Methodology and Evidence

(Federal and Provincial/Territorial)

Canadian Alcohol Policy Evaluation (CAPE) 3.0: Methodology and Evidence (Federal and Provincial/Territorial)

Contents

Overall Study Design

This review forms the third iteration of the Canadian Alcohol Policy Evaluation (CAPE), which was previously completed in 2019 for the federal government and all provincial/territorial jurisdictions and in 2013 for the 10 provinces [1-3]. The policy domains assessed as part of CAPE form part of a comprehensive and synergistic approach to preventing and reducing different types of alcohol harms. The policies examined fall under either federal or provincial/territorial control. The current CAPE review includes an updated and revised protocol, new policy indicators and data, and a companion national alcohol policy community of practice.

The CAPE project provides a point in time snapshot of alcohol policies in place at the time of data collection for each assessment. As domains and policy indicators are updated to reflect the latest alcohol policy research and evidence for each CAPE iteration, results are not directly comparable between reviews. However, results do reflect the overall direction of government approaches to alcohol policy and addressing alcohol harm in Canada based on current evidence. Findings from the previous CAPE assessments are available both on the CAPE website and in a range of peer reviewed academic publications [4-9]

Purpose

The CAPE project was inspired by the approach originally developed by MADD Canada to assess the progress of policies to reduce impaired driving. The MADD Canada legislative review series documented and made public information about the implementation of effective impaired driving policies in each province and territory, producing detailed report cards, to support governments seeking to reduce alcohol-related death and injury on Canadian roads [10]. Since 2000, numerous MADD Canada recommended regulatory and legislative changes have been implemented in Canadian jurisdictions.

Taking a similar approach, CAPE seeks to influence change by providing policymakers, decision-makers and knowledge users with detailed assessments of the extent to which effective alcohol policies and interventions are in place in their respective jurisdictions. The project also comprises a national alcohol policy community of practice that engages individuals from a variety of government and non-government sectors in a range of activities to increase awareness and knowledge of emerging alcohol-related research and policies.

Scope

Each Canadian jurisdiction has unique regulatory environments, for example, different types of alcohol control systems and varying degrees of control over alcohol distribution and sale. At the provincial/territorial level, there is also considerable variation in levels of per capita alcohol consumption and alcohol harms, which reflects diverse economic, social, and demographic characteristics as well as implementation of different alcohol policies. The territories further represent variation in cultural and geographical landscapes and are unique in terms of population size and dispersion, which can result in reduced infrastructure capacity. To the extent possible, we have applied the same protocol to policy implementation in these three jurisdictions, recognizing that while the evidence-based policy principles still apply, in practice they may need to be tailored to a given context. It is also important to note that while governments at the local or municipal level may have control over some aspects of alcohol policy, it is beyond the scope of this project to review alcohol policies across several thousand Canadian municipalities.

Research team

The CAPE research team consists of co-investigators, research coordinators, research assistants and legal consultants, including law students. The co-investigative team includes researchers from public health organizations and academic institutions from across Canada with expertise on a wide range alcohol policies and public health interventions.

Methods

Alcohol Policy Domains

The CAPE project assesses the implementation of alcohol policy in Canada according to a set of evidence-based alcohol policy domains: 10 domains at the Federal level and 11 domains at the provincial and territorial level (see Table 1). Domains are comprised of policies for which the respective levels of government are directly responsible or can influence indirectly.

The alcohol policy domains included in CAPE were selected based upon established and emerging published evidence of their effectiveness across a range of different population groups. The evidence included systematic and thematic literature reviews as well as peer reviewed policy analysis frameworks and policy recommendations from the WHO (in particular their Global Strategy to Reduce the Harmful Use of Alcohol to which Canada is a signatory) [11-15]. Several scientific publications that included methodological approaches to scoring of alcohol policies informed the development of the assessment criteria specific to this project, including Babor, Caetano [16], Anderson, Chisholm [17], Karlsson and Österberg [18], Brand, Saisana [19], Naimi, Blanchette [20] as well as the policy dimensions used by MADD Canada [10].

The CAPE policy domains also align with other strategic documents such as the World Health Organization's SAFER interventions [14], global strategy and action plan on alcohol [13, 15], the Canadian Public Health Association's position paper on alcohol [21], and the Pan American Health Organization's assessment of 33 member states of the Americas on the ten action areas of the WHO global alcohol strategy [22].

Consultation with policy stakeholders across the provinces and territories representing a variety of sectors related to public health, mental health and addictions, alcohol retail and regulation, finance, and treasury, and driving safety informed domains. In 2022, the establishment of a national community of practice enhanced engagement with an even broader range of government and non-government stakeholders to elicit further input and feedback through surveys, interviews, and focus groups.

Table 1: CAPE 3.0 Alcohol Policy Domains

Alcohol Policy Domains
Pricing and Taxation
Physical Availability
Control System
Impaired Driving Countermeasures

Marketing and Advertising Controls
Minimum Legal Age
Health and Safety Messaging
Liquor Law Enforcement (not assessed at federal level)
Screening and Treatment Interventions
Alcohol Strategy
Monitoring and Reporting

Alcohol Policy Domain Weighting

The CAPE policy domains form part of a comprehensive and synergistic approach to preventing and reducing alcohol harms. While each of these policy domains play an important role, they vary in their degree of effectiveness and scope. To account for this, the project team used a systematic approach to apply weightings to each of the domains by rating them on a five-point scale according to these two dimensions. This weighting process resulted in a ranked order of policy domains from one (i.e. highest overall impact) through 10 (federal) or 11 (provincial/territorial).

