World Health Organization

A PUBLIC HEALTH PERSPECTIVE ON ALCOHOL ESTABLISHMENTS: **LICENSING, DENSITY AND LOCATIONS**

BRIEF ⑧, NOVEMBER 2022

SNAPSHOT SERIES ON ALCOHOL CONTROL POLICIES AND PRACTICE

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A public health perspective on alcohol establishments: licensing, density and locations. Brief 8, November 2022

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ABOUT THE SERIES

In 2022 – more than a decade after adopting the WHO global strategy to reduce the harmful use of alcohol – attention has been called to accelerate the implementation of high-impact interventions for alcohol control. A global action plan for 2022–2030 aims to leverage the available evidence and policy know-how and quicken progress in tackling alcohol consumption and its effects. Making evidence accessible and spotlighting real-world experiences is a core component for advancing the implementation of effective policy interventions. Doing so requires a multipronged approach that addresses the social and cultural acceptability of alcohol consumption, its availability and affordability.

In 2021, WHO launched a series of advocacy briefs about *blind spots* related to reducing alcohol consumption. The resulting topic-specific briefs were considered starting points for navigating the evidence and its use in practice, forming the first edition of the "Snapshot Series". Topics covered in 2021 included socioeconomic inequalities, unrecorded alcohol, conflicts of interest, labelling, digital marketing and per capita alcohol consumption.

Now, in its second edition, the series continues its aim to create topical "snapshots", serving as a compass for navigating critical topics related to the high-impact and innovative interventions to accelerate progress in reducing alcohol consumption. This second edition of the series provides a portfolio of policy, system and practice guidance for tackling the determinants driving the acceptability, availability and affordability of alcohol. It explores, among other topics, alcogenic settings and adolescents, gender-responsive alcohol control policies, zero and low alcoholic beverages and policy options to response to emergencies and pandemic situations.

How was this brief developed?

The 2022 series has evolved in its approach to best meet the information needs of its readership, applying a four-step process to explore each topic. First, leading experts were engaged in searching and consolidating the available scientific evidence. Second, the first-hand experiences of countries related to the topic were sampled and documented. Third, stakeholders were brought together in webinars to discuss the evidence and country experiences. Lastly, the literature, experiences from countries and insights from discussions were brought together in a brief report that forms the varied issues of the "snapshots".

Audience

The series is intended for a wide audience, including people working in public health and local and national alcohol and tobacco policy, policy-makers from national, regional and local administrations, government officials, researchers, civil society groups, consumer associations, the mass media and people new to alcohol control policy, research or practice.

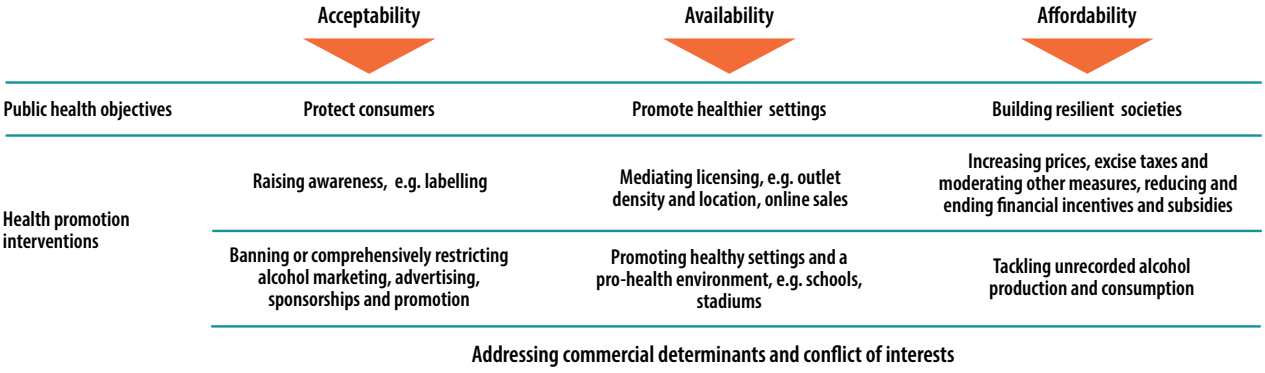
What is a health promotion approach to reducing alcohol consumption?

Drinking has multidimensional connotations. Robust and growing evidence demonstrates that cultural, social and religious norms influence alcohol consumption – acceptability, ease of purchase (availability) and price (affordability). Addressing this multidimensional causality chain requires a portfolio of health promotion interventions to moderate the determinants driving alcohol consumption and, in turn, enable populations to increase control over and improve their health to realize their full potential.

Interested in other topics?

Visit the Less Alcohol webpage for other briefs in this series and forthcoming webinars. Subscribe to Subscribe to our newsletter to be informed of new releases of briefs and notified of webinars to take part in these conversations. If you have a suggestion for a topic that has yet to be explored, contact the team at lessalcohol@who.int ■

Determinants driving the comsumption of alcohol



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Contributors

- Pamela J. Trangenstein, Alcohol Research Group
- David H. Jernigan, Boston University School of Public Health

Reviewers

- Benn McGrady, World Health Organization
- Dag Rekve, World Health Organization
- Elisabet Ruiz Cairo, World Health Organization

Series editors

- Juan Tello, World Health Organization
- Kerry Waddell, McMaster University, Canada
- Rüdiger Krech, World Health Organization

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GLOSSARY

- **Alcohol establishment.** Places that sell alcohol to consumers, such as pubs/bars, nightclubs, grocery or liquor stores, and hotels (also called "alcohol outlets").
- **Alcohol outlet density.** The number or concentration of businesses that sell alcohol (i.e., alcohol establishments) in a defined location. This is often measured relative to the number of people or land area, but it can also be measured as a number with no denominator.
- **Alcohol retail license.** Any license, permit, certification, registration, or other approval legally required to sell alcoholic beverages to customers, also called a "liquor license".
- **Conditioning.** The process of limiting the operations or business practices of an alcohol establishment.
- **Direct shipping.** Alcohol purchased and shipped from an alcohol establishment using a common carrier directly to an adult consumer's home or office address for personal use.
- **Home delivery service.** Alcohol purchased and delivered, from an alcohol establishment using their employees or a third-party company, to the customer's home or office address for personal use.
- **Land use.** Controls on land use (if countries have these) apply to how land or buildings on a given piece of land may be used, e.g. for agricultural, commercial or residential purposes. Land use balances the needs of an occupant with the potential of the land and ultimately defines the activities that may be carried out on a piece of land.
- **Licensing authority.** Any agency, bureau, commission, department, ministry, office or other government entity responsible for developing, implementing and enforcing alcohol retail licensing policies.
- **Licensing board.** A group of experts who grant alcohol retail licenses, place conditions on new or existing alcohol establishments, or withdrawal a liquor license. Licensing boards generally report to the licensing authority.
- **Licensing process.** The steps that follow a liquor license from the original application to the time that the licensed premises closes including application criteria, licensing fees, and renewal.
- **Monopoly.** The complete control maintained by a government over a segment of the alcohol supply chain, e.g. production, distribution, and retail sales.
- **Natural experiment.** A research study that evaluates outcomes associated with natural circumstances that cause a rapid exposure to change and allows a "before-and-after" comparison or for random groups of subpopulations.
- **On-premise establishments.** Businesses that sell alcohol to customers for on-site consumption, e.g. bars, restaurants, hotels, nightclubs, and cantinas. On-premise establishments cannot sell take-away alcohol unless they also have off-premise privileges.
- **Off-premise establishments.** Businesses that sell alcohol to customers for off-site consumption, e.g. package stores, grocery stores, bottle shops, mini-marts. Drinking alcohol on the premises of off-premise establishments is generally prohibited unless it also has on-premise privileges.
- **Physical availability of alcohol.** How easy or hard it is for people to obtain alcohol to consume, including regulations such as the licensing structure, how many alcohol establishments there are, where establishments are located, and the minimum legal purchase age.
- **Privatization.** The process of a government replacing a monopoly with licensing allows private businesses to operate in one or more segments of the alcohol supply chain.
- **Protest.** Written declaration of community objection(s) against a specific liquor license. These are often issued during license applications, renewals, or disciplinary hearings.
- **Selection.** The process of determining which alcohol retail licenses to grant in accordance with the law, regulations, and license application.
- **Third-party delivery service.** A delivery service run by a company that is not an alcohol establishment. These online or app-based sellers connect customers to alcohol establishments and deliver products.
- **Withdrawal.** The process of cancelling an alcohol retail license when there is a clearly demonstrated need to close an alcohol establishment, e.g. for violating rules or because the current alcohol outlet density is higher than the density threshold.
- **Zoning.** Zoning is a planning tool that divides a city, town, or municipality into zones (e.g. commercial, industrial, residential). The location of each zone is established in the predetermined plan. It may have accompanying rules for how occupants may use land (e.g. the type of buildings allowed) or define where people can build new facilities or what type (e.g. size and height of buildings, or distance from the street) ■

BRIEF AT A GLANCE

This brief provides a public health perspective on alcohol establishments. It scopes alcohol establishments' contribution to inequalities, the policy options to regulate alcohol establishments and the considerations for designing, implementing and enforcing policy options to govern alcohol retail licensing, alcohol outlet density and alcohol establishment locations.

The problem

The harm caused by alcohol consumption is higher in deprived communities and in those with higher exposure to establishments that sell alcohol. As numbers in alcohol establishments rise, so too do alcohol consumption and the attendant violent crime, traffic crashes, sexually transmitted diseases, suicide and deaths. Alcohol establishments tend to be more heavily concentrated in more deprived areas, even though overall, residents of these communities may consume less alcohol. These neighbourhoods bear the burden of customers who cluster in and around the alcohol establishments and cause harm ranging from excessive noise and litter to public intoxication and interpersonal violence.

The evidence

Different alcohol establishments have different associations with violence and other harm caused by alcohol consumption. These dissimilarities arise because some types of alcohol establishments sell more alcohol than others and alcohol establishments bring people together in time and space differently. Specifically, alcohol tends to be cheaper at off-premise establishments, so most alcohol is bought there. Consequently, there is a strong association between alcohol consumption and the density of off-premise retail outlets, such as grocery stores, convenience stores and pharmacies. In off-premise establishments that sell other goods along with alcohol, customers are more likely to "bundle" the purchase of alcohol with their other shopping. Selling alcohol in locations where drinkers regularly shop makes buying alcohol more convenient. The consumption-related harms associated with off-premise establishments tend to cover a large area, while acute harm occurs close to places where people drink alcohol. In addition, people consume alcohol alongside others on-site at on-premise outlets. Bringing consumers together is one reason for a strong association between violence and the density of bars and nightclubs. Many homicides, aggravated assaults and robberies occur after people consume alcohol in public settings. In contrast, intimate partner violence often occurs after consuming alcohol in a private setting, such as a person's home. The delivery of alcohol to people's homes influences the relationship between alcohol establishments and the site of harm. Harm from alcohol tends to occur near the point of consumption, but alcohol delivery services shift the point of consumption from on-premise establishments to private settings. This change may also alter the types of harm that manifest because consumers no longer interact with each other in alcohol establishments, thereby decreasing the occurrence of harm from bringing people together but likely increasing private harm, such as intrafamily violence.

Policy options

Policy options to govern alcohol establishments include addressing their practice, density and placement. Alcohol retail licensing regulates sales using selection, withdrawal and conditioning. Policy options addressing the density of alcohol establishments may establish a threshold for the density of alcohol outlets, which can be set as the number of establishments per land area. Restrictions on minimum distance target specific settings and population groups to prevent these groups from interacting with alcohol establishments.

Driving policy changes

In designing, implementing and enforcing policy options to restrict the physical availability of alcohol, policy-makers must balance the competing interests of diverse stakeholders. There is a trade-off between the public interest of protecting and promoting health and the private interests of choice and profit. Decisions and outcomes that engage communities are more likely to be more equitable ■

INEQUALITIES CAUSED BY ALCOHOL ESTABLISHMENTS

The differences in rates of alcohol-related deaths across socioeconomic groups are stark *(4-6)*. The risk of dying from an alcohol-attributable cause is 4–5% higher among people of the lowest socioeconomic status than those of a higher economic or social status *(6)*. This inequality is 1.5–2 times greater for mortality due to alcohol than it is for all-cause mortality *(4, 6)*.

The toll from alcohol consumption is even higher among communities that are historically deprived *(7)* or have a higher exposure to places that sell alcohol *(8-11)*. Establishments that sell alcohol present unique public health challenges as their numbers in a community rise, and so too do alcohol consumption and attendant violent crime, traffic crashes, sexually transmitted diseases, suicide, and alcohol-related deaths *(12-14)*. Alcohol establishments tend to concentrate in more deprived areas, even though residents of these communities tend, overall, to consume less alcohol. People with low socioeconomic status tend to drink less alcohol but experience greater harm related to alcohol, and this disparity may arise being exposed to risky environments, such as those with many or clusters of alcohol establishments; suffering combined health challenges which exacerbate the effects of alcohol harm, e.g. smoking, obesity; exhibiting more harmful consumption patterns (e.g. binging), and disproportionately under-reporting consumption *(15-18)*.

Neighbourhoods with more alcohol establishments bear the burden of customers who cluster in and around the establishments and cause harm, ranging from excessive noise and litter to public intoxication and interpersonal violence *(19)*. For these reasons, alcohol establishment operations raise equity issues in addition to public health concerns. Addressing the larger concentrations of these establishments in deprived areas *(8-11)* is an equity strategy *(20)*.

The fewer resources available to a family, community, or country, the greater the harm an equivalent amount of alcohol may cause. This is true even when residents of these neighbourhoods or countries consume less alcohol overall *(21)*. Although most of the literature on this focuses on socioeconomic status, this *alcohol harm paradox* may apply to anyone who belongs to a less-resourced or marginalized group that, overall, drinks less alcohol but experiences higher rates of harm from alcohol consumption *(16, 18)*. Such marginalized groups include communities of colour, women, indigenous populations, sexual and gender minorities, and less-resourced countries.

