

*Regional Status Report on*  
**Alcohol and Health in the Americas**



Pan American  
Health  
Organization



World Health  
Organization

REGIONAL OFFICE FOR THE Americas



# *Regional Status Report on Alcohol and Health in the Americas*



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REGIONAL OFFICE FOR THE **Americas**

Noncommunicable Diseases and Mental Health  
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# Foreword

In May 2014, the World Health Organization (WHO) published its updated *Global Status Report on Alcohol and Health*, which offered a global analysis of the situation. Also included were individual country profiles with key information on trends in alcohol consumption, harms, and policies.

This regional report expands on the analyses published in the global report so that policymakers, scientists, and the public can better understand where we are and what we need to do in order to reduce the harmful use of alcohol in the Region of the Americas.

This report follows the first Pan American Health Organization (PAHO) regional report titled *Alcohol and Public Health in the Americas: A Case for Action*, which set a benchmark for technical cooperation and country actions in the Americas. Since then, and following WHO's *Global Strategy to Reduce the Harmful Use of Alcohol*, a regional action plan was endorsed by Member States, a network of focal points was created, and collaboration was strengthened.

The Americas has a long history of alcohol production and consumption, and these ties have led to a high toll across gender, sex, class, and ethnic groups in the Region. This burden will only continue to rise if effective actions are not immediately taken. Such measures do indeed exist. Governments have a responsibility to promote, protect, and improve the health and wellbeing of all of their citizens ahead of protecting commercial interests. Equity and sustainable development can be achieved with a whole-of-government approach to reducing the harmful use of alcohol, including the implementation of effective alcohol policies.

I hope this report will be a useful source of information and will further contribute to the monitoring and surveillance efforts at the global, regional, and national levels.

**Anselm Hennis**

Director

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Pan American Health Organization

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# Introduction

This Pan American Health Organization (PAHO) report on alcohol and health in the Americas examines the patterns and consequences of alcohol use in the Region and evaluates progress made since the enactment of the *Global Strategy* and *Regional Plan of Action to Reduce the Harmful Use of Alcohol*. The report is composed of three sections: 1) consumption of alcohol and resulting harm, comparing historical data from the Americas as well as current data across Regions; 2) policies and interventions, focusing on a few of the ten target areas recommended by the *Global Strategy*; and 3) recommendations for policymakers in the Region. Wherever possible, this report attempts to explain gender differences in consumption and harm.

## **ABOUT THIS PUBLICATION**

### **Limitations**

Collecting high-quality comparable data across countries and time is no simple feat. Lack of financial and human resources as well as political will can impede efforts to gather the information required to monitor consumption and the harms caused by alcohol. Many countries are unable to implement periodic, large-scale population surveys, so data from other countries and/or expert opinions are the main sources of information which can inform public policy. These limitations should serve as a call to action for countries to focus more resources to regularly collect high-quality data, including those available in various governmental sectors which are not accessible or analyzed, and ensuring that these data are produced by entities with no conflicts of interest. This report attempts to detail the burden of alcohol and how it extends beyond the physical and mental health effects on the alcohol consumer to cause a substantial amount of health, social, and economic harms to others than the drinker. Measuring the harms to society as a whole is a difficult undertaking that will require more research and a clearer understanding of these diverse consequences.

**ABBREVIATIONS FOR DATA**

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15+	Population of those 15 years of age and older
APC	Alcohol per capita consumption
AUD	Alcohol use disorder
BAC	Blood alcohol content
DALY	Disability adjusted life year
GDP	Gross domestic product
GISAH	Global Information System on Alcohol and Health
GSHS	Global School Health Surveys
HED	Heavy episodic drinking
ICD-10	International Classification of Diseases, 10 <sup>th</sup> Revision
NCD	Noncommunicable disease
PAHO	Pan American Health Organization
WHA	World Health Assembly
WHO	World Health Organization
YLL	Years of Life Lost

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**ABBREVIATIONS FOR COUNTRIES AND REGIONS**