Ratings of *effectiveness* (out of 5) were made based on a policy domain's capacity to reduce alcohol harms either by direct or indirect (i.e. by facilitating other alcohol policies) mechanisms when fully implemented. Ratings considered the breadth and strength of published evidence specific to alcohol or other health related policy topics (e.g., tobacco, sugary drinks). There was special emphasis on systematic reviews and meta-analyses, and also theory and principles established in other areas of prevention and public health policy.

Ratings of *scope* (out of 5) were based on estimates of (a) the *proportion of the population* affected by a particular policy domain, and (b) the *proportion of alcohol harms* the policy domain can affect within the population it reaches, when fully implemented.

The co-investigative team participated in a series of Delphi policy weighting exercises in order to arrive at the final policy domain weights. Because policy domains were comprised of differing policies that may vary in terms of impact at the federal vs. provincial/territorial levels, domain weighting was performed separately for the two levels. Independent ratings were submitted anonymously using an online platform (SurveyMonkey) in two rounds of voting for federal weightings and two rounds of voting for provincial/territorial weightings. A subsequent meeting held after each voting round facilitated discussion and consensus on any discrepancies in the ratings. The final weightings for each of federal and provincial/territorial domains were calculated by multiplying the average effectiveness and scope ratings from the second round of votes to determine the total impact weight for the respective policy domains (see Table 2 and Table 3). For a description of how these weightings were applied during scoring, see Data Scoring.

Table 2: CAPE 3.0 Federal Policy Domain Weighting

Policy Domain	Mean Effectiveness [out of 5]	Mean Scope [out of 5]	Total Impact Weight[1] [out of 25] (%)[2]
1. Pricing and Taxation	4.54	4.58	20.77 (21.90%)
2. Marketing and Advertising Controls	3.38	4.04	13.67 (14.41%)
3. Impaired Driving Countermeasures	3.27	2.88	9.43 (9.94%)
4. Health and Safety Messaging	2.58	3.54	9.12 (9.61%)
5. Physical Availability	2.81	3.08	8.64 (9.11%)
6. Control System	2.73	3.12	8.51 (8.97%)
7. Minimum Legal Age	3.19	2.31	7.37 (7.77%)
8. Alcohol Strategy	2.08	3.00	6.23 (6.57%)
9. Screening and Treatment Interventions	2.54	2.35	5.96 (6.28%)
10. Monitoring and Reporting	1.92	2.69	5.18 (5.46%)
		Overall total impact weight	94.87 (100%)

Table 3: CAPE 3.0 Provincial/Territorial Policy Domain Weighting

Policy Domain	Mean Effectiveness [out of 5]	Mean Scope [out of 5]	Total Impact Weight[1] [out of 25] (%)[2]
1. Pricing and Taxation	4.88	4.85	23.67 (19.33%)
2. Physical Availability	4.35	4.73	20.56 (16.79%)
3. Control System	3.08	3.65	11.24 (9.18%)
4. Impaired Driving Countermeasures	3.85	2.88	11.09 (9.06%)
5. Marketing and Advertising Controls	3.00	3.65	10.96 (8.95%)
6. Minimum Legal Age	3.42	2.69	9.22 (7.53%)
7. Health and Safety Messaging	2.65	3.35	8.88 (7.25%)
8. Liquor Law Enforcement	2.65	3.00	7.96 (6.50%)
9. Screening and Treatment Interventions	2.73	2.54	6.93 (5.66%)
10. Alcohol Strategy	2.23	3.00	6.69 (5.47%)
11. Monitoring and Reporting	2.15	2.42	5.22 (4.26%)
		Overall total impact weight	122.43 (100%)

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[1] Total impact weight = Effectiveness × Scope (note: totals may not add up in summary tables as numbers are rounded to two decimals only).
[2] Total impact weight (%) = (total impact weight ÷ sum of all total impact weights)

Note: Changes in policy domain ranking between CAPE 2.0 (2019) & CAPE 3.0 (2022)

In some cases, the final weightings shifted the rank order of domains from CAPE 2.0. This change reflects a number of factors including updated research evidence, a broader range of policies captured under each domain, methodological adjustments such as more precise (0.5) increments in the 5-point rating scale, and a revised definition of effectiveness that was broadened to include both direct mechanisms and indirect facilitation of policy implementation. It should also be noted that the domain rankings in CAPE 2.0 were presented as two different rankings (i.e., direct and indirect) whereas these have been combined and a single rank order of domains is presented for CAPE 3.0.

Alcohol Policy Indicators, Sub-Indicators and Scoring Rubrics

Domains were composed of a series of evidence-based alcohol policy indicators and sub-indicators. These indicators were considered the 'best practice' and were used to assess implementation of each domain. For example, the provincial/territorial Pricing and Taxation domain was composed of policy indicators such as minimum pricing per standard drink for alcohol sold from off-premise and on-premise outlets, general pricing, alcohol sales tax, and markups. Within each of those indicators were sub-indicators that captured the key components of that policy (e.g., whether minimum prices were implemented for all beverage types, the level of the minimum price, and whether it was automatically indexed and based on alcohol content). In some instances, practice indicators were used to capture outcomes from the implementation of a particular policy (e.g. actual density of retail outlets in a jurisdiction). A few of the domains incorporated bonus points that were awarded for policy synergies or penalty points that were deducted for loopholes or exceptions that undermined policy.