Potential causes for the *alcohol harm paradox* include differences in drinking patterns, clustering of unhealthy behaviours among people who belong to marginalized groups, increased harm to health in deprived areas, and less public health infrastructure in poor and disadvantaged settings *(15, 18)*. The first two explanations focus on the individual level and have received greater focus in the research literature *(22)*. It is possible that due to historically unjust policies or less healthy environments *(23, 24)*, people of lower socioeconomic status tend to engage in more than one unhealthy behaviour, such as using tobacco, exercising insufficiently, and overeating *(18)*. When combined with alcohol consumption, these other unhealthy behaviours may magnify the harm from alcohol *(18)*. Studies that account for clusters of unhealthy behaviours continue to find inequality in the harm caused by alcohol across socioeconomic groups *(18)*.

However, individual differences cannot fully explain the *alcohol harm paradox*. Researchers are increasingly looking to explain the *alcohol harm paradox* by examining other issues, which include communities with lower socioeconomic status having fewer supporting

structures to mitigate the harm caused by alcohol consumption *(7)*; or deprived communities having a disproportionately higher exposure to environments with a large number or with clusters of alcohol establishments *(11, 15, 17, 18, 25)*. Studies report that violence linked to alcohol establishments is stronger in communities with higher levels of disorganization *(26)*. While few researchers have examined whether higher exposures to alcohol establishments in deprived communities exacerbate the harm caused by alcohol consumption at the individual level *(18)*, it is likely that a constellation of factors, including differences in consumption patterns, clustering of unhealthy behaviours, and structural risks and barriers, contribute collectively to the *alcohol harm paradox*.

An important caveat to the above discussion is that fewer studies have been conducted on the alcohol harm paradox in low- and middle-income countries. Findings from these studies are more varied than those from high-income countries, underscoring the need for more research in countries in the low- and middle-income ranges.

Three systematic reviews on the public health harm associated with high concentrations of alcohol establishments concur that areas with more alcohol establishments tend to see higher burdens of harm *(12-14)*. The density of alcohol outlets has typically increased when government retail monopolies have been abolished. A state monopoly exists when a government has exclusive control over one or more sectors of the alcohol supply chain: production, distribution, or retail sales.

Evaluations of the consequences to public health of ending government monopolies provide some of the most robust causal evidence that the concentration of alcohol establishments in an area can affect per capita consumption and harm related to alcohol. A systematic review of 17 studies conducted in different locations estimated that after retail sales were privatized, per capita alcohol sales increased in those locations by 44.4% *(27)*. In the United States of America (USA), after the state of Washington privatized sales of spirits, the number of alcohol establishments increased by 332% and the risk of aggravated assault rose by 5% and 8% for each additional on-premise and off-premise establishment, respectively *(28)*. In Canada, the state of Alberta privatized their monopoly in stages. After the first privatization stage – the opening of private wine stores – mortality from suicide rose by 51% for males and 35% for females *(29)*.

Harm from alcohol often results in sizable economic costs for governments, drinkers and those affected by the drinker's actions. In 2021, a systematic review drawn mainly from high-income countries concluded that the costs to society of alcohol consumption amount to US$ 1151.60 per drinker each year *(30)*. Less than 40% (38.8%) of this price tag comes from direct costs, such as incarceration, traffic crashes, hospital bills and treatment for alcohol use disorder *(30)*; the remainder (61.2%) is often less visible, arising from indirect costs such as lost productivity and premature mortality *(30)*.

There is scientific consensus that communities tend to encounter more problems when alcohol is more available and where there is a greater density of alcohol outlets. With more establishments in an area, customers do not need to travel as far to purchase alcohol, thus possibilities to buy and fulfil a potential demand. In addition, increasing the number of establishments in an area can fuel competition, leading some retailers to offer lower prices.

Three systematic reviews concluded that areas with a greater density of alcohol establishments tend to suffer a higher burden and harm

The consequences of alcohol outlet density, and the association with general harm and violent crimes, are examined in three systematic reviews. There are also systematic reviews on specific topics, such as teenage dating violence *(31)*, interpersonal violence *(32)*, and gender-based violence *(33)*, that investigate alcohol outlet density as one of many exposures. These six reviews conclude that areas with more alcohol establishments tend to see a higher consumption of alcohol and related burdens, such as violence, suicide, child abuse, alcohol-related hospitalizations, and liver disease.

However, on-premise and off-premise establishments drive different types of harm for different reasons. On-premise establishments, especially those in entertainment zones, attract large numbers of drinkers, who may cause harm when interacting with other customers or driving away from the premises in vehicles. On the other hand, off-premise outlets may sell alcohol at lower prices and in larger quantities, thus leading to higher consumption levels.

Addressing the numbers, placement and practices of alcohol establishments can reduce the harm and burden associated with alcohol consumption. Acting upon the number and distribution of alcohol establishments can contribute substantially to reducing health inequalities, leading to safer and more sustainable communities with lower rates of violence, underage drinking, alcohol use disorders and alcohol-related hospitalizations ■

THE EVIDENCE ABOUT ALCOHOL ESTABLISHMENTS: CONSUMPTION AND HARM

This section summarizes the evidence about alcohol establishments, alcohol consumption, and related harms. It prioritizes studies that use longitudinal designs because the only firm requirement to determine causality is that the exposure precedes the outcome *(34)*. However, places that experience changes in alcohol outlet density over time may differ from those that do not, creating the possibility of an apples-to-oranges comparison. Public health research aims to mitigate this by adjusting for factors that could be responsible for differences across places or over time. Still, the effectiveness of such approaches and the validity of research findings depends on how well the study identifies relevant confounders and how rigorously it measures the exposure, outcome, and confounders. This section also prioritizes studies that utilize measurement methods most likely to reduce bias and error.

Three key policies at the point of retail sale to reduce the physical availability of alcohol include licensing the sale of alcohol; setting thresholds for the maximum allowable density of alcohol outlets; and establishing minimum distances between individual alcohol outlets or between outlets and sensitive locations, such as educational institutions, houses of worship and alcohol treatment facilities. However, far more studies have been conducted on alcohol outlet density than on establishment locations or alcohol retail licensing.

Higher levels of consumption and related harm *(12-14, 35, 36)* are observed in environments where it is easier to buy alcohol. Even small changes in the number or the configuration of alcohol establishments have been associated with harmful outcomes, including violent crime *(37)*, traffic crashes *(38-40)*, and alcohol-related deaths *(41-43)*.

When unusual events occur, such as strikes, riots, and natural disasters, alcohol suddenly becomes either more or less available, related research is referred to as a "natural experiment." Such experiments naturally create "before-and-after" conditions, which help researchers surmount the frequent obstacle of finding a suitable "case" against which to compare the experiment outcomes thoroughly. Studies of natural experiments provide some of the earliest evidence that loosening the physical availability of alcohol affects levels of sales and consumption and changes in related harm. When an alcohol monopoly ends, it is replaced with another system, usually licensing.

When a state monopoly ends, the individuals most likely to change their behaviours are those most inconvenienced or constrained by the monopoly. In many circumstances, policies that limit the physical availability of alcohol have proven effective in limiting consumption among heavy drinkers. This is why many evaluations of policies that deregulate physical availability find that heavy drinkers increase their consumption once alcohol becomes more available: they were constrained by the previous policy *(44)*.

Natural experiments of other events, such as strikes or natural disasters, have examined whether an abrupt increase or decrease in the number of operational alcohol establishments is associated with subsequent changes in harm. Longitudinal analyses determine whether changes in the alcohol environment precede changes in harm. This type of analysis is rare in research into alcohol outlet density. However, interpretations of data about alcohol establishments over time – i.e. privatization, natural experiments, or longitudinal studies – need to consider whether other factors that could drive alcohol consumption, such as pricing, marketing policies and economic conditions, changed over time. If these other factors change in ways that promote alcohol consumption and the study investigates increases in alcohol outlet density, these two factors may show

associations for alcohol outlet density appear more robust than they are. Conversely, if other factors change in ways to reduce alcohol consumption, the increase in alcohol outlet density may appear weaker *(45)*.

Alcohol establishments and consumption

In areas with more alcohol establishments, there tend to be higher alcohol sales, population-level alcohol consumption, rates of underage drinking, and prevalence of alcohol use disorders *(12)*. A study in Australia estimated that with each additional liquor store in a residential neighbourhood, the average alcohol consumption of young adults increased by 1.2 g/day per person *(46)*. A longitudinal study also in Australia found that a 10% greater density in alcohol outlets led to a 17% greater alcohol consumption among young people *(47)*, and another longitudinal study, the Western Australia Pregnancy Cohort (Raine) Study, reported that density of alcohol outlets was associated with later alcohol consumption among young adults after adjusting for sex, educational attainment, family income, area disadvantage, depression, anxiety, and stress. Specifically, researchers discovered that an alcohol outlet within 1600 metres of the home of a young person aged 20 years was associated not only with the consumption of a greater number of drinks within 24 hours but also with alcohol consumption volumes and binge drinking two years later *(46)*. Each additional liquor store was associated with a young person drinking nearly one (0.8) additional standard drink each week, and each additional private member club with 0.6 additional standard drinks. The authors interpret these results as supporting the growing longitudinal literature that suggests a potentially causal relationship linking increases in access to alcohol establishments with increases in alcohol consumption over time or vice versa *(48, 49)*.

Evidence suggests that the number of options in outlets to buy alcohol is unrelated to consumption levels; instead, the proximity of the individual's home to a retailer is the most related factor. The Raine Study examined associations between the availability of liquor stores and underage drinking over time by comparing young persons aged 14 years who lived within 800 metres of a liquor store to those who lived further away. The study concluded that the individuals who lived closer to liquor stores had twice the odds of past-year drinking three years later *(50)*. Likewise, a cross-sectional study from New Zealand found that higher volumes of alcohol were consumed when the drinker lived shorter distances from an alcohol establishment *(51, 52)*.

Privatization and rationing studies

Alcohol sales rose after governments shifted from a monopoly on retail sales to permitting private sales and implementing a licensing scheme. A systematic review of 17 studies estimated that per capita sales increased by a median of 44.4% after privatization, while non-privatized beverage sales fell by a median of 2.2% *(27)*.

There are also lessons to be gleaned from evaluations of countries that ended an alcohol rationing system. From 1920 to 1955, Sweden applied alcohol rationing, the "Bratt System" *(53)*. Every drinker received up to four litres of spirits per month, depending on the demographics. From 1954 to 1956, per capita alcohol consumption, and alcohol-related mortality, rose by 25% *(53, 54)*.

To counteract these increases, Sweden raised alcohol excise taxes by 40%. As a result, low- and moderate-risk drinkers consumed less alcohol, while the consumption of high-risk drinkers remained the same or increased *(53)*. The Bratt System was more efficient than the tax increase at curbing alcohol consumption among the heaviest drinkers. The harm associated with alcohol consumption did not decline because heavy drinkers continued to consume substantial volumes of alcohol *(53)*.

> ***Grocery and convenience stores are more likely to increase alcohol consumption because customers "bundle" purchases of alcohol with their other shopping items***

As a more recent example, when Washington State in the USA privatized spirits retail sales in 2012, they also increased the price of spirits using a system of alcohol excise taxes and fees *(55)*. Consequently, per capita alcohol consumption and self-reported alcohol volumes *(56)* did not change after privatization. However, these overall associations may mask changes within subgroups of drinkers. Specifically, low and moderate drinkers increased the amount of spirits they purchased, and these increases were likely offset by decreases in spirits purchases by heavy drinkers *(57)*. This stands in contrast to the findings from ending the Bratt System and underscores that the response to policy changes will be location-specific.

In Finland, the government banned retail monopoly stores (Alko stores) in rural areas. Restaurants were scarce in rural areas and the ban created dry zones across the rural countryside. The Alcohol Act of 1969 allowed cafes and grocery stores to sell medium-strength beer (2.8–4.7% alcohol by volume) for the first time. Before this amendment, only Alko stores and licensed restaurants could sell medium-strength beer. From 1968 to 1969, these changes resulted in a drastic increase in alcohol availability: the number of licensed restaurants increased by 46% (from 940 in 1968 to 1372 in 1969). During the same period, the number of Alko stores increased by 22%, from 132 (1968) to 161 (1969), and 17 431 grocery stores and 2716 cafes obtained liquor licenses for the first time. The impact of this led to an increase of 125% in the consumption of beer *(58)*, with medium-strength beer

consumption rising by 242% and light beer consumption dropping by 50% *(58)*. The frequency of drinking rose more steeply among women and populations living in rural areas *(59-62)*. Consumption volumes rose more markedly among heavier drinkers *(60)*.

Natural experiments

In 1935, Iceland ended a prohibition by legalizing the sale of wine and spirits; however, it retained a ban on beer that had 2.25% or more alcohol by volume. More than five decades later, Iceland legalized the sale of beer of any strength but only in government-run stores, restaurants, pubs, and cafes. However, there were stark disparities in access to government-run stores. In the capital city Reykjavík, there was one store per 45.5 square kilometres; however, in the rest of the country, density was 200 times lower, with one store every 9417 square kilometres *(63)*. An interrupted time series analysis of sales data from 1950 to 1999 found that ending the ban on beer raised alcohol sales by 79 drinks (1 litre) per person *(63)*. Some of this consumption may have resulted from people switching from beer that was home-brewed, smuggled or purchased in a duty-free store to the legalized purchase of beer. Sales at Iceland's duty-free shop fell by half from 1989 to 1990 *(63)*.

In 1965, Sweden permitted the sale of medium-strength beer (4.5% alcohol by volume) in grocery stores and then banned it again in 1977. The density of alcohol outlets ballooned when more than 11 000 grocery stores converted to alcohol establishments but shrank virtually overnight 12 years later when the sale of medium-strength beer was restricted to state-run monopoly stores (the Systembolag system). The minimum age for purchasing alcohol at grocery stores remained at 18 years, but Systembolag only sold alcohol to customers aged 20 years or older. Between 1965 and 1977, total alcohol consumption was an estimated 15% higher than it would have been had the medium-strength beer not been sold on grocery store shelves *(64)*. Despite increases in consumption of weaker and stronger beer, total consumption fell by 8% from 1976 to 1979 – one year before and three years after returning medium-strength beer to Systembolag stores *(65)*. The declines in alcohol consumption and hospitalizations related to alcohol consumption were most pronounced among young people *(65, 66)*.

Fewer studies have been conducted on the association between alcohol establishments and alcohol consumption than on other outcomes. This is because calculating these changes requires detailed data on consumption specific to the small geographic areas likely to be affected by changes in alcohol outlet density. In practice, consumer surveys and sales data allow for estimating larger geographic units.