Countries		HON	Honduras
ANI	Antigua and Barbuda	JAM	Jamaica
ANU	Anguilla*	MEX	Mexico
ARG	Argentina	NIC	Nicaragua
BAH	Bahamas	PAN	Panama
BAR	Barbados	PAR	Paraguay
BLZ	Belize	PER	Peru
BOL	Bolivia (Plurinational State of)	SAL	Saint Lucia
BRA	Brazil	SKN	Saint Kitts and Nevis
BVI	British Virgin Islands*	SUR	Suriname
CAN	Canada	SVG	Saint Vincent and the Grenadines
CHI	Chile	TRT	Trinidad and Tobago
COL	Colombia	URU	Uruguay
COR	Costa Rica	USA	United States of America
CUB	Cuba	VEN	Venezuela (Bolivarian Republic of)
DOM	Dominica		
DOR	Dominican Republic	Regions	
ECU	Ecuador	AFR	Africa
ELS	El Salvador	AMR	Americas
GRA	Grenada	EMR	Eastern Mediterranean
GUT	Guatemala	EUR	Europe
GUY	Guyana	SEAR	South-East Asia
HAI	Haiti	WPR	Western Pacific

\*Not a PAHO/WHO Member State, but included in GSHS data.





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# Overview

## Consumption

Alcohol consumption in the Americas is higher on average than the rest of the world. In particular, rates of heavy episodic drinking (HED) have risen in the past five years, from 4.6 to 13.0% among women and 17.9 to 29.4% among men.

## Mortality – deaths

Alcohol led to approximately one death every 100 seconds, on average, in the Americas in 2012. Alcohol contributed to more than 300,000 deaths in the Region—with more than 80,000 of those involving deaths that would not have occurred had alcohol not been consumed.

## Morbidity – disease and injury

Alcohol use contributes to more than 200 diseases and injuries, including cancers, HIV/AIDS, and various mental disorders. Alcohol had a hand in more than 274 million years of healthy life lost (DALYs) in the Americas in 2012. About 5.7% of the Region's population reported suffering from an alcohol use disorder, although the number is likely higher.

## Harms to others

Alcohol contributes to much harm, not only to those who drink to excess, but also to those around them. Harms to others include fetal alcohol spectrum disorders, violence, injury (including traffic crashes or workplace injuries), emotional distress, and economic instability. There are also substantial costs to society, especially when drinking leads to arrest, job loss, or health service visits. Women, in particular, appear to suffer more from the drinking of others.

## Economic costs

Alcohol is the leading risk factor for death and disability among people aged 15–49 in the Americas and worldwide. This is the age range in which people are typically

at their most productive economically. Alcohol misuse likely results in billions of dollars of lost wages each year.

## Income and inequality

As countries in the Americas develop economically, we can expect to see an increase in alcohol consumption and related harms. Evidence also suggests that the socioeconomically disadvantaged often experience more harm from the same levels of consumption than their wealthier counterparts, possibly due to the lack of access to health care resources or greater social exclusion.

## Indigenous peoples

Indigenous peoples account for some 13% of the Region's population. Major gaps exist in understanding to what extent and in what ways alcohol affects these diverse and vulnerable groups. Some case studies and anecdotal reports indicate that indigenous peoples suffer substantial harms from consumption but have limited access to care and other interventions.

## Women and alcohol

Women are drinking more and more often, catching up to their male counterparts in many countries. “Equality” in consumption, however, means more gender inequity in health outcomes. Women in the Americas have the highest prevalence of alcohol use disorders in the world.

## Youth and alcohol

Adolescents, on average, drink less frequently, but consume more per occasion when they do drink. Most students surveyed in the Americas had had their first drink before the age of 14. Around 14,000 deaths of children and youth under 19 were attributed to alcohol in 2010.



# Alcohol consumption

## CONCEPTUAL CAUSAL MODEL OF ALCOHOL CONSUMPTION AND HEALTH OUTCOMES

There are many interrelated individual and societal factors that contribute to the consumption of alcohol and its resulting harms. The conceptual causal model shown in Figure 1 depicts the intricate web in the relationship between consumption and other factors and their consequences. While data on the relationship between alcohol consumption, harm, and specific factors are not always easily captured, this report attempts to provide alcohol consumption and harm data by age, gender, and other factors where possible.