Building upon the existing scoring rubrics developed for previous CAPE iterations, alcohol policy indicators and their respective sub-indicators were refined or added, defined and organized across each of the policy domains by the project team in consultation with the co-investigators. The selection and definition of indicators and sub-indicators in the scoring rubric was an iterative process. For cases when new indicators were added, their feasibility was tested during data collection and in some instances were removed if the policy was found to be redundant in relation to other indicators or was not possible to assess in the current policy context. Two distinct scoring rubrics, one for the Federal assessment and one for the provincial/territorial assessment, reflected the different policies that the respective levels of government were directly responsible for or could indirectly influence. The scoring rubrics comprised a description of the indicators and sub-indicators within each domain, the number of points that could be awarded for the indicators and sub-indicators and specifications for how points were to be assigned (i.e. scoring instructions).

Each policy domain was assigned a maximum of ten points; these points were later weighted on a domain-specific basis per the methods noted above. The indicator and sub-indicator point values were determined and allocated through multiple project team meetings and expert consultations taking into account principles of effectiveness and scope for the policy indicators and sub-indicators within each domain. For example, as the majority of alcohol is purchased at off-premise retail outlets (e.g. retail liquor stores) compared to on-premise establishments (e.g., restaurants, bars), indicators and sub-indicators related to off-premise outlet density were allocated a higher proportion of the 10 points. In

cases where newly added indicators were tested and subsequently removed during data collection, provisional point values that had been allocated were reassigned.

External Review

Three international alcohol policy experts were engaged to review the chosen federal and provincial/territorial policy domains, the weightings assigned to each of the domains, and the individual indicators and point values included in the two scoring rubrics. The experts who completed the review were William Kerr, Senior Scientist, Alcohol Research Group, Public Health Institute, United States; Tanya Chikritzhs, Professor and Program Leader, Alcohol Policy and Strategies, National Drug Research Institute, Australia; and Robyn Burton, Senior Alcohol Research Officer, Public Health England, UK.

The reviewers each independently provided their expert opinion on the selected alcohol policy domains and respective indicators and sub-indicators in terms of their relevance, comprehensiveness, relative weighting, and strength of supporting evidence. This feedback was used to refine the scoring rubrics, indicators and domain weightings. See Federal Scoring Rubric and Provincial/Territorial Scoring Rubric.

Data Collection and Validation

Detailed data collection templates were developed for the federal and provincial/territorial rubrics, respectively. Online document and website searches were conducted to capture all publicly available policy information during the data collection period of June 1, 2022 to December 1, 2022. Only policies that had been implemented by the end of the data collection period were included in this assessment. Data were collected for the most recent period available; in most cases this period was the 2022 calendar year, but in some cases was the 2021/2022 fiscal year (e.g. data from annual reports).

Official legislative and regulatory documents were used to collect the relevant data whenever possible. For example, liquor control and licensing acts and corresponding regulations at the provincial and territorial level and the Criminal Code or Canadian Radio-television and Telecommunications Commission (CRTC) at the federal level. Other public sources of information such as provincial and territorial alcohol strategies; liquor regulator annual reports, government documents designed for public and media audiences; federal Acts and Bills; and data from Statistics Canada were also used. Where data were not readily accessible, information was sought directly by contacting the relevant government agencies/ministries (e.g., government alcohol retailers and regulators, departments of health etc.).

Key contacts within the federal government and each provincial/territorial jurisdiction were asked to provide data not available in the public domain and subsequently perform data validation by reviewing the accuracy and completeness of the data files. In each case, data validators reviewed only the data relevant to their jurisdiction or departmental mandate. The data files provided allowed data validators to make corrections and add additional data sources or comments and clarification as needed. Further follow-up via email and/or teleconference was pursued when clarification or further information was required. Any revisions or updates relevant to data captured within the data collection period subsequently provided by the data validators were incorporated into the final data analysis. Policy data for all federal and provincial/territorial jurisdictions were formally validated with the exception of a small number of health indicators in Nunavut where staffing shortages precluded formal participation and indicators therefore were validated informally (i.e. validated by stakeholders other than those working directly for government).

Impaired driving legislation is particularly nuanced, especially for those without a legal background. In the previous CAPE reviews, Impaired Driving Countermeasures data were drawn from the MADD Canada legislative reviews. As MADD Canada has not completed a subsequent legislative review since the release of CAPE 2.0, data for the current assessment were collected by law students on the project team with supervision from Professor Robert Solomon and Dr. Jacob Shelley at Western University.

Data Scoring and Analysis

Data scoring for each provincial/territorial domain was completed independently by two co-investigators and then reviewed by the research coordinators. Federal data were scored independently by two research coordinators and then reviewed by co-investigators. Scorers were provided the complete, validated data file for each policy domain assigned to them and instructed to score in accordance with the scoring rubric. Any discrepancies in scoring were brought to the attention of the two scorers to be discussed and resolved; if not resolved, these were adjudicated by the research coordinators for final scoring determination, with input from co-investigators as required.

In instances where no data were available, an assumption was made that no policy was in place and a conservative score of zero was applied accordingly. There was only one instance in the provincial and territorial assessment where a lack of policy information resulted in a score of zero and that was for missing consumer price index data, which are not collected by Statistics Canada in one jurisdiction; the score for that jurisdiction was pro-rated to account for the missing data.