Despite these limitations and the fact that the evidence is primarily from high-income countries, the studies suggest that rises in alcohol consumption in the general population, heavy drinkers and young people are associated with the increased density of alcohol outlets. However, the magnitude of any increased consumption is likely to depend on a range of factors, including how mature the market is and how available alcohol is from other sources.

Does the type of establishment have a stronger association with alcohol consumption?

Several studies have found that off-premise establishments have a stronger association with alcohol consumption than on-premise establishments *(67-69)*. This is likely because customers are more likely to "bundle" the purchase of alcohol with other items when shopping in outlets such as grocery stores, convenience stores, petrol stations or pharmacies *(70-72)*. Allowing alcohol sales in such stores, where drinkers regularly shop, makes purchasing alcohol more convenient and may result in drinkers buying a wider variety of alcoholic beverages than they would otherwise *(71)*.

Alcohol was responsible for 10 homicides every hour in 2016

In Victoria, Australia, the density of off-premise outlets was associated with the prevalence of high-risk drinking in young adults, with young men consuming more than 20 drinks per occasion, and young women consuming more than 11 drinks per occasion, at least 12 times per year *(73)*. Each additional off-premise establishment per 10000 people was associated with a 31% higher odds of high-risk drinking *(73)*. In New Zealand, each additional off-premise establishment within 1 kilometre of a respondent's home was associated with a 4% higher odds of heavy episodic drinking among adults *(69)*.

Alcohol establishments and harm

Alcohol and violence

The disinhibiting effects of alcohol reduce thresholds of aggression and thereby increase the chances of a person perpetrating violence or an attack *(74, 75)*. Conversely, the effects of alcohol can increase the likelihood of violence victimization by rendering individuals less physically and mentally capable of resisting an attack.[1] Between 29% and 63% of homicide victims test positive for alcohol; the percentages vary depending on a victim's location of residence, age and sex *(76-81)*. Alcohol has a bi-directional association with violence: people are more likely to become violent when they drink alcohol, violent events are more likely

[1] N.B. The victim is never responsible for an attack even if they have consumed alcohol. Fault always lies with the perpetrator.

to be severe if they involve intoxicated people, and people are more vulnerable to being victimized by violence after they have been drinking.[1] In addition, victims and perpetrators may drink more alcohol after a violent encounter as a means of coping with the event *(82)*. Globally, alcohol was responsible for ten homicides every hour in 2016 *(1)*.

Studies find a clear and consistent association between alcohol establishments and violent crime, particularly assault. A systematic review of 44 cross-sectional studies, and a study that focused explicitly on the association between the density of off-premise alcohol outlets and violence, concluded that limiting the number of such establishments would likely result in improvements for public health *(12, 14)*.

The strong associations between the density of alcohol outlets and violent crime sparked interest among criminologists. Alcohol establishments facilitate crime when the customers that they attract include people seeking to commit a crime (motivated offenders) and susceptible, possibly intoxicated, patrons, whom they can victimize *(12, 83, 84)* (Fig. 1). The argument made in Eck's Crime Triangle is that crime is more likely to occur in places that bring motivated perpetrators into proximity with susceptible victims in the absence of capable guardians *(85, 86)*. The association between alcohol and violence is "enormous, unequivocal and dates back to the 1930s" *(87)*. Intoxication can increase offender motivation; moreover, the disinhibiting effects of alcohol can increase victim susceptibility and decrease guardian capability *(88, 89)*.

Fig. 1 How the convergence of people in alcohol establishments can spark violence

In the USA, Washington state privatized the sale of spirits in 2012, which resulted in a 338% increase (from 328 to 1427) in liquor licenses. An evaluation of this policy change sought to understand whether this explosion in the number of alcohol establishments affected the assault rate in Seattle between 2010 and 2013 – i.e. two years before and two years after privatization *(28)*. A study of the results found a 74% increase in non-aggravated assault and a 42% increase in aggravated assault *(28)*. Furthermore, the risk of aggravated assault increased by 5% for each additional on-premise establishment (after adjusting for commercial land use, vacant properties, households with low incomes, and ethnic diversity) *(28)* and by 8% for each additional off-premise establishment *(28)*. For non-aggravated assaults, the percentages were 5% and 6% for on-premise and off-premise establishments, respectively *(28)*.

A seminal natural experiment on alcohol outlet density and violent crime occurred in Los Angeles, California, in the USA. In 1992, the rioting, looting and arson that followed the acquittal of police officers accused of beating a member of the public, Rodney King, resulted in the closing of 270 alcohol establishments for a short period. Researchers explored two competing hypotheses: the first asserted that because alcohol establishments cause, or contribute to, violent crime by supplying alcohol or bringing drinkers together, closing them would result in fewer violent acts. The second stated that the abandoned, boarded-up former alcohol establishments would signal physical disorder and the acceptance of the neighbourhood of deviant behaviours, so violent crime would increase. The first hypothesis was found to be true. Census tracts – administrative units of between 1200 and 8000 people – saw reductions in violent crime proportional to the number of closed alcohol establishments within their boundaries *(90)*. The decrease in assaultive violence began one year after the riots and lasted for five years *(90)*.

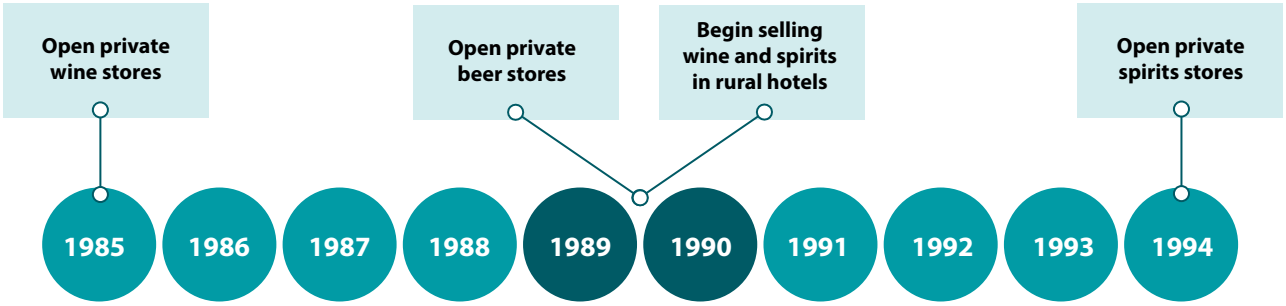
Alcohol and suicide

The density of and proximity to alcohol establishments have also been associated with pedestrian injuries, suicide, and long-term chronic harm, such as cancer and death. However, the evidence is particularly robust for suicide, alcohol-related deaths, sexually transmitted diseases, and child maltreatment. In particular, emerging evidence associates higher densities of alcohol outlets with pedestrian injuries *(91-93)* and cancers *(94)*.

Potential linkages between alcohol and deaths by suicide, among other causes, are viewed in terms of the role of alcohol as a depressant – causing feelings of hopelessness, mainly if a person is already prone to depressive thoughts; and in fostering aggression and impulsivity, thereby making it more likely for a person to act on suicidal thoughts *(95, 96)*.

Until 1984, the state of Alberta in Canada had a state retail monopoly on the sale of beer, wine and spirits. From 1985 to 1995, the sale of alcohol was gradually privatized (Fig. 2), and private businesses began to be licensed to sell wine. From 1989 to 1990, the state permitted private beer stores to open and for hotels to sell wine and spirits in rural areas. In 1994, private stores were allowed to sell spirits.

Fig. 2 Overview of the Alberta privatization process



In Canada, a study on the privatization of alcohol sales applied a time series analysis from 1976 to 1999 in Alberta and compared it to the state of Ontario, where privatization had been proposed but not instituted. The first privatization event – the opening of private wine stores in 1985 – led to a rise of 51% in the mortality rate from suicide for men and 35% for women *(29)*. This increase continued throughout the 14 years of the research investigation. The changes enacted from 1989 to 1990 in the state of Alberta were also associated with higher rates of mortality from suicide: 17% for men and 52% for women; however, these increases did not persist *(29)*. The opening of private spirit stores in 1994 was associated with a temporary increase of 19% in the suicide mortality rate for men *(29)*.

A cross-sectional study with data from 14 states and 51 547 suicide decedents across the USA found that 1 in 2 off-premise establishments per 10 000 persons was associated with an 8% higher proportion of decedents who tested positive for alcohol *(97)*. The study did not find an association with on-premise outlet density.

Another cross-sectional study used six years of data from California to examine the association between the density of bars, restaurants and off-premise outlets with suicide attempts and deaths *(98)*. The study found that zones with more bars had higher rates of suicide attempts and deaths, and zones with more off-premise establishments had more suicide deaths *(98)*. The study did not detect a similar association with restaurants *(98)*.

Alcohol and related deaths

A longitudinal study followed the 3 136 881 residents of Wales in the United Kingdom of Great Britain and Northern Ireland for 24 quarters, beginning in 2006, and linked the study data to national mortality statistics *(99)*. A non-linear association was found between the quintile in the density of alcohol outlets and deaths related to alcohol. The odds of death related to alcohol were greatest in the highest quintile of density, where 29% of the deaths occurred *(99)*.

Another study using data from the entire adult population of Switzerland examined the association between the density of on-premise alcohol outlets in a neighbourhood with mortality related to alcohol *(43)*. The authors found that exposure to on-premise outlets in 2000 was associated with alcohol-related mortality in 2008 *(43)*. There were no significant associations when causes of non-alcohol-related deaths were examined.

Does the type of establishment have a stronger association with violence?

Alcohol establishments differ by type, size, kinds of alcohol sold and time of day the establishment operates. Different alcohol establishments have various associations with violence and other harm caused by alcohol consumption because they bring people together in time and space differently. Concerning violent crime, intoxicated customers of on-premise establishments may be more vulnerable to becoming victims of delinquencies *(100)*. For example, an analysis in Campinas, Brazil, compared the distance between 193 rapes occurring outdoors and the nearest bar, bus stop, residence, and random locations *(101)*; these sexual attacks were found to occur disproportionately close to (but more than 250 metres away from) bars and bus stops *(101)*. Late-night hours in city centres carry particularly high risk because the high density of establishments in these areas allows for large numbers of potential offenders and targets to converge over time and space when few people are around *(100)*. However, alcohol is less costly in off-premise establishments, and most alcohol is bought at these outlets.

Although people drink on-site at on-premise outlets, they drink within a larger radius of the outlet when they consume off-premises. Both on- and off-premise consumption is associated with crime, violence, and amenity harm. However, crimes and violence associated with off-premises establishments tend to cover a larger area, while acute harm relating to alcohol consumption tends to occur in places where people drink.

The strongest associations are found between violence and the density of bars and nightclubs *(83, 102-104)*. Studies tend to combine four types of violent crime, and it is possible that on- and off-premise establishments have different associations with different types of crime *(105)*. Results from studies are likely to also depend on more specific regulations governing the operations of on- and off-premise establishments, such as days/hours of sale, advertising restrictions and limits on pricing promotions, in addition to other laws in place, such as pricing policies, drink-driving countermeasures. Research on many of these interactions has yet to be conducted.

Lastly, the licensing categories determine how studies can disaggregate on- and off-premise establishments. Many jurisdictions in the USA categorize bars, nightclubs and restaurants under one license, even though bars and nightclubs have a higher risk of violence. Licensing categories that mix high-risk establishments (e.g., bars and nightclubs) with low-risk establishments (i.e., restaurants) may make on-premise establishments appear safer than they are. Consequently, this can also make off-premise establishments appear more strongly associated with crime and violence *(26, 84, 89, 106-111)*.

Intimate partner violence has different dynamics than assaultive violence. Whereas many homicides, aggravated assaults and robberies occur among strangers and in public spaces, intimate partner violence is confined to two people who know each other, often occurring in a private setting, such as a person's home. Fewer studies have been conducted on the association between alcohol outlet density and intimate partner violence. The first time series analysis, carried out from 1996 to 2005 in Melbourne, Australia, studied whether a change in the density of alcohol outlets was associated with intimate partner violence *(112)*. The analysis found small but significant associations with licensed on-premise establishments, such as hotels and pubs, as well as establishments that had a license to sell for on- or off-premise consumption (a "general license"), such as a pub with a take-away section *(112)*. Each additional on-premise establishment per 1000 residents increased the incidents of intimate partner violence by 0.11, and adding one general license per 1000 residents was associated with an increase of 0.28 incidents of intimate partner violence *(112)*. However, the association was strongest with off-premise establishments, where introducing one new off-premise establishment was associated with an increase in intimate partner violence of 1.36 per 1000 persons *(112)*. It may be considered unsurprising that off-premise establishments have a stronger association with intimate partner violence. When people buy alcohol from off-premise establishments, they usually take it home to drink, and this is where intimate partner violence often occurs. The findings from studies of alcohol outlet density and intimate partner violence illustrate that harm related to alcohol occurs close to the location where people drink.

> ***Grocery and convenience stores are more likely to increase alcohol consumption because customers "bundle" purchases of alcohol with their other shopping items***

It is important to note that although research from the USA often concludes that off-premise establishments are associated with more alcohol consumption and harm, this is likely an artefact created by the licensing structure. Many states combine bars and restaurants in the same alcohol retail licensing category. Most restaurants carry a lower risk profile, and categorizing them with bars and nightclubs makes the higher-risk bars and nightclubs appear safer than they are.

Alcohol delivered at home

There has been a global rise in home delivery of alcohol with the rise of e-commerce and in the wake of stay-at-home orders during the COVID-19 pandemic. A comprehensive evaluation of the public health effects of these new developments is not yet available.

There is evidence that home delivery of alcohol may increase per capita consumption. Making alcohol more available can increase the harm related to alcohol consumption when availability affects a person's consumption routines, for example, drinking at bars versus drinking at home, or drinking socially versus drinking alone *(113)*. As routine drinking activities shift, the average level of harm related to alcohol may rise. This growth may be more concentrated among people that alter their consumption patterns or routine drinking activities. For example, it is possible that home delivery services and direct shipping of alcohol may result in people consuming more alcohol at home or in isolation, and drinking alone is a risk factor for alcohol use disorders.

One prospective cohort study from Australia suggests that home delivery of alcohol may change consumption patterns and routine drinking behaviours; the odds of people drinking alone were found to be higher for those who had alcohol delivered to their homes *(114)*. Another study found that people who had alcohol delivered during the COVID-19 pandemic had 32% lower odds of consuming alcohol with other people than consumers who bought alcohol in different ways *(114)*.