### Alcohol consumption

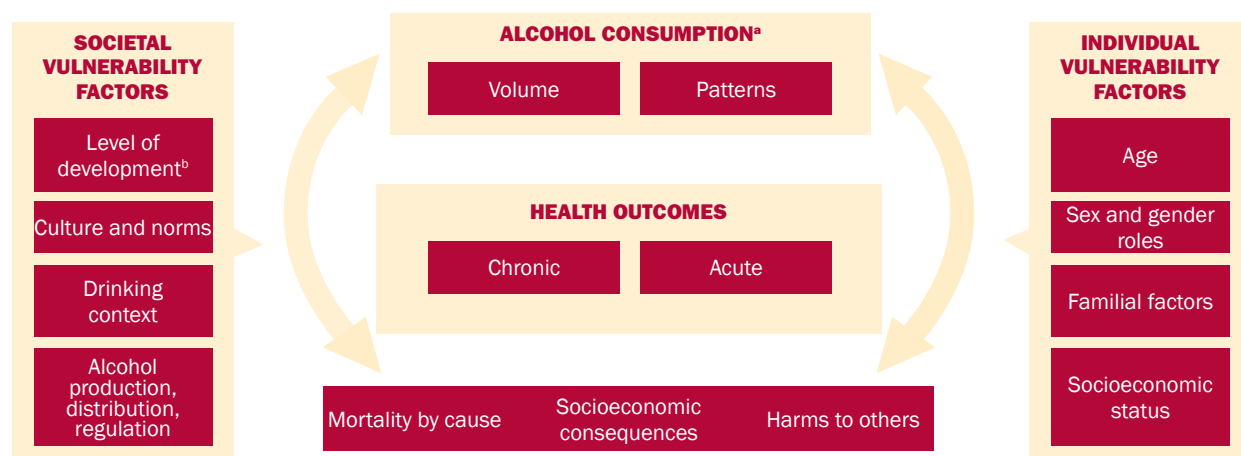
There are two dimensions of alcohol consumption that correlate with harms caused by alcohol: the overall **volume** of alcohol consumed and the **pattern** of drinking (such as frequency of drinking and amount consumed

on a given drinking occasion, on both an individual and societal level).

### Individual vulnerability factors

Individual vulnerability refers to factors that make some persons more susceptible to consuming more alcohol in more harmful patterns, and more susceptible to the harms caused by alcohol (controlling for the amount of alcohol consumed and the patterns of alcohol consumption). These factors include **age** (younger drinkers are more likely to consume alcohol in a risky pattern); **sex** (women process alcohol more quickly than men because they typically are smaller and have a higher proportion of body fat than men) and **gender roles** (in many male-dominated societies, women were often denied access to alcohol but not exempt from the harms stemming from male consumption; as these roles change, women have become targets for alcohol marketing, adopting male patterns of drinking while

FIGURE 1. Conceptual causal model of alcohol consumption and health outcomes.



<sup>a</sup> Quality of the alcohol consumed can also be a factor.

<sup>b</sup> Development of the health and welfare system, and economy as a whole.

**Source:** World Health Organization. Global status report on alcohol and health 2014. (Geneva, Switzerland: World Health Organization, 2014). Based on Rehm et al., 2010 and Blas et al., 2010.

continuing to be victims of their partners' drinking); **familial factors** (individuals whose family members suffer from alcohol use disorders (AUDs) are also more likely to suffer from similar issues due to both genetics and familial influence); and **socioeconomic status** (people of lower socioeconomic status tend to experience more harm per liter of alcohol consumed than those of higher socioeconomic status) (Room, 2004).

### Social vulnerability factors

Social vulnerability refers to societal factors that have an effect on drinking habits and harms caused by alcohol (again controlling for the amount of alcohol consumed and the patterns of alcohol consumption). These factors include **level of development** (residents of less developed countries tend to drink less alcohol, but they also tend to have fewer services available to reduce harms caused by alcohol); **culture and norms** (many cultures in the Americas celebrate holidays or special occasions with alcohol, while stigma and social norms can affect a person's ability to seek advice or treatment); **drinking context** (drinking in public carries different risks than drinking at home); and **alcohol production, distribution, and regulation** (production and distribution relate to the availability of alcohol anywhere, while regulating the price, availability, and marketing of alcohol can limit such availability).