Scores by policy domain

Scores out of 10 points were calculated for each federal and provincial/territorial policy domain by summing the individual indicator and sub-indicator scores, including any bonus or penalty points. Provinces and territories achieving top scores within each domain were highlighted to provide examples of best existing policies that other jurisdictions could look to for guidance.

Scores by jurisdiction

An overall alcohol policy score for each federal and provincial/territorial jurisdiction was calculated by applying the domain weightings listed in Table 2 and Table 3 to each of the domain scores for that individual jurisdiction.

Best existing policies score (provincial/territorial)

The CAPE scores by policy domain and jurisdiction reflect the performance of each jurisdiction according to the best practice for alcohol policy as captured in the CAPE scoring rubric. That is, ideal policy implementation scenarios. Analysis was also conducted to determine what score **could** be achieved by any jurisdiction if they were to implement all the best or near best practice policies that are currently in place in Canada. This was done by identifying the instances in which either **full marks** or **highest marks** were achieved by any jurisdiction across all the individual sub-indicators, then summing them, resulting in an overall best existing policies score at the Canadian provincial/territorial level (e.g. best existing policies score of 80%).

Scores by jurisdiction measured against best existing policies score (provincial/territorial)

Analysis was also conducted to measure the overall alcohol policy performance of each province and territory relative to the best existing policies currently in place across all the provinces and territories. This was done by measuring the individual province/territory score in relation to the best **existing**

policies score described above rather than the best practice policies (jurisdiction score ÷ best existing policy score).

To invoke a 'report card' design, letter grades were applied to score ranges (see Table 4).

Table 4: CAPE letter grades by score ranges

A+	90-100%	B+	77-79%	C+	67-69%	D+	57-59%	F	0-49%
A	85-89%	B	73-76%	C	63-66%	D	53-56%		
A-	80-84%	B-	70-72%	C-	60-62%	D-	50-52%		

Recommendations

Recommendations for policy change were formulated to provide tailored information and specific steps that each jurisdiction could take to strengthen their alcohol policies and improve their overall CAPE score. The recommendations are included in the individual provincial and territorial results summaries.

Evidence Summary for Policy Domains

Pricing and Taxation

Based on hundreds of studies from around the world, it is clear that increasing the price of alcohol is a highly effective strategy for reducing consumption and alcohol health and social harms [11-13, 16, 18, 19, 21-23]. Like many other consumer products, when alcohol prices rise, sales decrease, if other factors such as income remain constant. This is known as price elasticity of demand. A recent major international study found that, on average, a 1% increase in overall alcohol prices was associated with a 0.5% reduction in alcohol use and resulted in increases in both industry profits and government revenues [24]. Taxation is a cost-effective method to raise prices and thereby reduce consumption and harm, especially if tax rates are based on the amount of pure alcohol in a given beverage (i.e. a minimum unit price) and keep pace with inflation via indexation [24].

At the federal level, there is significant evidence that excise taxes (i.e. alcohol duty) can play a key role in reducing consumption and subsequent alcohol harms [25]. In Canada, rates of total sales tax and excise taxation generally fall between 20% and 30% of the final retail price, despite alcohol industry claims of higher rates [26]. In fact, the rate of excise taxation on alcoholic beverages in Canada is lower than many countries in the Americas, especially those in Latin America [27]. It is essential that excise taxation increases proportionally with inflation. For example, when the UK alcohol duty escalator was frozen in 2012, both alcohol consumption as well as related deaths, crime and ill-health increased significantly, especially for those with low incomes [28].

Minimum unit pricing (MUP) establishes a floor price below which a defined amount of ethanol (standard drink) cannot be sold. MUP results in a single minimum price across beverage types, as ethanol is treated the same regardless of beverage type (e.g., beer, wine, spirits, etc). There is substantial and growing evidence from Scotland [29-31], Wales [29], Canada [32-35], and Australia [36] that the introduction of a MUP reduces total alcohol use across the population and, in particular, reduces the consumption of cheap alcohol favoured by at-risk and dependent alcohol users while improving health and social outcomes [33-35, 37-40]. There is some evidence that minimum prices generally, and MUP in particular, reduce consumption and harm most effectively for heavier drinkers and those with low incomes [35, 41]. Further, despite concerns that MUP would negatively affect low-income populations with high prevalence of addiction, especially those with unstable housing, qualitative research has demonstrated minimal to no negative impact on these populations [42].

In addition to MUP, mark-ups of alcoholic beverages, especially when in proportion to the retail price, have the potential to drive substantial public health benefits while maintaining government revenue, creating mutual gains [43].

Physical Availability

Limiting the physical availability of alcohol is a key population-level intervention that can reduce consumption and prevent alcohol harms. The physical availability of alcohol primarily refers to the number of off-premise retail outlets (i.e. liquor stores) and on-premise licensed establishments (e.g., restaurants, bars) in a certain geographical area, the hours and days when these outlets and

establishments are open, restrictions on where alcohol outlets can be located, and which types of businesses are permitted to sell alcohol.