Cross-sectional data from Australia *(115)*, Canada *(116)*, New Zealand *(117)* and the USA *(118, 119)* suggest that people using home delivery services have higher odds of being heavy drinkers. A survey of 174 men from the USA Midwest found that those who engaged in harmful alcohol consumption had higher odds of ordering alcohol for delivery *(118)*. In New Zealand, people who bought alcohol online had 75% greater odds of being heavy episodic drinkers *(117)*. A caveat of this research is that early studies employed convenience sampling *(117, 119)* or restricted their sample to people who had alcohol delivered *(115)* or problem drinkers *(118)* to provide a first look at the association between alcohol delivery and consumption patterns.

The use of services for delivering alcohol at home increased exponentially during the COVID-19 pandemic. A study of laws in Australia, Canada and the USA found that 53 of 77 (68.8%) subnational authorities made the delivery of alcohol at home more available during the pandemic *(120)*. Bhutan and India also allowed these methods of sale. In India, different states adopted different approaches, including issuing e-tokens for pick up, online purchasing, and home delivery by the shop or a third party *(121)*. However, restricting online sales and home delivery was pursued by Indonesia, Sri Lanka and Thailand during the COVID-19 pandemic to limit the consumption of alcoholic beverages.

Services that provide home delivery of alcohol may offer a new means for underage drinkers to buy alcohol. Home delivery may fail to prevent youth purchases at two points: the point of sale and the point of delivery. At the point of sale, age verification methods for orders made on websites, mobile apps and by phone may not exist, or they may be less rigorous than in person *(122, 123)*. At the point of delivery, the delivery driver may fail to check a person's age. This failure may arise because managers have less oversight of their delivery drivers outside the alcohol establishment than inside the store.

In some countries, services that deliver alcohol by a third-party have proliferated, and the probability of young people obtaining alcohol by this means may be high. Although the alcohol establishment holds the liquor license, the responsibility of age verification is passed to the unlicensed and untrained third-party delivery driver *(124)*. Most regulations do not hold third-party delivery drivers liable if they hand alcohol to underage young people. Further, these delivery drivers may be unaware that they are transporting alcohol *(125)*. This combination of limited regulatory oversight and knowledge about package contents is likely why third-party delivery services have higher rates of supplying underage young people with alcohol than delivery drivers from the alcohol establishment *(126, 127)*.

Grocery and convenience stores are more likely to increase alcohol consumption because customers "bundle" purchases of alcohol with their other shopping items

Evidence of delivery drivers handing alcohol to underage or young buyers without checking their identity cards for age is mounting *(115, 126, 128, 129)*. Data from six cities across the Netherlands found that all 21 attempts made by adolescents aged 15 years to purchase alcohol were successful *(129)*. During the COVID-19 pandemic, the California Department of Alcoholic Beverage Control in the USA reported that bars and restaurants provided underage young people with alcohol in 1 of every four orders; third-party delivery services accounted handed underage young people alcohol in 4 of every five orders *(126)*.

Making alcohol more physically available may increase the average alcohol consumption if the *full price* of alcohol decreases. The full price is the total of the *real price* of alcoholic beverages at retail, plus the *convenience* costs of obtaining them in terms of distance travelled or time taken to purchase them *(113)*. The delivery of alcohol at home reduces the *convenience* costs of purchasing alcohol by eliminating the time and inconvenience associated with travelling to alcohol establishments and waiting in line. Thus, remote ordering for personal use, for example, via the Internet, phone, phone app, mail or other similar "not-in-person" methods, reduces

the *full price* even if the *real price* does not change. It is also possible that alcohol home delivery services and direct shipping will change routine drinking activities for people who get alcohol delivered by altering what and where they consume alcohol *(130)*.

The proliferation of home delivery and direct shipping is a natural experiment yet to be evaluated. A convenience sample of adults in the USA, taken in May 2020, estimated that 1 in every 5 (21%) individuals who had consumed alcohol during the past 30-days, had ordered it via delivery *(119)*. A representative sample of adults living in New Brunswick and Nova Scotia, Canada, found that 1 in every 6 (17%) current consumers purchased alcohol via the same means. Preliminary studies suggest that young people, adult men and individuals with education have higher odds of using delivery services *(114-118, 131)*. However, other studies have found no differences across demographic groups *(119)* or sex *(114)*. Future research should also examine if there are differences in where, when, what and with whom people consume alcohol generally and when they use home delivery services or direct shipping. Whenever possible, these studies should employ longitudinal designs to determine whether ordering alcohol for delivery promotes heavier drinking or heavy drinkers are more likely to have alcohol delivered, or both.

Jurisdictions should ensure that home delivery does not undermine existing efforts to control alcohol availability, consumption and harm.

Does home delivery alter the association between harm and the types of establishments?

The delivery of alcohol at home may influence the relationship between alcohol establishments and the site where the harm caused by alcohol consumption occurs. When consumers get alcohol delivered at home, they no longer interact with others in on-premise establishments. Some harm from alcohol may shift from the area around on-premise establishments to inside private residences because they occur near the site of consumption. Many consequences of home delivery and direct shipping require further research.

Granting alcohol delivery sales to on-premise establishments, such as bars and restaurants, allows them to sell alcohol for off-site consumption, blurring the categorization between on- and off-premise establishments. Yet, it is unknown if and how this will change the amount and types of harm that arise. Research often uses the type of establishment (on- or off-premise) as a proxy for alcohol establishment practices, such as whether customers consume at the alcohol establishment and prices, which tend to be lower in off-premise establishments *(132)*. Off-premise establishments tend to have a stronger association with alcohol consumption than on-premise establishments. However, it is unknown if this relationship results from the location of consumption, alcohol prices or the combination of the two ■

POLICY OPTIONS FOR RESTRICTING THE DENSITY AND LOCATION OF ALCOHOL ESTABLISHMENTS

One way in which policies alter consumption is restricting the physical availability of alcohol. Together with acceptability and affordability, availability is a determinant of alcohol consumption and its related harm at the population level *(133-135)*.

Policy options may regulate which products may be sold and when and where sales may occur. Other policy options target individuals and settings with a higher risk of harm, for example, those that adopt a minimum legal age to purchase alcohol, prohibit sales to intoxicated customers or ban glassware in sports venues. Some regulations go further and hold owners of establishments accountable for minors entering their premises or consumers causing harm to others after drinking in a licensed establishment.

Some of these policy options apply to all alcohol establishments and consumers, including those that limit the number of establishments that can open in an area or restrict the opening of establishments in proximity to sensitive locations such as schools, playgrounds, or religious institutions.

Policy-makers may ponder policy options according to their contexts, understanding that these options entail different measures and interactions for effectively reducing alcohol consumption and its related harm. Policy options that restrict the physical availability of alcohol help to tackle inequalities. For example, although it is unclear whether it effectively reduces overall alcohol consumption, public drinking bans may improve perceptions of safety and neighbourhood amenities and support equity when a marginalized group requests the ban *(136)*. However, public drinking bans may also exacerbate inequalities, most likely due to the pattern of enforcement, which can result in increased contact with marginalized populations, including persons experiencing unsheltered living *(137)*.

A combination of history and need has created a unique portfolio of policy options to govern the physical availability of alcohol retail sales (Box 1).

Box 1. Policy options for restricting the physical availability of alcohol

Restricting the availability of alcohol is a highly cost-effective intervention for low- and middle-income countries. It requires the capacity for implementing and enforcing regulations and the need to address unrecorded alcohol production and consumption *(133, 138-141)*.

Policy-makers can opt for a combination of the following measures:

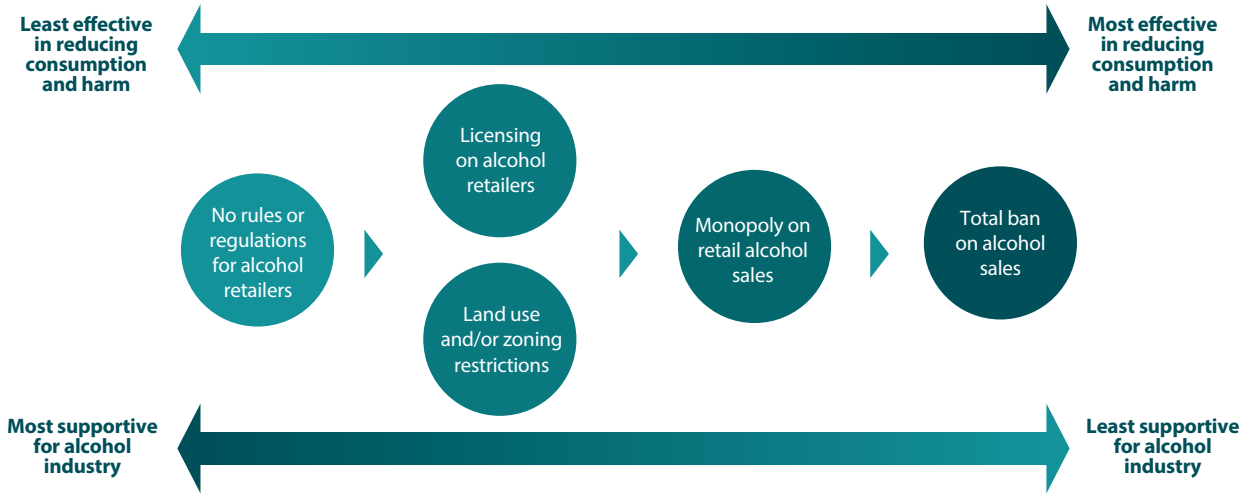
- Establishing a state monopoly on import, production, wholesales, distribution, retail sales and export.
- Licensing for import, production, wholesales, distribution, retail sales and exports.
- Restricting hours of alcohol sale on weekdays and weekends.
- Restricting the days of alcohol sale on weekdays and weekends.
- Banning procuring alcohol to minors.
- Prohibiting serving alcohol intoxicated patrons.
- Reducing the density of alcohol establishments.

Box 1. Policy options for restricting the physical availability of alcohol (*cont.*)

- Forbidding the location of alcohol establishments in proximity of health facilities, educational institutions, government offices, military and police buildings.
- Prohibiting alcohol consumption in public places, e.g. public transport, parks and streets, beauty salons, movie theatres, sporting events, workplaces, educational institutions, health facilities, and houses of worship.
- Banning the consumption of alcohol in specific circumstances, e.g. operating machinery, driving.
- Banning the sale of alcohol at specific events, e.g. national holidays, election days, and religious celebrations.
- Prohibiting the sale of alcohol via automatic vending machines, sachets, through taps, peddling (hand baskets, portable trays), and from stands in the street.
- Banning remote ordering of alcohol through a virtual outlet by mail, phone call or text message, computer or the use of mobile applications.
- Restricting the delivery of alcoholic beverages ordered remotely to those regulated.
- Preventing illegal, informal, smuggled and home-made production, distribution and sale of alcoholic beverages.
- Restricting the alcohol content or quantity of alcohol per unit, e.g. setting a minimum or maximum of alcohol content per unit or beverage or setting a minimum or maximum quantity per pack.
- Banning certain products, e.g. energy drinks containing alcohol or low alcoholic beverages.
- Strengthening enforcement systems, e.g. active surveillance, complaint system and applying penalties for violations, e.g. fines on alcohol establishments, consumers and patrons, suspension or removal of license to operate, requiring employees to take training.

Policy-makers confront these and other trade-offs when regulating the availability of alcohol. Policy options that restrict the availability of alcohol help to mitigate the worsening of inequalities but may also exacerbate them *(142)*. Policy-makers may be called to prioritise the prevention of current social harm without accounting for the longer-term health consequences of alcohol consumption *(143)*. The conflicting interests policy-makers face include promoting public health, preserving public order, promoting equity, increasing revenues and regulating the alcohol industry *(144, 145)*. Policies regulating alcohol retail sales through state monopolies are more effective than licensing at reducing and preventing alcohol consumption and related harms (Fig. 3). However, establishing a new alcohol retail monopoly may not be politically viable and licensing, or land use and zoning restrictions provide a middle ground.

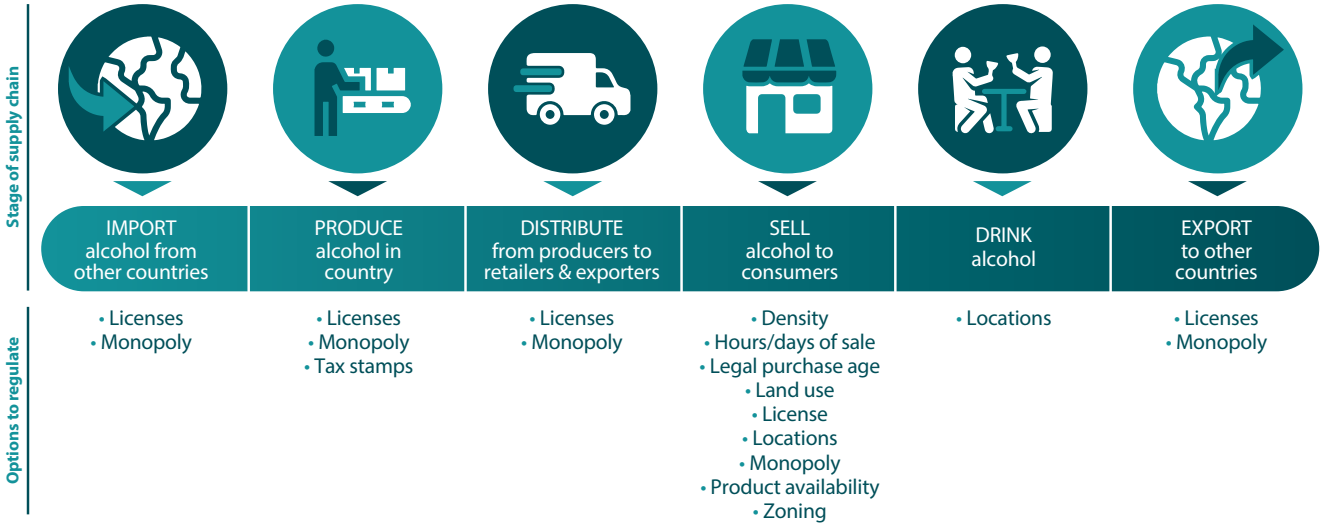
Fig. 3 Example of trade-off in designing alcohol policies