### Health outcomes

Alcohol consumption causes harm to an individual in various ways, including: 1. damage to organs and tissues; 2. engagement in risky behavior while intoxicated; and 3. the development of AUDs. These health outcomes can be **chronic** (such as cancer or liver cirrhosis or alcohol dependence) or **acute** (such as alcohol poisoning, which can lead to a lifetime of disability or death). Health outcomes that are causally related to alcohol consumption are outlined in the *International Statistical Classification of Diseases and Related Health Problems, 10th Revision, (ICD-10)* (WHO, 2010a), and include over 60 conditions caused exclusively by alcohol and over 200 in which alcohol can have a negative impact. It is important to note that while some evidence has shown that alcohol can have a positive impact on certain conditions, this only applies to very specific circumstances; on the country level, harms caused by alcohol far outweigh any benefits.

### Socioeconomic consequences

The socioeconomic consequences of alcohol consumption are diverse and not fully identified to date, but include money spent on police to prevent alcohol fueled violence, on health services to treat those with both acute and chronic conditions, and by employers to recuperate lost productivity, as well as many other intangible costs.

### LEVELS OF CONSUMPTION

As illustrated in the conceptual causal model, various factors affect the health and social outcomes of alcohol consumption. Cultural practices play an important role in shaping drinking patterns and in the risks associated with alcohol on an individual and societal level. Examining the amount and pattern of a person's consumption is a good predictor of harms caused by alcohol, and there are a variety of indicators available.

### Alcohol per capita consumption (APC)

The average amount of alcohol a person in a given country consumes can be a useful starting point for measuring that country's drinking habits. Adult recorded alcohol per capita consumption (recorded APC) provides a relatively easy means to collect this information, by dividing the amount of alcohol sold in a given country by the size of its population 15 years of age and older. Adult recorded APC mainly relies on data from the United Nations Food and Agriculture Organization (FAO) or the alcohol industry itself, and is the only indicator that does not incorporate data from surveys, which can be expensive and difficult to implement and are an unreliable measure of how much people are drinking.

Total APC includes recorded APC and estimates of unrecorded APC and tourist consumption. This indicator provides a more complete approximation of consumption within a country. As will be discussed later, however, APC is not always sufficient for estimating harms caused by alcohol, as it does not provide information on the alcohol consumption and drinking patterns of sub-population groups. The great variability across countries in APC for both men and women indicates that socio-cultural factors play a role in consumption, though overall women drink much less on average