The density of outlets in a jurisdiction is associated with alcohol consumption levels in the local population [44-46]. A substantial increase in the number of alcohol outlets results in increases in consumption and associated harms [16, 37, 44, 47-50]. The impact of outlet density on high-risk drinking among younger populations is particularly pronounced [51, 52], especially when outlets are in close proximity to schools [53, 54]. There is an established body of research demonstrating the relationship between the density of both on-premise establishments and off-premise outlets and alcohol harms [11, 16]. These harms, which include violence and injuries, alcohol-related crashes, instances of suicide and public disturbances [51, 55, 56], are especially prevalent in neighbourhoods with high outlet density [57, 58].

A systematic review concluded that extending hours of sale for on-premise outlets was followed by increases in assaults, injuries, or drink-driving offenses while restricting trading hours at on- and off-premises outlets was associated with reductions in assaults and hospitalizations [59]. International evidence also indicates that longer hours of sale, particularly late at night, increase the amount of alcohol consumed and the rates of alcohol harms [16, 60-65]. The literature indicates that acute harms were most likely to increase with increases in hours of sales [11, 66, 67]; conversely, reducing hours of sale is associated with a reduction of heavy drinking and acute harms [68-72].

The COVID-19 pandemic provided a unique opportunity to examine the effects of physical availability of alcohol. While some regions declared alcohol to be an essential good, expanding availability through services such as home delivery, others enacted total bans on alcohol [73]. An international review of English-speaking countries found that since the beginning of the pandemic, nearly 70% of jurisdictions had temporarily or permanently relaxed regulations for the home delivery of alcohol [74]. Both online and on-demand (i.e. within 2 hours of the time of purchase) home alcohol delivery have been associated with increased risky or heavy drinking and related harms [75-77]. Similarly, increased availability of take-away alcohol, which also increased during the pandemic, has been associated with increased consumption and vice versa [59]. In contrast, South Africa, which instituted a total alcohol sales ban, found significant decreases in patient volume related to assault, accident, and other injuries, allowing health services to focus on COVID-19 efforts [78].

Federally, controls on duty-free imports of alcohol are an essential component of limiting the physical availability of alcohol. In Finland, when the government removed limits on tax-free imports of alcoholic beverages from other countries in the European Union, alcohol consumption and related harms increased significantly as Finnish travelers returning home could bring with them nearly any amount of alcohol without any additional cost [79, 80].

Control System
Alcohol control systems can range from government monopolies, which are a system of government control over the wholesale, retail sale or distribution of alcohol, to completely privatized retail sales of alcohol. The evidence indicates that privatization and deregulation lead to a greater liquor outlet

density, and this promotes competition that involves alcohol sales during longer hours, with lower pricing, and with less rigorous interventions to prevent sales to minors or intoxicated patrons [16, 81, 82]. In Canadian jurisdictions where government retail monopolies have been dismantled and partial or full privatization has been introduced, increases in alcohol consumption and harms have been observed [6, 47, 49, 83-85]. In British Columbia, a rising proportion of liquor stores under private ownership was associated with overall increase in per capita alcohol consumption [49], and, more concerning, with increased alcohol-attributable deaths [47] and hospital admissions [50].

Conversely, a re-monopolization of retail sales by government in Sweden was associated with a decrease in alcohol harms including suicides, falls, and motor vehicle collisions [86]. It is important to note that a key component of the re-monopolization was that the monopoly reported to a public health ministry, rather than to a finance or treasury department as in the majority in Canadian provinces and territories, thus squarely focusing the mandate on protecting public health and safety rather than generating revenues from alcohol sales [87]. Research from Sweden has estimated the potential health and safety consequences of disbanding the government retail monopoly [87, 88]. In one scenario, it was estimated that privatization would result in 41% more alcohol-caused deaths, 22% more alcohol-caused hospital stays and 34% more drink-driving events. In a higher-density second scenario, alcohol would be responsible for an estimated 66% increase in the number of deaths and a 33% increase in the number of hospital stays due to drinking [87].

 Government alcohol monopolies can serve as an ideal vehicle for counter advertising in contrast to pervasive pro-alcohol messaging and cultural norms. For example, government-run retail outlets can place an increased emphasis on health and safety relative to product promotion. Further, they provide a means of restricting where alcohol can be sold, so that cannot be purchased alongside other goods and services such as at grocery stores, hair salons or movie theatres. In Ontario, deregulation allowing alcohol into grocery stores was associated with a greater proportion of alcohol-attributable emergency department visits [45].

Beyond restrictions on where alcohol is sold, it is important for alcohol-related policy decisions to have a public health focus. Engagement of public health officials in alcohol policy, for example, has been shown to increase use of health evidence in policy development [89]. Governments should also have public reporting of industry lobbying activities to ensure transparency of these activities and to mitigate their effects on alcohol-related public health policy [90]. At the federal level, having a comprehensive public-health focused Alcohol Act, as already exists for both cannabis and tobacco, is critical as it provides the overarching legislative framework necessary to guide stronger alcohol policies at the provincial and territorial level and underpins the national response to alcohol harms [91].

Impaired Driving Countermeasures

Although alcohol-related crashes remain a leading cause of alcohol-related death and injuries in Canada, evidence-based policies can substantially reduce these harms. Proven countermeasures include comprehensive graduated licensing programs with a lengthy period of supervised driving and a ban on being positive for alcohol and drugs while driving (i.e. zero tolerance) for drivers under 22 years of age and drivers with less than 5 years of driving experience [92-95].