Source: (148)

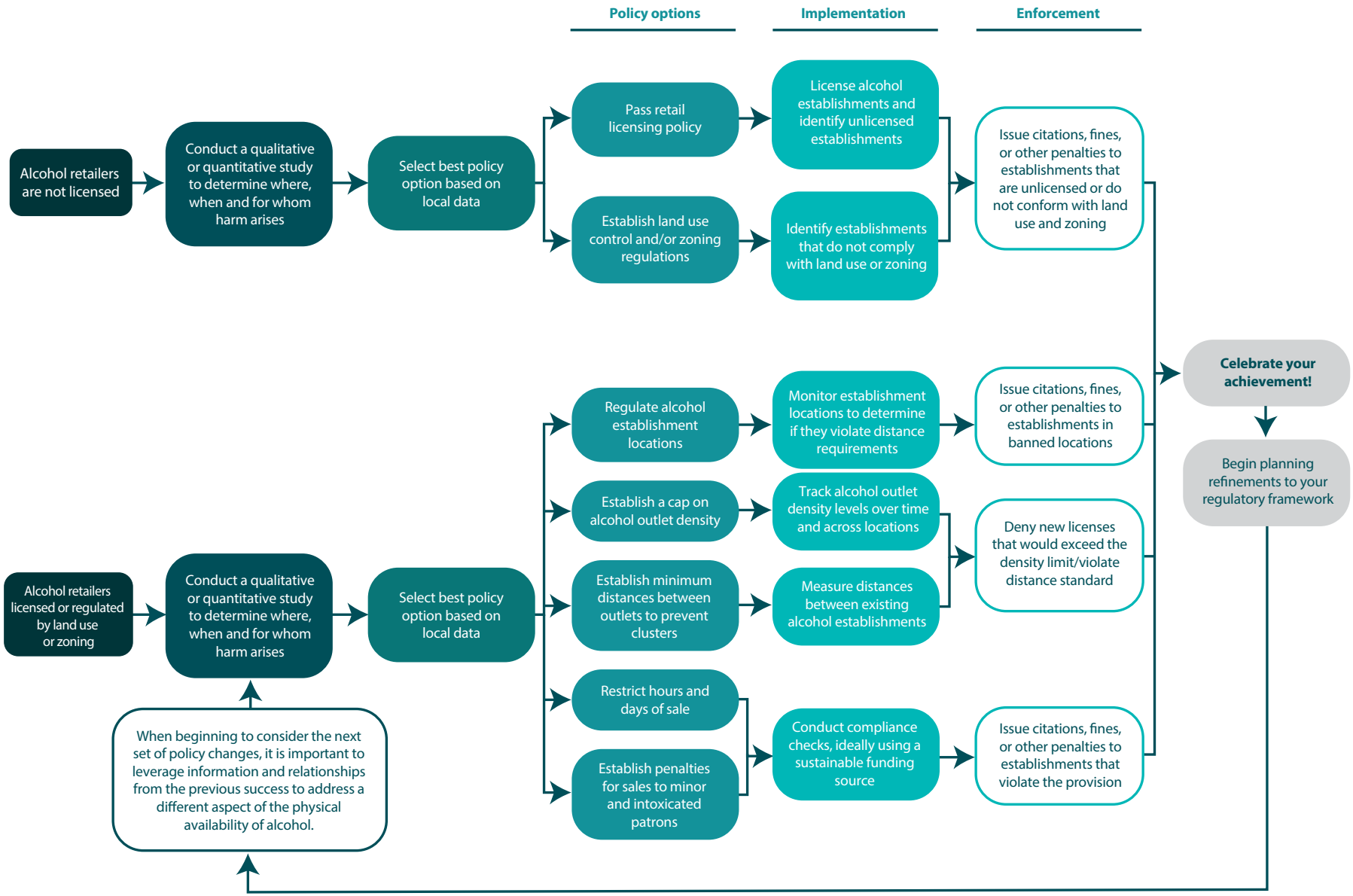
In practice, regulating availability requires finding options that protect the health and safety of the public while permitting and facilitating the orderly conduct of legal business. A comprehensive approach to reducing the physical availability of alcohol would consider policy options at each stage of the supply chain: production, import, export, distribution, retail, and consumption (Fig. 4).

Fig. 4 Policy options to regulate the physical availability of alcohol across the supply chain



This brief focus on retail alcohol licensing as it shapes how populations consume alcohol, the quantity consumed and the harm that arises from its consumption. Moreover, most available research relates to establishments that sell alcohol rather than the policies that define the number, location, and concentration of establishments that can operate in an area (i.e., alcohol outlet density). A possible iterative process for designing comprehensive policies to regulate alcohol retailers is illustrated in Fig. 5. (*next page*) ■

Fig. 5 Algorithm for designing policies options to regulate alcohol retailers



LICENSING ALCOHOL ESTABLISHMENTS

Policy-makers have several policy options to restrict the physical availability of alcohol, e.g. establishing a national legal minimum age for purchase and consumption of alcohol; implementing licensing systems along the production, sales and delivery chain of alcoholic beverages; regulating the number, density and location of retail alcohol outlets; regulating the hours and days during which alcohol may be sold; and restricting the use of alcohol in public places.

There is strong evidence that a state monopoly for the retail sale of alcohol can effectively limit the physical availability of alcohol and reduce the harm from alcohol and should therefore be preserved. Where a monopoly does not exist, or it is not feasible to be introduced, a licensing system for alcohol sales may be established.

Countries may use licensing for different purposes. Often licensing serves a supervisory function that enables authorities to observe whether an activity has been undertaken. Licensing also allows governments to limit, restrict or condition the supply. Restrictions may apply to sectors, locations or types of business since there are different kinds of applicants, in addition to alcohol establishments. Licensing applies to single individuals or companies. Therefore, litigation and administrative decisions may change over time, relate to a particular jurisdiction but not to another, apply to one individual rather than another, or under certain conditions but not others. These decisions do not set overarching policies for restricting the physical availability of alcohol. For these reasons, regulating the physical availability of alcohol should be pursued through a combination of policy options adapted to their contexts. For example, increasing the minimum age for buying alcoholic beverages, zoning and land planning regulations may impact the density of outlets more than licensing (Box 1).

The design, implementation and enforcement of these policy options will depend on national and subnational cultural, social and economic circumstances as well as on binding international obligations. In some low- and middle-income countries, informal markets are the primary source of alcohol; consequently, in such situations, the regulation of industrial alcohol should be complemented by actions either to abolish illicitly or informally produced alcohol or to bring it under government control.

Why license alcohol establishments?

Licensing is a long-standing tool that can influence the placement and practices of alcohol establishments (Box 2). The ability to deny, place conditions on, or withdraw alcohol retail licenses enables authorities to take concrete, evidence-based steps to reduce per capita consumption of alcohol and its related harm.

Licensing enables the introduction of other levers to control alcohol consumption and its related harm, including restricting days and hours of sale, ensuring that retailers check personal identification documents for young purchasers, and restricting alcohol outlet density. From a health perspective, regulating retail alcohol establishments is essential because these are the closest point to consumption in the supply chain.

Attaching conditions to licenses offers an avenue to respond to specific alcohol establishments' history and risk levels. Conditions typically establish more restrictive rules than those contained in general law and regulations, such as the prohibition of selling to minors. Conditions may require a licensed premise to sell only some types of alcohol, follow more limited hours and days of operation, or comply with way-one door restrictions. When determining whether to place conditions on a given license, liquor licensing boards

and authorities may consider violation histories, violence, crime in and around the establishment, community protests, and the neighbourhood context, e.g., alcohol outlet density, level of deprivation, among others.

The connection between alcohol retail licensing and revenues is strong. Finance authorities regulate alcohol availability, including liquor licensing, in many countries. Financial motivations, such as collecting alcohol excise taxes, constitute an essential driver for jurisdictions to license alcohol establishments. Licensing allows governments to track retailers and ensure timely payment of alcohol taxes.

Licensing facilitates control over illicit trade and ensures the quality of alcoholic beverages by providing enforcement officers with retailer addresses and protocols. For example, enforcement officers may inspect a licensee's stock of alcohol to ensure all bottles contain tax stamps or test samples to ensure they are not adulterated.

Box 2. Licensing in England in 1552

The first records of formal licensing of alcohol retailers appeared in England in 1552. Echoing the critical governmental interests in policy relating to the physical availability of alcohol, historians argue that alcohol retail licensing became necessary for three reasons: a nationwide ban on alcohol was unrealistic; alcohol was associated with a range of harm, particularly social disorder; and alcohol taxes produced a substantial amount of revenue and licensing facilitated tax collection.

Source: *(146)*

How is licensing implemented?

The first step in regulating liquor licensing involves identifying and classifying alcohol establishments, and there are several ways to do this. Land use and zoning may be a steppingstone for countries to transition from having no regulations relating to alcohol establishments towards an alcohol retail licensing process.

The most effective and equitable process for licensing consists of establishing permissions at each point of the alcohol supply chain for each type of alcoholic beverage. This allows sufficient time and opportunity, between initial application and final approval, for community input as well as the routine monitoring of compliance *(147)*.

Most jurisdictions that license alcohol retail sales establish a liquor licensing board or commission responsible for overseeing the licensing process; this includes applications, renewals, violation adjudications, protests, and withdrawals. Some countries prefer to assign the function of presiding over violation hearings and protests to a judicial body, such as a magistrate or tribunal. Policies relating to the licensing of alcohol retail sales often outline criteria for serving on the licensing board. These criteria are generally designed to ensure the diversity of the board and for each board member to possess the relevant expertise to perform the required licensing tasks. Some countries prohibit persons with a financial interest in the alcohol industry from serving on the board to protect against conflicts of interest that undermine the public health goals of licensing.

Alcohol retail licensing policies also define the degree to which subnational authorities may regulate alcohol establishments within their jurisdictions. National (or subnational) pre-emption exists when alcohol retail licensing at a higher jurisdictional level prohibits local communities from restricting alcohol establishment practices, locations and density more strictly. The four categories related to the level of pre-emption and local control are described in Fig. 6.

Fig. 6 Common types of national and subnational pre-emption

Exclusive or near exclusive national or subnational preemption	Exclusive national/subnational licensing authority with a local regulatory authority	Joint local and national/ subnational licensing and regulatory powers	Exclusive local licensing with minimum national/ subnational standards
Laws and regulations exclude local governments from alcohol retail licensing decisions and do not recognizing land use and zoning rules and regulations.	Laws and regulations grant the national or subnational government the exclusive authority to license alcohol establishments. Local governments may use land use and zoning rules and regulations to restrict some aspects of the licensing decisions.	Alcohol establishments obtain two licenses: one from the national/subnational government and another from the locality in which they are located. Localities have primary responsibility for determining alcohol availability, but they must follow minimum standards established by national/subnational governments.	Under this design, local governments have exclusive control over alcohol retail licensing decisions. The national/subnational laws and regulations establish limits on how local licensing authorities operate.

Source: *(148)*

How does licensing regulate alcohol sales?

The three primary means for a licensing board to control licensed premises include selection, withdraw and conditioning.

SELECTION

Well-defined and communicated selection requirements make it easier to grant or deny licenses in the best interest of the community.

Examples include a "good character test" that may require license holders to have no, or a limited criminal record. Other requirements may include demonstrating that adding the outlet does not violate the public health, safety and equity objectives included in the licensing policy. For example, Guyana requests that establishments show that they are providing a novel service or a need for the business *(149)*. Licensing in Zambia and South Africa considers whether granting a new license may create a monopolistic condition, public nuisance, or disturbance nearby *(150)*. Finally, another way to reduce alcohol-related harms is to grant the ability to consider community context when approving or denying liquor license applications. For example, some liquor licensing boards consider the number of existing alcohol establishments and may deny applications if they determine a neighbourhood already has too many licensees. Specifically, applying more stringent selection conditions in deprived areas, where the association between alcohol outlet density and harm is stronger, may reduce harm in locations with more environmental risks *(26)*.

WITHDRAWAL

Where there is a demonstrated need to close an alcohol establishment, withdrawal procedures go into effect.

Some countries consider the complete withdrawal of a license as a sanction on the second or third offence, particularly for selling alcohol to minors. Withdrawing a license may also occur after a regulatory change, such as limiting alcohol outlet density or new zoning regulations that render existing alcohol establishments non-compliant. Establishing or expanding the ability to cancel licenses requires and triggers a legal process. For example, licensees who lose their licenses due to a policy change may receive compensation.

CONDITIONING

Placing conditions on a license can reduce harm by providing a mechanism to minimize harm over and above the rules/regulations that apply to all licensees.

This may include reduced hours of operation, a requirement to use plastic cups instead of glasses, a ban on selling spirits, or for off-premises consumption and for restaurants, a requirement that a certain proportion of sales come from non-alcohol products. Conditions may be compelled during the application process or a violation review and can be triggered by a written protest or after an inspection report.

POLICY POINTER 1

Allow licensing authorities the power to grant, place conditions and withdraw licenses

How does licensing form a basis for other regulations?

Licensing, whether a liquor license or a general business license, brings the right to sell alcohol under the supervision of the authorities. In many countries, this is a necessary first step toward regulating the physical availability of alcohol. By providing the licensees' addresses and rules governing tax-related recordkeeping, licensing provides a basis for revenue collection. Systems that monitor alcohol outlet locations and document rules and regulations for licensees also contribute to designing regulations governing alcohol outlet density and locations, hours and days of the sale and facilitate checking the compliance regarding sales to minors and intoxicated persons.

However, if alcohol establishments are included in land use and zoning regulations, these regulations can also be used to regulate density and location in the absence of or as a complement to a licensing system. Land use and zoning regulations are tools that many jurisdictions use to govern all uses of the land under their control. They extend beyond alcohol to any business or other entity seeking to use land (e.g., residences). Because they govern all land uses, some jurisdictions have used

them as an additional, complementary, or substitute method of controlling alcohol availability. Land use and zoning regulations can then establish alcohol outlet density thresholds specific to each type of land use or zone. Land use and zoning records facilitate tracking alcohol establishments to collect revenues and enforce provisions. Land use and zoning decisions are made by entities that oversee all types of businesses; they generally do not have specific knowledge about alcohol or the prevention of harm related to alcohol consumption. Effective regulations governing land use and zoning require the oversight of an entity responsible for implementing and enforcing them.