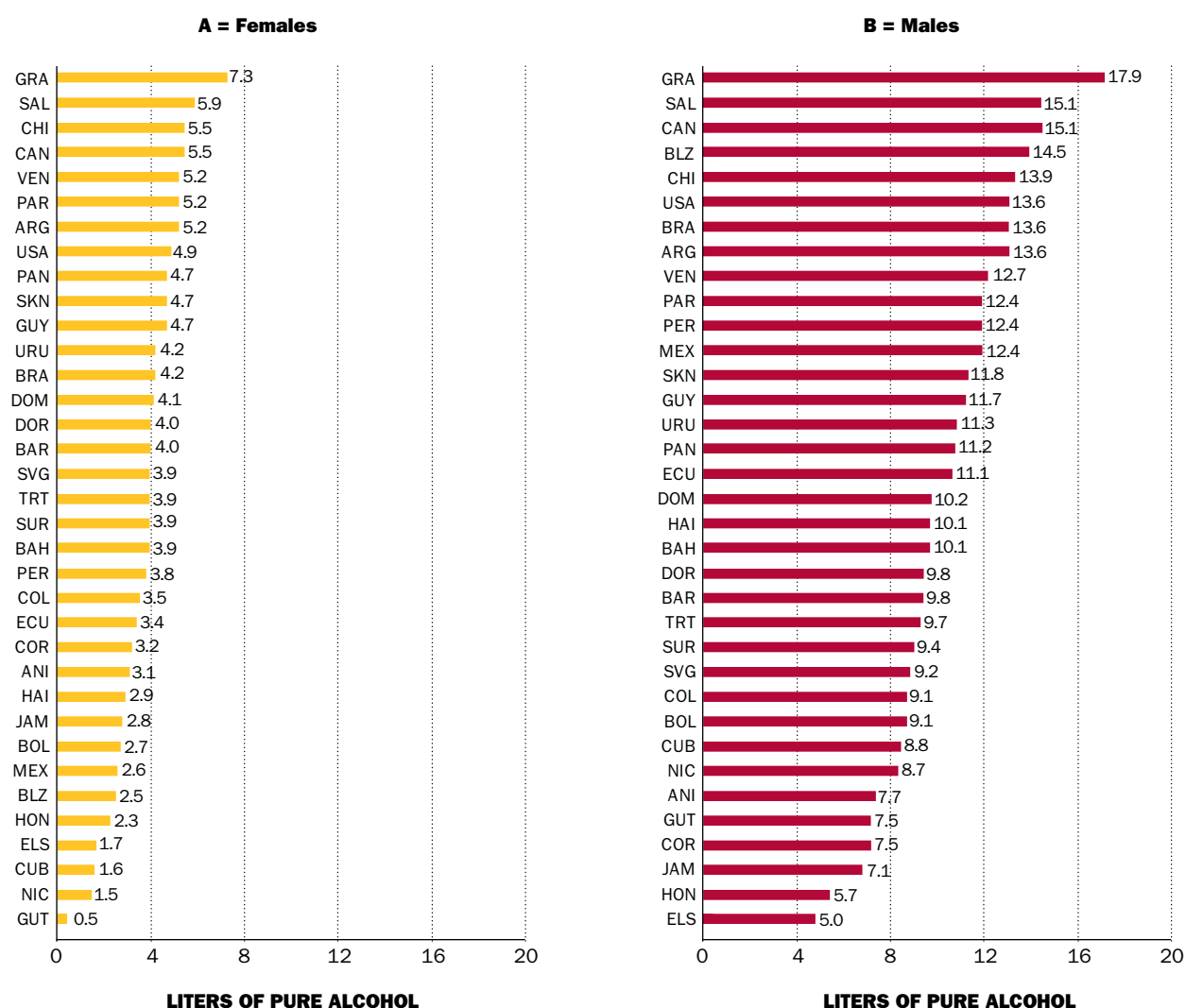


than men. As shown in Figure 2, while Grenada and Saint Lucia have the highest total APC in the Americas among both men and women, men on average drink about 10 liters more (over twice as much) per year than women in those countries. The greatest difference by sex is found in Guatemala, where men drink 15 times more on average than women.

### Unrecorded alcohol

Unrecorded alcohol represents alcohol that is likely not taxed or subject to quality-control measures and is thus not usually regulated or tracked by governments. About 14% of the alcohol consumed in the Americas is unrecorded (Figure 3), the main sources of which include artisanal spirits, surrogate alcohol, and cross-border shopping.

**FIGURE 2.** Total<sup>a</sup> adult alcohol per capita<sup>b</sup> consumption (in liters of pure alcohol), by sex, countries of the Americas, 2008–2010.