Similarly, administrative license suspension and vehicle impoundment programs for drivers with blood-alcohol concentrations (BACs) at or above 0.05% have proven to be effective [96-99]. Mandatory alcohol interlock programs for all federal impaired driving offenders (i.e. drivers charged with a federal criminal code violation such as a BAC of 0.08% or higher) which include reduced provincial license suspensions to encourage participation have been shown to substantially reduce drivers' reoffending [100-103]. Likewise, laws prohibiting open containers in vehicles have been associated with decreased alcohol-involved fatal crashes [104-106]. Penalties for polysubstance (e.g. alcohol use in addition to another substance) detection while driving are also important, as research has established that when alcohol is used in combination with other drugs, such as cannabis, there is synergistically negative effect on driving performance, such as increased unsafe driving actions, compared to either substance alone [107, 108].

At the federal level, there are other important related policies that should be considered. First, there is strong evidence that lowering the driver BAC limit to 0.05% from 0.08% would save lives [109, 110]. In addition, legislation allowing for random alcohol breath testing has demonstrated effectiveness in preventing alcohol-related crashes and traffic fatalities [111-113]. In addition to breath testing, legislation allowing evidentiary blood samples is a key component to impaired driving enforcement, as BAC is the single most important component in determining liability in a suspected alcohol-impaired driving case [114]. Finally, tracking of alcohol impaired driving deaths and injuries is essential to not only monitor the extent of the issue, but also to evaluate the effectiveness of new legislation and/or safety programs [115]. See glossary for definition of terms used in this section.

Marketing and Advertising Controls

A ban or comprehensive restrictions on alcohol marketing is one of the most effective, and cost-effective policies for reducing the harms caused by alcohol [116]. Restrictions on alcohol marketing can include the volume of advertisements, advertisement content, price-based promotions [117], and placement of advertisements [118]. The total ban on traditional advertising implemented in Norway in 1975 was found to reduce alcohol consumption over a 25-year period, although more recent forms of digital marketing made it more difficult to enforce the restrictions [119].

The effectiveness of marketing policies is contingent on them applying to all advertisers and having an independent regulatory body with the authority to monitor and enforce these restrictions, especially given that voluntary self-regulation by the alcohol industry has been shown to be highly ineffective [120, 121]. Further, the Pan American Health Organization (PAHO) recommends implementing, independent from the alcohol industry, a pre-screening system to ensure that alcohol marketing adheres to regulations, an accessible a complaint system to ensure complaints about alcohol marketing are effectively addressed, and that there are commensurate and escalating penalties depending on the severity and frequency of regulatory violations [22].

The Canadian Radio-television and Telecommunications Commission (CRTC) sets the guidelines on content and placement of alcohol marketing allowed on television and radio at the federal level in Canada. However, the CRTC regulations have not been updated since 1996 and do not include regulations that govern the content of digital media. This is an especially critical omission as the alcohol industry increasingly relies on new digital forms of advertising such as social media platforms to reach alcohol consumers [122, 123]. Research evidence suggests that alcohol marketing has a powerful effect

on youth and that they are disproportionally exposed and unduly influenced by digital forms of advertising [124, 125]. While age affirmation systems are generally ineffective [126], larger scale bans on digital marketing show promising evidence of effectiveness [127, 128]. Efforts to regulate the access and content of digital marketing are a public health priority.

Minimum Legal Age

There is well-established evidence that minimum legal age laws (MLA) offer health and safety benefits at the population level, as they act to delay the onset of problem alcohol use, and may also produce positive impacts across the life course [129-133]. In addition to making it more difficult for young people to obtain alcohol, MLA laws also communicate a message about community norms, beliefs, and behaviours around alcohol, which helps to shape consumption patterns. When young people gain legal access to alcohol they incur increased rates of a range of negative alcohol-related health and social outcomes. Implementing a legal age of 21 for sale, purchase and consumption of alcohol has been shown to be most effective in reducing related problems among younger drinkers [134, 135].

The negative effects of earlier access to alcohol are typically more prevalent in young males and those of lower socioeconomic status [136-138]. In Sweden, graduated access to alcohol with age restrictions on purchase of certain strengths of alcohol and in certain venues has been explored and mirror elements of graduated licensing programs for new drivers [133]. This stepped approach to gaining legal access to alcohol may assist young adults who choose to drink in managing this new responsibility and lessen the alcohol-related health impacts they experience [133]. However, MLA laws must be appropriately calibrated to each jurisdiction to minimize the impact of any unintended consequence (spillover effects, substitution, border jumping) [139].

MLA laws effectiveness can be strengthened with proof-of-age laws that require anyone purchasing alcohol to present government-issued identification. While such laws are not currently in place in any Canadian jurisdiction, many jurisdictions (as well as the U.S.) have such legislation in place for tobacco [140, 141]. Campaigns making it clear that anyone under a certain age can be expected to show ID have demonstrated effectiveness in reducing underage alcohol consumption and related hospital admissions [142].

Proof-of-age laws are also important when alcohol is purchased remotely, such as through online sales. It is estimated that 45% of attempts by underage persons to purchase alcohol online are successful [143], and roughly 10% of 12th graders reported making alcohol home delivery purchases in the past year [144]. Among underage persons, making home delivery purchases was associated with binge drinking and increased frequency of consumption [144]. Due to the COVID-19 pandemic, there has been a recent expansion of online sales and home delivery of alcohol, and with this, concerns for increased accessibility of alcohol to underage persons. Although an international review of policies found most jurisdictions required proof of age at the time of delivery, only 10% required proof of age at the time of purchase [74]. It is thus important that age verification occurs at the point of both purchase and delivery.

