org/10.1007/s11469-022-00999-4

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*(2), 284–292. https://doi.org/10.15288/jsad.2020.81.284

Swahn, M. H., Natuhamya, C., Culbreth, R., Palmier, J., Kasirye, R., & Dumbili, E. W. (2025). Alcohol marketing as a commercial determinant of health: Daily diary insights from young women in Kampala. *Health Promotion International, 40*(1). https://doi.org/10.1093/heapro/daaf002

United Kindgom Department of Health & Social Care. (2025). *Fit for future: 10 year health plan for England (accessible version)*. https://www.gov.uk/government/publications/10-year-health-plan-for-england-fit-for-the-future/fit-for-the-future-10-year-health-plan-for-england-accessible-version.

Usidame, B., Meng, G., Thrasher, J. F., Thompson, M. E., Fong, G. T., & Fleischer, N. L. (2022). The differential impact of the 2000 Canadian graphic warning label policy on smoking prevalence by sex and education: A difference-in-difference-in-difference model. *Nicotine & Tobacco Research : Official Journal of the Society for Research on Nicotine and Tobacco, 24*(11), 1732–1740. https://doi.org/10.1093/ntr/ntac122

Vanderlee, L., White, C. M., Hammond, D., & Hobin, E. (2025). The impact of nutrition information labels on alcohol containers in Canada: An online randomized trial. *Preventive Medicine, 202*, Article 108475. https://doi.org/10.1016/j.ypmed.2025.108475

WHO Framework Convention on Tobacco Control. (2024). *2023 Global Progress Report on Implementation of the WHO Framework Convention on Tobacco Control*. https://fctc.who.int/resources/publications/m/item/2023-global-progress-report.

World Health Organization. (2013). *Guidelines for implementation of Article 11*. https://fctc.who.int/resources/publications/m/item/packaging-and-labelling-of-tobacco-products.

World Health Organization. (2017). *Alcohol labelling: A discussion document on policy options*. https://iris.who.int/server/api/core/bitstreams/81c9c2be-4a06-4bda-b2eb-89868ecdb335/content.

World Health Organization. (2022). *European framework for action on alcohol, 2022-2025. Information sheet*. https://www.who.int/europe/publications/european-framework-for-action–on-alcohol–2022-2025.

World Health Organization. (2024a). *Global alcohol action plan 2022-2030*. https://www.who.int/publications/i/item/9789240090101.

World Health Organization. (2024b). *Global status report on alcohol and health and treatment of substance use disorders*. World Health Organization.

World Health Organization. (2024c). *Health warning labels on alcoholic beverages in the WHO European Region in 2024*. who.int/docs/librariesprovider2/default-document-library/24-05-21_factsheet_labels.pdf.

World Health Organization. (2025). *Alcohol health warning labels: A public perspective for Europe*. https://www.who.int/europe/publications/i/item/9789289061681.

World Health Organization. (n.d.). *Pictorial health warnings on tobacco products database*. https://www.who.int/tools/pictorial-health-warnings-on-tobacco-products.

Zuckermann, A. M. E., Morissette, K., Boland, L., Garcia, A. J., Domingo, F. R., Stockwell, T., & Hobin, E. (2024). The effects of alcohol container labels on consumption behaviour, knowledge, and support for labelling: A systematic review. *The Lancet Public Health, 9*(7), e481–e494. https://doi.org/10.1016/S2468-2667(24)00097-5