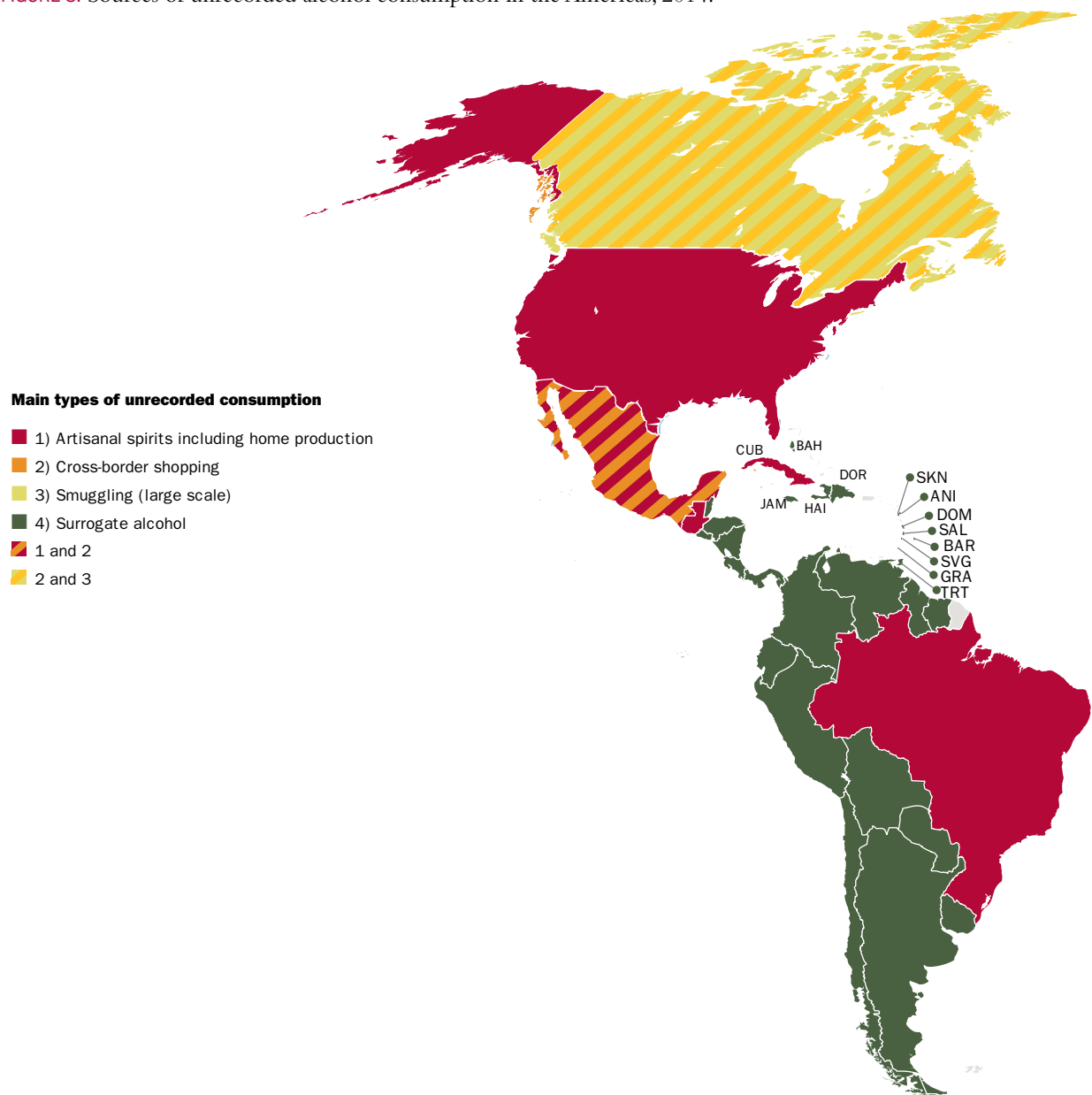


<sup>a</sup> Recorded three-year average plus unrecorded consumption.

<sup>b</sup> Population 15 years of age and older.

**Source:** World Health Organization. Observatory Data Repository (Region of the Americas. Global Information System on Alcohol and Health, *Levels of Consumption*. Available from: <http://apps.who.int/gho/data/node.main-amro.A1032?lang=en&showonly=GISAH> [last accessed on 18 December 2014].

FIGURE 3. Sources of unrecorded alcohol consumption in the Americas, 2014.



**Source:** Rehm J, Kailasapillai S, Larsen E, Rehm MX, Samokhvalov AV, Shield KD, Roerecke M, Lachenmeier DW. A systematic review of the epidemiology of unrecorded alcohol consumption and the chemical composition of unrecorded alcohol. *Addiction*. 2014 Jun;109(6):880-93. doi: 10.1111/add.12498. Epub 2014 Mar 3.

Unrecorded consumption is by definition much more difficult to monitor, and recent data on quantities of unrecorded alcohol are only available in 7 out of the 35 WHO Member States in the Americas. While estimates have been modelled for all countries of the Region, the lack of data highlights a need for new research

into this topic, especially in countries (such as Guatemala, Ecuador, and Bolivia) where unrecorded alcohol is likely high but no recent independent studies have been undertaken.