Health and Safety Messaging

Health and safety messaging may include alcohol beverage labelling, onsite signage at off-premise retail outlets and on-premise establishments as well as jurisdiction-wide health and safety campaigns. Such messaging provides critical information to allow consumers to make informed choices about alcohol consumption. Until recently, there was a relative dearth of real-world alcohol beverage labelling or alcohol awareness campaign implementations, with the exception of some specific alcohol-caused harms such as drinking and driving [145]. The implementation of beverage labels in some US states in the 1980s, which warned of the risks for some serious health conditions and for pregnant mothers were found to increase conversations about these alcohol-caused risks [146]. Further arguments favouring health and safety messaging have emphasized that a) alcohol consumers have a right to know about potential harms and b) manufacturers and retailers have legal duties to warn of the potential harms of their product [147]. Alcohol beverage labelling has been a topic of particular public interest in recent times as a tool for raising awareness of alcohol's contribution to cancer and chronic disease [148]; a link not well-known by Canadians [149-151].

In 2017-18, a real-world alcohol warning label experiment was conducted in the Canadian territories (study site: Whitehorse, YT, control site: Yellowknife, NT). During an eight-month intervention period, one of three alcohol beverage warning labels were affixed to 98% of alcoholic products available for sale: (i) a cancer warning, (ii) a standard drink label, and (iii) a national drinking guidelines label [147]. The study comprehensively measured changes in alcohol sales, knowledge of alcohol-caused harms and attitudes. Per person retail sales of all alcoholic beverages were estimated to have decreased by 6.3% during the labelling period in the study site compared with control sites without new labels. Furthermore, sales of the great majority (98%) of products that were labelled decreased by 6.6% while sales of the small number of unlabelled products increased by 6.9% [152]. Unprompted recall of national drinking guidelines increased substantially in the study site [153]. The cancer warnings were removed prematurely due to industry-led interference in the study [154]; however, unprompted recall of the alcohol-cancer link increased significantly among liquor store patrons interviewed shortly after the cancer warnings were removed [148].

A 2019 study found that Canadian alcohol consumers received an average of 11.2% of their necessary daily calories from alcoholic beverages, yet no jurisdiction currently mandates caloric or nutritional labelling on alcoholic beverages [155]. A recent review regarding alcohol warning labels indicated respondent support for labelling activities [145]. This review and others including Hobin, Weerasinghe [148], Dimova and Mitchell [156], and [157] recommend key components of a mandated and enhanced alcohol warning label.

Health and safety messaging can also be disseminated through information such as signage, audio announcements or other onsite messaging provided at both on- and off-premise locations. Alcohol and pregnancy warning signage, such as state-mandated signage on alcohol and pregnancy risks at the point of sale, have demonstrated effectiveness in reducing prenatal alcohol consumption and subsequent birth-related negative outcomes [158]. There is also evidence that mandatory signage providing information on alcohol and cancer risk posted at businesses in California was associated with increased awareness of this health risk [159].

Mass media educational campaigns on the topic of alcohol and health also have demonstrated effectiveness. Such campaigns can promote awareness of and intentions to meet lower-risk drinking guidelines [160, 161], increase awareness of alcohol and cancer [162-164], reduce intentions to drink alcohol during pregnancy [165], and change knowledge, beliefs and attitudes about alcohol consumption [166]. Alcohol harm reduction advertisements appear to be particularly motivating when they discuss long-term harms, have a target audience of the general population of alcohol consumers, and pair messages with drinking guidelines [167]. Ideally, such campaigns are led by government health agencies, as they are perceived as one of the most trusted sources of health information, second only to physicians, and do not hold the vested interests of the alcohol industry or the corporate social responsibility organizations that the industry funds [168].

Liquor Law Enforcement

There is evidence that enforcing the laws governing the service of alcohol and the management of licensed premises and issuing commensurate penalties for violations can contribute to reducing alcohol-related harm [24]. However, there are important caveats, and the level of effectiveness will be determined by local context and culture.

Law enforcement has been shown to be an important component of effective community-based responses to alcohol-related crime and violence [169], but full effectiveness requires considerable stakeholder engagement, effective leadership, sustained funding, and community support [24]. Targeted approaches based on data that identifies high-risk licensed premises have shown some effectiveness (e.g. collecting information from impaired driving suspects about where they purchased their last drink) [170, 171]. In most cities, a small proportion of late-night venues (e.g. 10 to 20%) tend to be linked to most of the drink-driving and violent offences [172].

Inspection programs (e.g., "mystery shoppers", police walk-throughs) have shown some evidence of effectiveness [24]. Mystery shopper programs use underage or apparently underage patrons and individuals who are trained to show visible signs of intoxication to assess whether licensed establishments are complying with liquor laws (e.g., conducting proper ID checks and refusing service to underage and intoxicated patrons) [173-176].

Alcohol sale and service training programs for all staff and volunteers in off-premise outlets, on-premise establishments and at special events are another key component to liquor law enforcement. There is evidence to support their effectiveness in preventing fetal alcohol spectrum disorders (FASDs) [177], single-vehicle nighttime traffic crashes (which are often alcohol-involved) [178], patron aggression [179] and patron consumption [180], while also promoting responsible serving [181]. However, given low compliance, mandated trainings are more likely to be effective than voluntary ones [182, 183]. Moreover, given that effects can be mitigated with time, recertification should be required on a regular (e.g. annually [184]) basis.