Setting and enforcing alcohol outlet density thresholds requires knowing the exact location of the licensed establishments. This also applies to issuing differentiated permissions according to the type of retailer, for example, allowing nightclubs to stay open later and establishments with off-premises sales to end alcohol sales earlier.

Licensing allows governments to layer licenses for operations that carry higher risk—for example, granting an additional license to sell higher strength alcohol, to sell for off-premises consumption, or to deliver alcohol to consumers. Belgium requires outlets that sell alcohol above 22% by volume to obtain a special license for these sales. Layering licenses restrict the number of retailers engaging in higher-risk sales practices and enable monitoring them more closely.

Finally, the complementary relationship between alcohol retail licensing and other alcohol availability policies and practices does not end with licensing laws establishing a foundation for other policies and regulations. Additional policies and practices can enhance the effectiveness of alcohol retail licensing laws (Box 3).

Box 3. Turning short-term successes into sustained gains

Introducing one, or a combination, of several good practices to regulate the physical availability of alcohol is likely to result in short-term reductions in alcohol consumption and related harm if the policies and interventions are well-enforced. The following initiatives support turning short- into long-term gains:

- Introducing accurate, publicly available and well-publicized data systems that monitor de-identified address-level or block-level injuries on and around licensed premises. This may keep the public focused on the nature and magnitude of the problem, allow researchers to conduct more locally relevant research, permit stakeholders to prepare data for liquor license board hearings, and direct prevention efforts toward the 10% of venues that usually contribute over 50% of the problems. In addition, data on alcohol sales and consumption may allow stakeholders to present side-by-side comparisons of alcohol outlet density and total alcohol consumption to determine if existing restrictions affect trends in population-level alcohol use. Importantly, data should tell the most compelling story about the harm arising from alcohol establishments—some injuries near alcohol establishments (e.g., violence).
- Creating a credible deterrence policy comprising regulations that include severe warnings, fines and license suspensions/cancellations. These sanctions must be backed by accurate monitoring and enforcement.
- Establishing obligations, incentives and opportunities for licensees and staff to participate in violence and risk prevention programmes designed to minimize injuries and amenity harms in and around licensed establishments.
- Providing well-publicized opportunities for local communities to provide input into licensing laws, regulations, and protests against liquor licenses.
- Increasing controls on the physical availability of alcohol, including managing outlet density, setting minimum distances between establishments, restricting distances between establishments and sensitive locations, and restricting late-night trading hours.

For long-term gains, it is crucial to invest in data systems and human resources, ensure enforcement and involve residents – not solely community leaders. Maximizing community participation may entail talking to residents from different neighbourhoods to know how they would like to be informed, and using various strategies to publicize meetings.

Source: Adapted from *(151)*

What do enforcement measures entail?

Enforcement measures should be embedded in the design of licensing systems. The options for designing enforcement measures are specific to each institutional setting, legislative framework and local capacity.

Some entry points for designing enforcement measures of a licensing system include, for example, the power delegated to the licensing authority. A licensing authority with well-defined power to grant or decline an application and to renew or revoke a license based on established criteria is an effective deterrent to noncompliance.

Enforcement possibilities increase by granting licenses for fixed terms, which then lapse unless renewed. The renewal application provides an opportunity to assess the operation of the alcohol establishments and the license holder's record regarding infringements, complaints from neighbours, adherence to hours and days of sales, selling to under-age and intoxicated persons, selling of licit alcoholic beverages and compliance with safety, sanitary and health standards.

A set of offences could be the starting for implementing enforcement measures. Offences to be monitored include selling alcohol to minors, supplying alcohol to minors by adults, selling alcohol outside allowed hours or days, serving alcohol to intoxicated patrons, and lack of evidence that alcohol excise taxes were paid. The offence can target the license holders and their staff.

Enforcement may be implemented by the licensing authority, the courts or both. Licensing decisions should not require or be based on prosecution, but prosecutions may lead to loss of licence. Enforcement officers (inspectors and police) may be granted to suspend or revoke licenses and close premises temporarily in case of riot or public disorder. Community members and their coalitions may have a role in detecting infringements ■

RESTRICTING ALCOHOL ESTABLISHMENT DENSITY

Policy-makers can reduce exposure to alcohol's effects and harm by capping the density or concentration of alcohol establishments.

Why set a threshold for alcohol establishment density?

The primary reason for establishing a threshold for alcohol outlet density is to limit the burden of the harm caused by alcohol consumption or the alcohol establishments themselves. Lowering the number of alcohol establishments per geographic area or population (density) makes obtaining alcohol less convenient because, on average, customers need to travel further to buy alcohol. In addition, reducing alcohol outlet density can prevent harm by adding distance between the places that attract drinkers during late-night hours. Even small reductions in alcohol outlet density can result in a drop in overall alcohol consumption, related diseases and injuries *(37)*.

Limiting alcohol outlet density can also advance equity. The fact that alcohol establishments are often more concentrated in deprived communities explains disparities in life expectancy *(152)*, pedestrian injury *(153)*, risk of interpersonal violence *(101, 107, 108, 154, 155)* and suicide *(156)* that these communities face. Thus, reducing alcohol outlet density in deprived areas can help distribute alcohol establishments and harms more equitably throughout a city, province, or country.

What types of thresholds to set for alcohol outlet density?

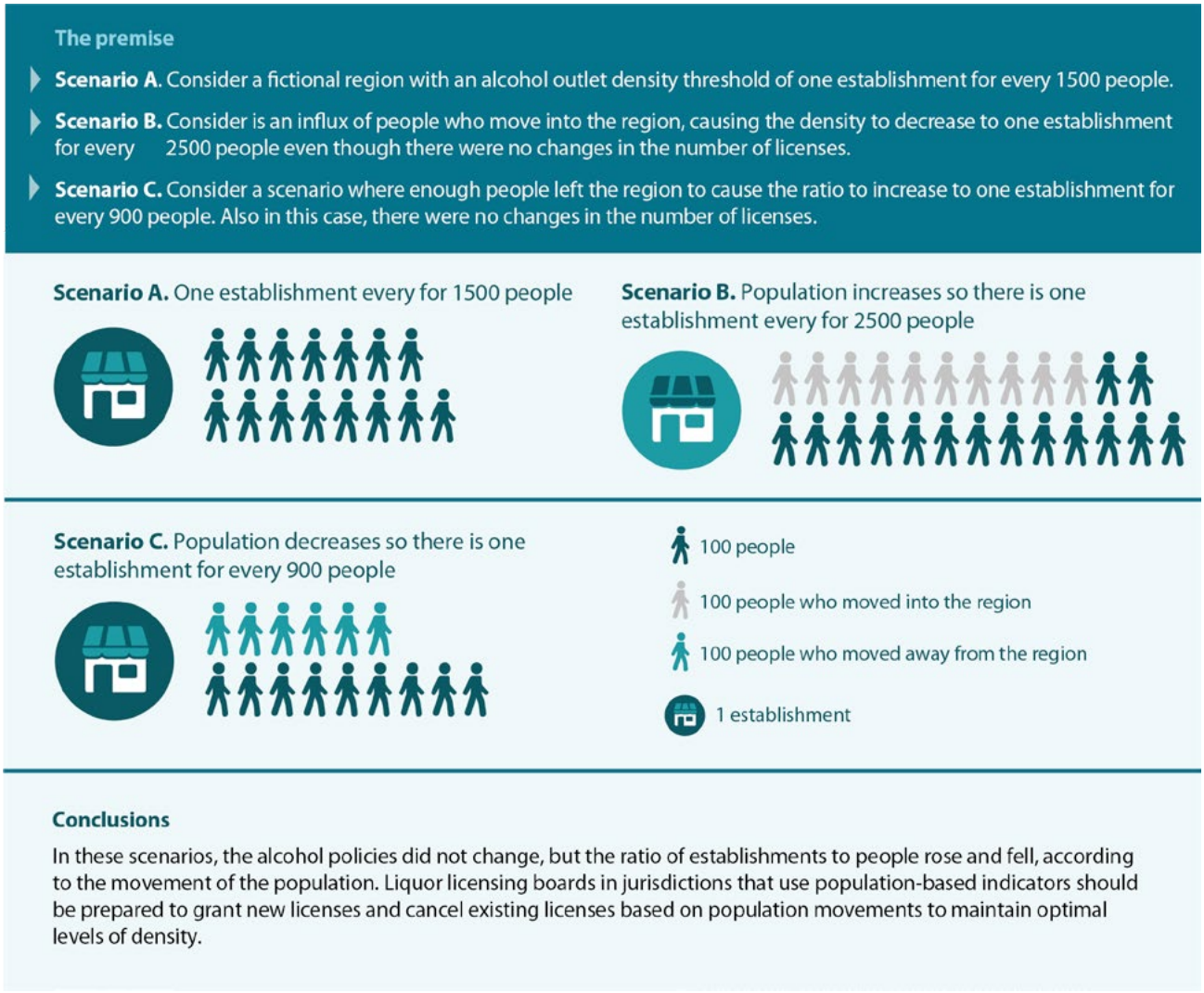
There are several formulae for establishing a threshold on the density of alcohol outlets. The indicators used to set the threshold can include alcohol establishments per population or per land area, and countries may set variable alcohol outlet density thresholds per population or land area based on existing and surrounding land uses and zoning. For example, the acceptability of densities may differ for urban versus rural areas or commercial versus residential zones.

Fig. 7 Types of alcohol outlet density indicators

POLICY POINTER 2

Define alcohol establishment density thresholds based on land use or zoning per land area

Fig. 8 Implications of population changes in the estimation of alcohol outlet density



Alcohol establishments per population

The most common alcohol outlet density indicator is the number of alcohol outlets per population (Fig. 7). This indicator can be measured with easy-to-understand ratios, for example, one establishment for every 1000 people. However, populations can change relatively quickly over time, making it appear that alcohol outlet density is increasing or decreasing even when the number of establishments remains constant (Fig. 8). Thus, indicators that use a rate of the number of alcohol establishments per population are tied to population fluctuations. In such cases, authorities need to determine whether to grant or cancel licenses after population changes to maintain the desired ratios.

Alcohol establishments per land area

It is possible to relate alcohol establishments to the land on which they are located to avoid the challenge of population fluctuations. Land areas stay constant over time, providing a more stable basis for indicators of alcohol outlet density. After legalizing beer in 1993, Iceland counted one government-run store every 45.5 square kilometres in Reykjavik and one store every 9417.4 square kilometres in the remainder of the country (equivalent to 200 times lower density) *(63)*. Nevertheless, compared to the population, the densities were similar: 1 store every 14 500 people in the capital city and 1 per every 17 500 people in the countryside. Outside Reykjavik, customers had to travel substantially longer distances to buy alcohol. However, setting an indicator of alcohol establishments per land area has limitations. This indicator assumes one threshold can be suitable for all settings. This metric is also insensitive to the population size exposed to the establishments, with 1 square kilometre in a rural setting being considered equal to 1 square kilometre in an urban or peri-urban setting.

Alcohol establishments per land area or population according to land uses and zoning

Specifying thresholds for alcohol outlet density

based on specific land uses or zoning is also possible. This approach overcomes the limitation of a "one-size-fits-all" threshold across areas with different land use and zoning. Alcohol establishments tend to concentrate in commercial/retail zones and urban areas *(157)*. Alcohol establishments may be forbidden in some zones, such as residential districts, industrial zones or protected areas. Averaging across areas with and without alcohol establishments can result in overexposure in the locations in which alcohol establishments are allowed. Research has shown that tobacco outlet density policies designed to improve equity can fall short of their intended goals if they fail to account for zoning *(158)*. In addition, the effects of alcohol outlet density depend on the context: the same density of alcohol establishments may be associated with harm in one location, but this association may fade in another place *(159)*. Establishing thresholds specific to the local context, such as land use or zoning, may allow policymakers to define limits that reduce harm across the board.

How to determine thresholds by type of alcohol establishment and associated harm?

More restrictive density thresholds could be set for the type of alcohol establishments associated with higher harm in a country. For example, countries concerned about violent crime may establish more restrictive density thresholds for bars and nightclubs than for restaurants or off-premise establishments. Conversely, countries that wish to reduce per capita consumption may establish more restrictive alcohol outlet density for off-premise establishments than on-premise establishments. The harm incurred after outlet density increases depends on the local context, for example, other alcohol control policies, consumption per capita and income. There is a need to periodically conduct a health impact analysis on alcohol environments to understand the interplay between these and other factors ■

RESTRICTING ALCOHOL ESTABLISHMENT LOCATIONS

Measures relating to the location of alcohol establishments aim to prevent the retail of alcohol in certain settings. Such efforts include establishing minimum distances between alcohol establishments and sensitive locations and preventing the licensing of specific types of businesses, for example, grocery stores or petrol stations.

How to set minimum distances between alcohol establishments and sensitive locations?

Standards establishing minimum distances between alcohol outlets and other locations may promote health and equity. Measures relating to location establish targets to protect people who visit potentially sensitive locations, such as educational facilities, places of worship and alcohol treatment facilities, and/or population groups who may be at the highest risk of experiencing harm, such as young people and/or people with alcohol use disorders. For example, increasing the distance between alcohol establishments and youth-oriented settings aims to prevent young people from entering establishments or seeing alcohol advertisements or empty alcohol bottles outside. Increasing the distance between settings where people with alcohol use disorders frequent may support their recovery because people with an alcohol use disorder report higher cravings in areas with more alcohol establishments *(160)*. In addition, these measures may also promote safety and limit nuisances and disruption that may interfere with the core activities associated with specific settings, such as houses of worship. Setting minimum distances can promote equity by allowing populations that may be sensitive to alcohol establishments more space to carry out daily activities at lower exposure and risk of potential harm.

POLICY POINTER 3

Establish minimum distance from alcohol establishments and sensitive settings

The appropriate distance for a given jurisdiction between an alcohol establishment and a location of sensitive use depends on the local context – for example, urbanicity and land use or zoning regulations. The distance should be sufficient to keep people sensitive to harm from interacting with alcohol establishments.

Typical distances include 100, 300 and 400 metres *(161-164)*. In the larger cities of Panama, distances extend to 500 metres *(165)*. In some countries, distances are determined according to the type of alcohol establishment – for example, shorter distances for restaurants than bars or pubs *(161)*.