Screening and Treatment Interventions

Since the previous CAPE report (2019), this policy domain has been expanded from screening, brief intervention and referral (SBIR) to also include population-level alcohol guidelines, and treatment and

harm reduction programs. At the population level, evidence-based and government-endorsed information and guidance on alcohol and health can provide an important upstream framework that facilitates a range of prevention, education, and health promotion initiatives in both clinical and non-clinical settings. For example, alcohol guidance can be used to inform screening tools and clinical guidelines and as a means of normalizing non-drinking behaviours. Alcohol guidance or low risk drinking guidelines have been shown to increase a drinker's intentions to reduce their alcohol use if paired with effective alcohol harm reduction campaigns such as television advertisements [160].

For alcohol SBIR, the cumulative evidence from several hundred empirical studies indicates that the use of SBIR in primary, secondary and emergency health care settings and the use online self-guided SBIR resources are effective methods for reducing alcohol consumption, particularly among those with early stage or less severe alcohol dependence [185-188]. These initiatives are cost-effective measures to prevent and reduce alcohol-related harms. Brief interventions can be implemented in clinical settings (including acute care settings) and a variety of non-clinical settings to reach priority populations (e.g., shelters, correctional institutions, community-based organizations) or be taken up remotely to expand their reach (e.g. electronic tools) [189]. The evidence is less clear on the effectiveness of SBIR for adolescents [11, 185-187, 190].

Inpatient and outpatient treatment services, including withdrawal management have been shown to be effective in reducing the harms associated with alcohol use/withdrawal and reduce alcohol consumption [191, 192]. At the federal level, such treatment services are especially important for populations disproportionately affected by alcohol use, such as military and corrections populations [193, 194]. Managed alcohol programs (MAPs) may offer a potentially effective targeted intervention for people with severe alcohol use disorders who are also experiencing homelessness; however, the overall effectiveness and potential risks of MAPs are currently unknown [195].

Alcohol Strategy

Federal and provincial/territorial alcohol strategies or action plans can help prioritize and coordinate alcohol policy initiatives and interventions under government leadership [13, 196], However, their effectiveness relies on inclusion of specific and measurable goals sustainably implemented across evidence-based policy domains based on international research and policy development [13, 15, 197]. Importantly, the involvement of alcohol industry in government strategy must be strictly avoided since this has been shown to compromise the robust development and implementation of alcohol strategies in several jurisdictions due to the inherent conflict of interest [198-200].

Definitive evaluations of alcohol strategies are challenging to conduct due to the complexity of the components of a strategy and how they interplay to produce change, as well as prevailing trends in other socioeconomic and political factors outside of policy that may impact alcohol use and related harm [201]. England's first national alcohol strategy was criticized for a lack of emphasis on the most effective, evidence-based strategies, new funding to support implementation, weak leadership, and a failure to define measurable targets to track progress [202].

More recently, research looking at Russia's comprehensive and long-term strategy to reduce alcohol related harm, which since 2010 has included elements related to the WHO "best buy policies" to control alcohol consumption at the retail level (i.e., controls on advertising, taxation/pricing interventions, and policies to reduce physical availability) concluded the strategy has contributed significantly to substantial reductions in per capita alcohol consumption and related harm and costs [203-205]. Scotland also provides an example of a robust alcohol strategy developed without industry involvement that includes clear timelines and comprehensive evaluation and reporting plan to measure the success of planned policy actions, such as implementation of a national minimum unit price for alcohol [206, 207].

Monitoring and Reporting

An essential component of any alcohol harm reduction strategy includes the routine and comprehensive monitoring of changes in alcohol consumption, drinking patterns and alcohol-related health and social harms over time [13, 14, 201, 208]. Such monitoring, combined with the tracking of policy implementation and other actions, allows for the assessment of what interventions are most effective, which, in turn, informs future strategies for tackling alcohol-related harm [14, 209].

Monitoring is a systematic and continuous process to collect, analyze and interpret up-to-date and relevant information from various data sources over time to assess policy or program effectiveness [210, 211]. Public reporting is the process of making performance data and information more accessible to the public in an effort to be more transparent and accountable. Where feasible, monitoring should incorporate measurement across population subgroups (e.g., age, sex, gender, income, and urban versus rural) to provide insight into policy reach and effectiveness for priority populations [212, 213]. This is particularly important for directing limited resources towards areas with the greatest need.

A comprehensive alcohol monitoring and reporting system can inform and facilitate effective policy and enhance comparability and interpretation across jurisdictions [13, 14, 208]. Effective dissemination of the results of monitoring (i.e. public reporting) is important for demonstrating accountability to stakeholders and can serve to raise the awareness of the contribution of alcohol to a wide range of health conditions. Publicly reporting monitoring and evaluation results may also stimulate improvement efforts, as demonstrated in health care quality and safety efforts [214-216]. Strong leadership and sufficient resources are required to support monitoring and reporting efforts [13, 21].

Publicly highlighting rates of specific health and social harms associated with alcohol use can help raise awareness of the need for improved implementation of policies to reduce these harms. Levels of awareness of some serious harms from alcohol, such as elevated risk of some cancers, are low in Canada [150]. Low awareness of risks from alcohol has been shown to be associated with reduced public support for evidence-based alcohol policies [217].

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