How to prevent the licensing of specific types of businesses?

It is essential to limit the availability of alcohol to businesses such as bars, restaurants and off-premise outlets dedicated to alcohol sales. There is likely to be continuous pressure from economic operators, both in and outside the alcohol industry, to expand alcohol sales and service to other venues, such as grocery stores, petrol stations, cinemas, barber shops and hair salons. This broadening of availability can undercut efforts to control alcohol outlet density and general accessibility to alcohol. Neighbourhood, public health, and commercial interests will likely seek to influence policy-maker actions.

Limiting the types of businesses eligible to obtain a liquor license must be done while respecting trade obligations. For example, in the European Union, laws and regulations that prevent specific businesses from obtaining a liquor license can be deemed contrary to the free movement of goods or establishments' freedom to provide services. Governments must be aware of the World Trade Organization and regional obligations when establishing these measures and ensure that health and safety expertise is well-represented when negotiating trade agreements *(166)* ■

DRIVING POLICY CHANGES

Developing, implementing and enforcing measures that relate to the licensing, density and location of alcohol establishments requires collaboration across sectors such as government, civil society and academia. These sectors possess complementary expertise and skills to develop equitable alcohol licensing and density policies that promote public health.

A public health perspective prioritizes community health and safety. However, alcohol establishments generate significant revenue streams, mainly for the industry and licensing authorities. Tensions may arise between public health and business when evidence-based public health policies and practices result in financial losses for business owners. Policy-makers who design options for reducing the physical availability of alcohol must balance the interests of diverse stakeholders. The policy development process is more equitable if authorities solicit community input and limit the influence of commercial interests on public health policies.

Relevant stakeholders in regulating alcohol establishments

This section explores the interest and role of the relevant stakeholders in regulating alcohol establishments.

Government officials, such as those in ministries of health or finance, often have contextual knowledge for designing and enacting promotive and preventive health policies. Government officials often have expertise in public health surveillance and evaluation methods. Decision-makers often require locally-specific data to demonstrate the need for policy change *(167)*. Therefore, authorities need this kind of surveillance expertise to support data collection and analysis of the problems associated with alcohol establishments. Governmental officials may be able to help meet this need. In addition, government officials often work on several public health problems, and they may be able to apply strategies developed and lessons learned from working with similar issues, such as tobacco use and injury prevention, when addressing issues related to alcohol establishments *(168)*.

Inter-sectoral collaborations are vital for developing, implementing and enforcing policy changes that are comprehensive and equitable. Involving different sectors during the policy development process can provide insight into how other stakeholders view a policy, offer the skills needed to progress the policy, and show policy-makers the bill has a breadth of interest. Government officials often have an existing relationship with other sectors, such as other governmental departments, civil society, and researchers, that may support developing inter-sectoral collaborations.

The role of **civil society** is critical for policy advocacy and implementation, particularly at the subnational levels. Civil society includes any non-profit organization unaffiliated with the government, such as issue-based, community-based or faith-based.

Some civil society organizations support individuals at risk of substance use disorders, while others generally strive for population-wide reductions in the consumption of alcohol. Many of these organizations help engage and amplify the voices of community members most affected to establish their involvement in key decision-making processes and ensure that proposed policies do not further existing injustices. Those "most affected" are defined as "people who use drugs,…formally incarcerated drug offenders, indigenous peoples, and other communities such as affected women, children and youth" *(169)*; however, this definition should extend to incorporate people at risk of, or suffering from, the harm caused by alcohol consumption and alcohol establishments.

Some considerations often help position civil society organization insights during policy development. Engaging civil society organizations in the policy process requires identifying the point in the policy development process at which engagement is most suitable to the organizations' expertise and interests as well as the appropriate level and type of participation. Other considerations include whether the representatives are experts on the subject matter, could act as conduits for community conversations, or in some other way, they are moral authorities or opinion leaders.

The role of **academia** is to provide expertise in data collection, analysis and synthesis as well as technical skills – for example, methods of geospatial measurement that may inform and undergird data in supporting or opposing a policy. Academics' expertise can benefit policy-makers in understanding complex technical details. Collaborations with academia may also strengthen the evidence base, especially in low- and middle-income countries where research on alcohol establishments is scarce.

Effective community engagement in the licensing process

Community members are usually among the first people to be negatively affected by harm from alcohol establishments. The involvement and experiences of communities help ensure that policies are more equitable, address the underlying causes, and advance the overall health of the population *(170)*. In addition, community members validate whether or not policies are appropriate for the local context, thereby enhancing their effectiveness *(171)*.

The first steps to engagement include listening to the community and identifying clearly where their interest lies. Without this step, community engagement will be difficult to secure. The next step entails identifying where a particular individual or group could logically and effectively intervene. There are many ways to involve community members and encourage their engagement in alcohol availability policy processes (Box 4). For example, options include contributing to the planning and development phase, participating in community consultations, being part of ongoing policy revisions, submitting objections to specific licensing decisions, and organizing protests during the license renewal process. These determinations should build on the expertise and interests of the engaged community members and provide growth opportunities in terms of skills and engagement in decision-making processes for the community. Tokenistic involvement of community members *(172)* makes them vulnerable to becoming disheartened and disappointed with their participation in the policy development process. The policy development process will benefit most from community engagement construed broadly and with the inclusion of people from different areas and sectors who may have unique insights, experiences and talents to contribute.

Box 4. How can communities be involved?

- Implement a broad definition of community and engage community members – not just community leaders.
- Identify opportunities that will empower communities and enhance their knowledge and skills.
- Add community consultations to the policy development process.
- Monitor applications for general business licenses, land use and zoning certificates, as well as alcohol retail licenses to identify when to begin planning to oppose new licenses.
- Implement shorter (e.g., every 1 or 2 years) alcohol retail license renewal periods to provide more opportunities for community input, including protests of nuisance establishments.
- Limit or exclude economic operators and other conflicted parties from serving on liquor licensing boards.
- Document how the liquor licensing board will balance public, health, and industry interests.
- Broaden and publicize the grounds under which communities may object to nuisance outlets.

Opportunities for engaging communities

When communities have been identified and engaged, intervention opportunities emerge.

The **first opportunity** is to engage community members during the planning or development phase for a new law. This tactic may possibly have a significant impact, but it will require being strategic about how to overcome challenges. Community engagement generally requires relationship-building and a willingness to listen, address community members where they are, and work with them to come to a common vision of what needs to happen. This often requires timelines that are longer than what funders or government partners desire. However, moving forward without substantial community relationships and buy-in imperils success in both the short- and long-term because there are myriad ways people "on the ground" can delay progress.

A **second opportunity** is often formal community consultations, structured opportunities for communities

to provide a public opinion about a law being developed or revised or specific alcohol retail licenses. Governments often publish an online form or another avenue for community members to provide when developing or revising a law. During the licensing process, some countries require public posting of applications for a set amount of time, providing an opportunity for local feedback. During the licensing process, a civil society organization may convene the consultation, or it may be mandated and organized by the government as a required step in the alcohol license application process, such as in the New South Wales and Queensland jurisdictions in Australia *(173)*.

The **third opportunity** is to engage community members in opposing new licenses in over-saturated communities and in protesting the renewal of licenses that are nuisances. Before applying for a liquor license, many countries require an application for a general business license. Some countries require a certificate demonstrating the location of the proposed establishment conforms with local zoning and land use regulations. These systems provide the opportunity to identify upcoming alcohol retail license applications and begin organizing a community-based response. This response could include engaging with decision makers (i.e., general business license, land use, zoning and liquor licensing authorities) before filing the actual alcohol license application. If the alcohol retail licensing law allows law enforcement or the ministry of health to oppose new licenses, these preparations could also include consulting with those agencies. Lastly, community members may assist with and inform data collection to demonstrate the magnitude of harms (e.g., violence, traffic crashes, sexual assaults) near a proposed alcohol establishment.

> ***Including the experiential knowledge of those affected helps to ensure that policies solve the underlying problem and do not exacerbate harm from alcohol***

A **fourth opportunity** may take place after a license is established, as communities may have a chance to intervene in the renewal process. If license renewals are infrequent (e.g., every 3-10 years), community members will have fewer opportunities to share their experiences with nuisance establishments. Overly centralized or exceedingly complex licensing structures will also discourage community input. A solution for this is to provide non-technical guides to the process for awarding, renewing, opposing, and cancelling alcohol licenses that promote understanding by the lay public.

How can a public health perspective be prioritized?

Public health's population-level approach to problems is sometimes viewed as incompatible with decisions made on a case-by-case basis about individual establishments responding to specific situations *(174)*. However, in the long term, it is far more efficient to put policies in place that set safe and sensible standards for alcohol environments than to try to improve those environments one at a time.

The lack of references to public health objectives in the alcohol retail licensing laws and regulations limits the grounds for the public to challenge nuisance alcohol establishments *(167)*. This is because public protests often must link the complaint to an objective in the liquor licensing law or regulations to be successful. Relatedly, broadening and publicizing the grounds on which communities may object to nuisance alcohol establishments offers communities an opportunity to craft their objections.

Systematic preferences for industry interests over the public pose further barriers to addressing nuisance establishments. Responses to these barriers include limiting or restricting people with financial associations with the alcohol industry from serving on the liquor licensing boards and increasing transparency by documenting how the licensing authorities balance the interests of public health against those of the industry.

Exceedingly complex licensing procedures may discourage community involvement. Policies, regulations and procedures are often highly technical and challenging. One potential solution is the provision of non-technical guidance that uses lay language to describe the general processes for awarding, renewing, and cancelling liquor licenses as well as when and how communities can protest specific alcohol establishments.

Licensing procedures that are excessively complex may become "captive regulatory agencies" wherein only stakeholders who can afford specialized lawyers can effectively participate (170). The ability of the alcohol industry to pay for lawyers who manipulate and litigate licensing issues to their advantage and the paucity of such legal assistance to argue for public health and communities is a critical barrier to the effective implementation of licensing policies by public health advocates and community members *(175)*.

Meetings to discuss licensing matters scheduled during standard working hours may deter participation from diverse stakeholders (e.g., community members, civil society, academics) while facilitating the participation of professionals employed by the alcohol industry.

POLICY POINTER 3

Establish alcohol retail licensing processes that balance ease of application with the needs of community members, civil society, enforcement officers, industry, policy-makers and researchers

Resources available to the alcohol industry and supporting their interests often dwarf those of public health and communities. The alcohol industry's strategy of influencing decision-making by focusing on commercial interests and away from public health is well-documented (Box 5) *(176-178)*. These efforts predictably and purposefully shift focus towards commercial interests and away from public health *(178)*. Such actions create an inherent conflict of interest, as the most effective policies for reducing harm generally operate through influencing the production, sales and overall physical availability of alcohol *(179)*.

Box 5. Industry interference and location of alcohol establishments, Costa Rica

In Costa Rica, the Legislative Assembly amended the law on the marketing of alcoholic beverages that would prohibit mini-marts from opening in residential zones or within 100 metres of sports facilities, educational centres, children's nutrition centres, houses of worship, service centres for older adults, or health-care facilities. The amendment introduced new restrictions, including that the marketing of alcohol could not contain brand or beverage names. The amendment had the backing of, among other organizations, the Special Permanent Commission of Childhood, Youth and Adolescence; the Institute on Alcoholism and Drug Dependence; the National Children's Trust; the Union of Local Governments; the Ministry of Public Security, and several political parties. However, the alcohol industry and mini-mart owners swiftly spread misinformation about the potential consequences, arguing that the amendment would substantially damage small mini-mart businesses and encourage illicit sales and consumption. Within eight days, the industry's lobbying resulted in all but one deputy changing their votes or being replaced by someone whose views were more sympathetic towards the alcohol industry.

Sources: *(169, 170)*

A content analysis of documents from hearings and articles in media regarding on-premise trading hours and violence found several common strategies, including attacking the science as methodologically flawed, weak and conflicting; challenging the scientists' integrity; commissioning competing and opposing reports, and framing the issue in the media to sway public opinions in their favour *(179)*. However, the industry's arguments are often predictable *(180)* and preparing responses in advance is possible. Table 1 summarizes common industry arguments and potential counter-arguments that use a public health frame. Transparency around the financing of research, politics and policy campaigns by the alcohol industry can also aid in putting those activities into context *(181)*. Finally, media advocacy offers community and public health voices access to the general public and policy-makers, which may help to counter communications from the alcohol industry *(182)*.

POLICY POINTER 3

Limit consultation with the alcohol industry to discuss how they can assist with reducing and preventing alcohol consumption

Using data to inform policies to reduce alcohol physical availability

How data can drive policy changes

Driving changes to reduce the physical availability of alcohol requires understanding the local policy-making process and knowing how to frame the strongest arguments. Scientific evidence is often necessary for these efforts, although seldom sufficient.

Alcohol consumption contributes to a broader array of harm across varied sectors. This diffusion makes it difficult for any stakeholder group to regularly witness and document harm related to alcohol consumption. Data systems can be designed to provide a more comprehensive picture, ensuring that alcohol-related harm is routinely documented and more visible. For example, the link between alcohol and violence is often undocumented and unrecognized even though there is firm evidence about the role of alcohol in these harms *(183-185)*. Rather than blaming the violence on neighbourhoods or populations, recognizing the role played by alcohol in violent events and introducing the relevant data into the policy-making process can promote a more comprehensive and practical approach to addressing the underlying issue. Advocates of policy change can create a complete picture of the harmful effects of alcohol consumption and alcohol establishments by drawing on multiple sources.

Table 1. Industry arguments and pro-health responses

Argument	Response
It is unfair to say that some existing alcohol establishments have to close.	It is unfair that communities should bear the burden of harm from businesses with no likelihood of change; this policy is pro-community. Communities purchase a variety of commodities; outlets would not necessarily have to close, but they would need to base their business on sales from commodities other than alcohol.
Let the market handle restrictions on alcohol establishments (supply and demand).	The "market" has never been able to incorporate the real costs of alcohol consumption into the price of alcohol. The social, medical, and criminal justice costs related to alcohol consumption are known by economists as "externalities." Alcohol sales are a classic example of market failure because prices do not account for externalities. Instead, these costs are incurred by private citizens, communities, and the government, and restricting alcohol availability is one effective way to minimize their burden.
How do you know the harms really manifest from the establishments? It could be that the establishments are located in bad neighbourhoods?	Studies have compared neighbourhoods with similar levels of disadvantage with and without alcohol establishments. The neighbourhoods with more outlets consistently record more crime and violence; this indicates that the additional harms originate from the establishments and not from the neighbourhood.
The findings of public health research show correlation but not causation – this threat remains a theoretical rather than a practical possibility.	Alcohol-related harms – e.g. homicide, suicide, domestic violence, drink–driving – are far from theoretical; they are practical tragedies in the daily lives of some communities. Note: Local data on harms associated with alcohol establishments provide the most powerful response to this argument – specific local harm are the most difficult to refute.
If the relationship between establishments and harm is genuinely linear, then the logical solution would be to ban alcohol sales. Public health research provides no threshold below which the number of establishments could be "safe" and ignores that alcohol establishments are simply meeting consumer demand, which means they provide a public good.	The onus should be on the industry to demonstrate, with reasonable predictive certainty, that a proposed new establishment will be safe and not exacerbate existing harm or that the current number of establishments is safe. There is evidence that reducing the number of establishments, or the hours or days when alcohol is sold, leads to less alcohol consumption, crime and violence.
Public health research on alcohol establishments is not valid because it treats all establishments as being the same when they can vary greatly There is a risk of the entire industry being blamed because of a few "bad apples."	Again, the industry needs to demonstrate that the addition of another establishment will not make a bad situation worse. Similarly, if the industry were effective in policing its own members, there would be no "bad apples." Local regulation of alcohol establishments is necessary for keeping communities safe. Charging the industry with presenting predictive science to substantiate its claims is a better strategy than trying to defend the predictive capacity of public health science.
Any risk that alcohol establishments pose is already mitigated by the fact that i) they are heavily and continuously regulated; and ii) establishments often take steps, such as setting up neighbourhood committees, that go beyond regulatory requirements and act as a gesture of their good will and social responsibility.	Again, if what the industry is doing were effective, we would not be having a debate over the harmful effects of an overabundance of alcohol, and alcohol establishments, on communities. The strongest response is to refute specific steps taken as not evidence-based, and to show the high rates of harm occurring despite mitigating steps that have been taken.
Violence is a complex problem. Blaming violence on alcohol establishments is too simple an approach for a complex, multifactorial problem.	Yes, violence is a complex problem, and yet the evidence is clear that too many alcohol establishments in a community contributes to the problem. The alcohol industry needs to do its part to help keep communities safe – it cannot keep pointing the finger of blame elsewhere. Furthermore, there is no research evidence supporting some of the strategies promoted by the industry, such as placing dogs at the entrances of bars or serving free coffee before closing time.
The problem is not alcohol consumed in licensed premises, it is drugs or alcohol consumed at home before people come to a licensed premise. Licensed establishments cannot be held responsible for what people do before they come to the premises.	The research evidence is clear: the more available alcohol is, the more people will drink. If people have already consumed alcohol or drugs at home, there is more reason to try to limit what they consume at a licensed premises, such as by reducing late-night trading hours.
Police and public health researchers are manipulating the data to support their opinions and point of view.	Public health research undergoes a rigorous process of peer review prior to publication; moreover, studies linking outlets and violence have been replicated in a variety of countries and contexts. Regarding police manipulation, it is important to have local stories and examples of harms to augment what police are reporting and counter anecdotal evidence offered by industry spokespeople.
Alcohol consumption is a personal responsibility – not a government responsibility.	Personal behaviour is shaped by environments. It is hard for some people to limit their alcohol consumption when there are alcohol establishments on every street corner.
Education is the solution.	Education, while necessary, does not have lasting effects, as has been documented in multiple research reviews. Education is not appropriate as a standalone solution.

Common data types include records from police calls for service, incident, and arrest data, hospital admissions, emergency department and traffic crashes (Box 6). These data may be readily available through online databases, collaborations with health information systems, or a data request process. However, it is more likely that these partnerships may need to be created or strengthened to access some data types. More commonly available data include vital statistics and survey data, which may be collected at a national and local level. Qualitative data, such as photovoice *(186-188)*, can be a decisive contribution to providing a complete narrative of alcohol establishments in a neighbourhood.

Box 6. Data used in alcohol availability control policies and licensing protest hearings

- Liquor licensing registry data, including violation histories for specific alcohol establishments.
- Police records, including calls for service, crime incidents, and criminal arrests.
- Emergency department/medical records.
- Emergency medical transport/ambulance records.
- Traffic crash data, particularly records that contain blood alcohol concentration information for drivers.
- Alcohol consumption surveys.
- Surveys on alcohol-related harms to others, such as amenity harms.

A regular review of the performance of existing licensees in relation to safety and public health goals may provide valuable data and opportunities to use those data for informing policies moving forward.

Data needs and stakeholders concerned

Alcohol licensing data are designed to meet the needs of those directly involved in the licensing process, such as liquor licensing boards and enforcement officers. However, mandating data collection and dissemination provides the opportunity to ensure that other stakeholders have the data to carry out their activities related to alcohol establishments. Stakeholder groups include community members, industry, policy-makers and researchers (Table 2). Some countries publish their alcohol retail license registries online in easy-to-search formats.

Table 2. Data needs by stakeholders

Stakeholder	Primary concern	Data needs					
		Address	Type of license	Sales	Size of premises	Open/closed	Violation history
Community members	Identify establishments that violate rules or pose an undue burden on communities; conduct health impact assessment, and protest licenses	✓	✓	✓	—	✓	✓
Industry	Ensure the future economic viability of the alcohol industry	✓	✓	✓	✓	✓	✓
Policy-makers	Understand current status and evaluate past policy decisions	✓	✓	✓	—	✓	✓
Researchers	Investigate public health, safety, and economic consequences of alcohol establishment	✓	✓	✓	✓	✓	✓

Community. Community members can help balance commercial and citizens' interests. When licensing data structures consider communities' needs, it assists and empowers those communities to protest effectively against licensing too many alcohol establishments in their neighbourhood or against retailers who do not follow the rules. There is a long history of community members organizing and using licensing lists to conduct observations of alcohol establishments, such as bars and pubs, to document business practices and signs of neighbourhood harm (for example, trash, loitering, or public intoxication) *(189)*. Communities can be instrumental in leading assessments that gather qualitative and quantitative information about the impact of alcohol establishments on public health and safety when they have the required data. Therefore, community members need to access a list of alcohol establishment addresses and information on whether each establishment is closed or open, their annual sales, and their violation history. Detailed licensing categories (e.g. by business type rather than an all-inclusive category) can help a community document and present more nuanced analyses or observations of a specific class of alcohol establishments, such as bars, nightclubs or bottle shops.

Policy-makers. Policy-makers represent diverse interests in the politics that surround alcohol licensing decisions. For example, policy-makers may wish to know the impact of a previously enacted regulation and data on licensing can provide insight into this. Early alcohol availability policy evaluations examined the combined effect of on- and off-premise alcohol outlet density and often failed to detect associations, likely because different alcohol establishments have different associations with alcohol consumption and harm *(107, 154, 159, 190-192)*. At a minimum, aligning licensing categories with business categories and on- and off-premise sales permissions provide the foundation for the alcohol availability policy evaluations that may interest policy-makers.

Policy-makers may also need to assess the balance between supply and demand, which requires knowing how many alcohol establishments exist. These analyses may wish to consider establishments' customer base because some establishments have limited customer bases, for example, airports and private clubs, while others are accessible to everyone.

Industry. Economic operators require much the same information as community members, but for different reasons. Data on alcohol licenses provide insight into the overall competitive environment for new and existing businesses.

Academia. Researchers contribute to updating and expanding the evidence base on alcohol establishments and alcohol availability policy decisions relating to public health, safety, equity and economic consequences. They may examine the associations between alcohol outlet density or alcohol establishment locations and population demographics or harm. The interests of academia may be broader than policy-makers. However, their ability to obtain valid results also hinges on their ability to obtain detailed data that differentiate subtypes of alcohol establishments. Researchers interested in violent crime may wish to know about the ability of each establishment to attract customers, and this often requires obtaining a licensing structure with disaggregated categories and detailed supplemental data on each alcohol establishment, such as outlet sizes (e.g., square meterage of the sales floor) or sales volumes for on-premise, off-premise and to-go/delivery sales *(193, 194)*.

Innovating to overcome data limitations

Researchers have developed novel methods to document the locations and features of alcohol establishments when a central licensing repository is unavailable, unreliable, or lacks essential information. This section reviews common methods for identifying alcohol establishment locations, including the resources and technical expertise required.

In Oshikango, Namibia, a research team used ethnographic observations to record the proximity of *shebeens* or *cuca* shops (i.e., unlicensed alcohol establishments) and bars to main roads, schools, places of worship, and residential zones *(195)*. During fieldwork, rather than interacting with people in and around alcohol establishments, researchers studied the locations of places of interest and how people moved through them. In this rural area of northern Namibia, the proximity between *shebeens* and *cuca* shops was, on average, 30 metres suggesting that clusters had begun to form *(195)*. Their proximity to the nearest school or place of worship was 500 metres on average *(195)*. The research team collected data over five days; however, this descriptive method did not capture the precise number of *shebeens*, *cuca* shops and bars in the area *(195)*.

In Western Cape in South Africa, handheld global positioning system (GPS) devices were used to document and analyse the location and density of unlicensed alcohol establishments in two separate areas because there was no registry of unlicensed alcohol establishments. In Bergrivier municipality, fieldworkers collaborated with a trained community organizer and local police to identify *shebeens* and licensed alcohol establishments *(196)*. In Khayelitsha township, the research team questioned residents about the alcohol establishment locations and looked for evidence of alcohol sales – for example, bulk trash, empty beer boxes and bottle caps. In both studies, the GPS device captured additional characteristics of the establishments. The GPS device then converted the field

data into a dataset containing the latitude and longitude of each establishment. Researchers could then compare the number and locations of shebeens vs licensed alcohol establishments. In Bergrivier municipality, *shebeens* tended to be located in areas with higher levels of deprivation, whereas licensed establishments were found more often in those more resourced *(196)*.

Similarly, in Khayelitsha, *shebeens* tended to be in areas with the highest levels of deprivation. While this method produced precise data, it required an investment in the data collection time. However, this method required one month of data collection in Beirut, Lebanon *(197)*.

Data collectors who cannot travel to the study site may use the low-cost alternative: Google Street View (GSV). Using GSV technology, it is possible to virtually "drive" through a community, visit establishments, and capture pictures at 360° utilising the system's powerful zoom tool. Downloading GSV images facilitates quality control checks, and there are no travel costs and safety concerns when using this technology. Nevertheless, the technology has limitations. Image quality is higher in urban areas than in rural areas. In addition, roads are only captured in GSV if they are usable by Google vehicles, and alcohol establishments may be located along footpaths. Although the image quality has been upgraded in recent years, the earlier low-resolution images may render conducting historical observations and comparisons infeasible. GSV has been used by researchers in New Zealand *(198)* and the USA *(153)* to conduct observational assessments of alcohol establishments. In Uganda, GSV has been used to capture data about alcohol advertising *(199)*. Finally, the technology has been used in other studies to validate the scale of physical disorder, with Spain *(200)* and the USA *(201)* concluding that it is a valid means of data collection ■

TAKEAWAY MESSAGES

1. Alcohol is not an ordinary commodity. It is an intoxicant, toxin and carcinogen. Alcohol consumers from a family, community or country with fewer available resources may experience more harm per litre of alcohol than drinkers from more well-resourced settings. One reason for this paradox is that deprived communities tend to have disproportionately higher exposures to alcohol establishments than more affluent areas.

2. How easy or hard it is to buy alcohol is one key determinant of the amount and frequency of alcohol consumption. Communities with more alcohol establishments tend to have higher rates of alcohol consumption, violent crime, sexually transmitted infections, suicides, alcohol-related hospitalizations and deaths and traffic crashes.

3. Establishments that sell alcohol on-premise (e.g. bars, nightclubs, and cantinas) have different risk profiles than those that sell alcohol for consumption off-premises (e.g. bottle shops and grocery stores). As a result, these two types of alcohol establishments are associated with distinct types of harm.

4. Places with higher densities of on-premise establishments tend to be more associated with acute harm. Places with higher off-premise outlet density tend to have higher consumption rates, particularly establishments such as grocery stores, pharmacies, and mini-marts, where customers can "bundle" alcohol with other purchases.

5. The delivery of alcohol at home influences the relationship between alcohol establishments and the site where the harm caused by alcohol consumption occurs. Consumers who have alcohol delivered at home no longer interact with others in on-premise establishments, thereby decreasing the harm near the point of sale. Nonetheless, harm will still occur near the point of consumption, which may be further away from alcohol establishments. The harm that often occurs in private locations, such as intrafamily violence, may increase. The consequences of the delivery of alcoholic beverages at home require further research.

6. Licensing systems bring the right to sell alcohol under the supervision of the authorities. In addition, licensing systems facilitate the design, implementation and enforcing of regulations governing alcohol establishment density and locations, hours and days of the sale, and enable checking the compliance regarding sales to minors and intoxicated persons.

7. Limiting alcohol establishment density is an effective, evidence-based means of reducing the harm associated with alcohol consumption and has the potential to advance equity and public health agendas.

8. It is best practice to engage communities in the licensing processes. Community members often have unique insights and experiences into how alcohol establishments affect their surroundings because they are often among the first to experience harm.

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In off-premise establishments that sell other goods along with alcohol, customers are more likely to "bundle" the purchase of alcohol with their other shopping. The consumption-related harm associated with off-premise establishments tend to cover a large area, while acute harm occurs close to places where people drink alcohol. People consume alcohol alongside others on-site at on-premise outlets. Bringing consumers together is one reason for a strong association between violence and the density of bars and nightclubs. Harm from alcohol tends to occur near the point of consumption, but alcohol delivery services shift the point of consumption from on-premise establishments to private settings. This change may also alter the types of harm that manifest because consumers no longer interact with each other in alcohol establishments, thereby decreasing the occurrence of harm from bringing people together but likely increasing private harm, such as intrafamily violence. Policy options to govern alcohol establishments include addressing their practice, density and placement. In designing, implementing and enforcing policy options to restrict the physical availability of alcohol, policy-makers must balance the competing interests of diverse stakeholders. However, engaging communities are more likely to be more equitable.

Less Alcohol Unit
Department of Health Promotion
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E-mail: lessalcohol@who.int
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