Using the best possible data available, experts have estimated that the highest consumption of unrecorded alcohol occurs in Ecuador (3.0 liters per capita) and Bolivia (2.1 liters). Using estimates of unrecorded consumption, it is also possible to see what proportion of the alcohol consumed in a country is unrecorded; in Guatemala, for example, about 42% of the total alcohol consumed is unrecorded, which has implications for alcohol tax revenues as well as safety issues associated with unregulated production. Figure 4 shows the consumption of unrecorded alcohol as a proportion of total consumption, ranked from the highest (42% in Guatemala and Ecuador) to the lowest (under 2% of the total alcohol consumed in Saint Lucia is unrecorded).

### Most consumed alcoholic beverages

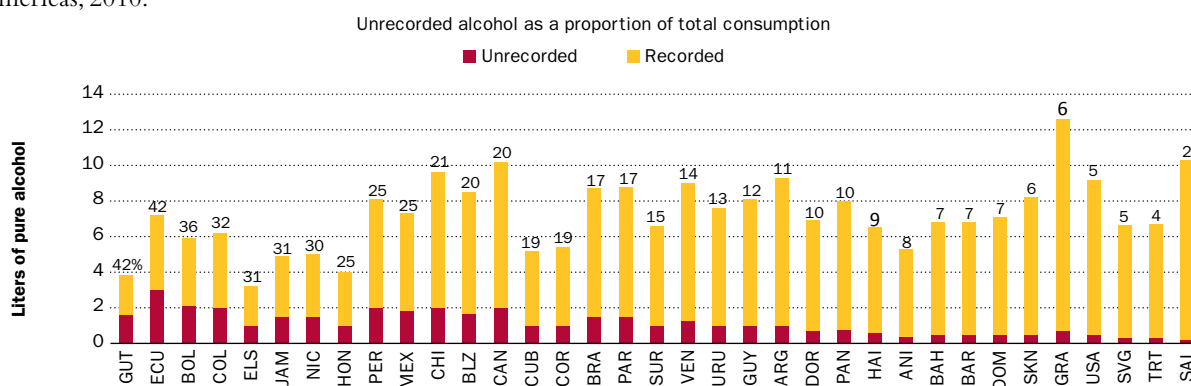
Overall by volume of pure alcohol consumed, beer is the most popular beverage in the Americas, though preferences vary by subregion (Figure 5), partly due to environmental and historical factors that favor the production and consumption of certain beverages. Spirits are the preferred choice in the Caribbean countries, while wine is more popular in Argentina, Chile, and Uruguay. In certain countries, such as Haiti, one beverage is overwhelmingly favored over the others (in this case, spirits make up nearly 100% of the reported alcohol consumed). In Peru, consumption of beer and spirits is about even.

Consumption of some beverages may change due to cultural trends and marketing efforts by the alcohol industry. For example, drinking whisky has increasingly been seen as a status symbol in countries such as Brazil, where there is some evidence that people are replacing traditional liquors, such as *cachaça*, with whisky and vodka (IWSR, 2010).

### Recent changes

Given the limitations of the data on unrecorded consumption, reported changes over time may be due more to different estimation methods rather than a real increase or decrease in the amount of unrecorded alcohol consumed. Recorded alcohol, therefore, is likely the most accurate measure of changes in consumption. Figure 6 illustrates the changes in alcohol consumption in countries of the Americas between 2000 and 2010. Between those years, most countries in the Americas increased their consumption by an average of 8.3%: the greatest changes occurred in Belize, Bolivia, Grenada, and Trinidad and Tobago, where recorded consumption increased by more than 30%. El Salvador, Guatemala, and Uruguay saw the greatest decreases in the Americas, between 10 and 20%. Even in these countries, however, the data suggests that there is much more work to be done. Average APC among women and men in Uruguay is still over 4 and 11 liters, respectively. In all three countries, rates of heavy episodic drinking are more than double the global average.

**FIGURE 4.** Adult per capita<sup>a</sup> consumption of unrecorded alcohol (in liters of pure alcohol), for the Region of the Americas, 2010.<sup>b</sup>

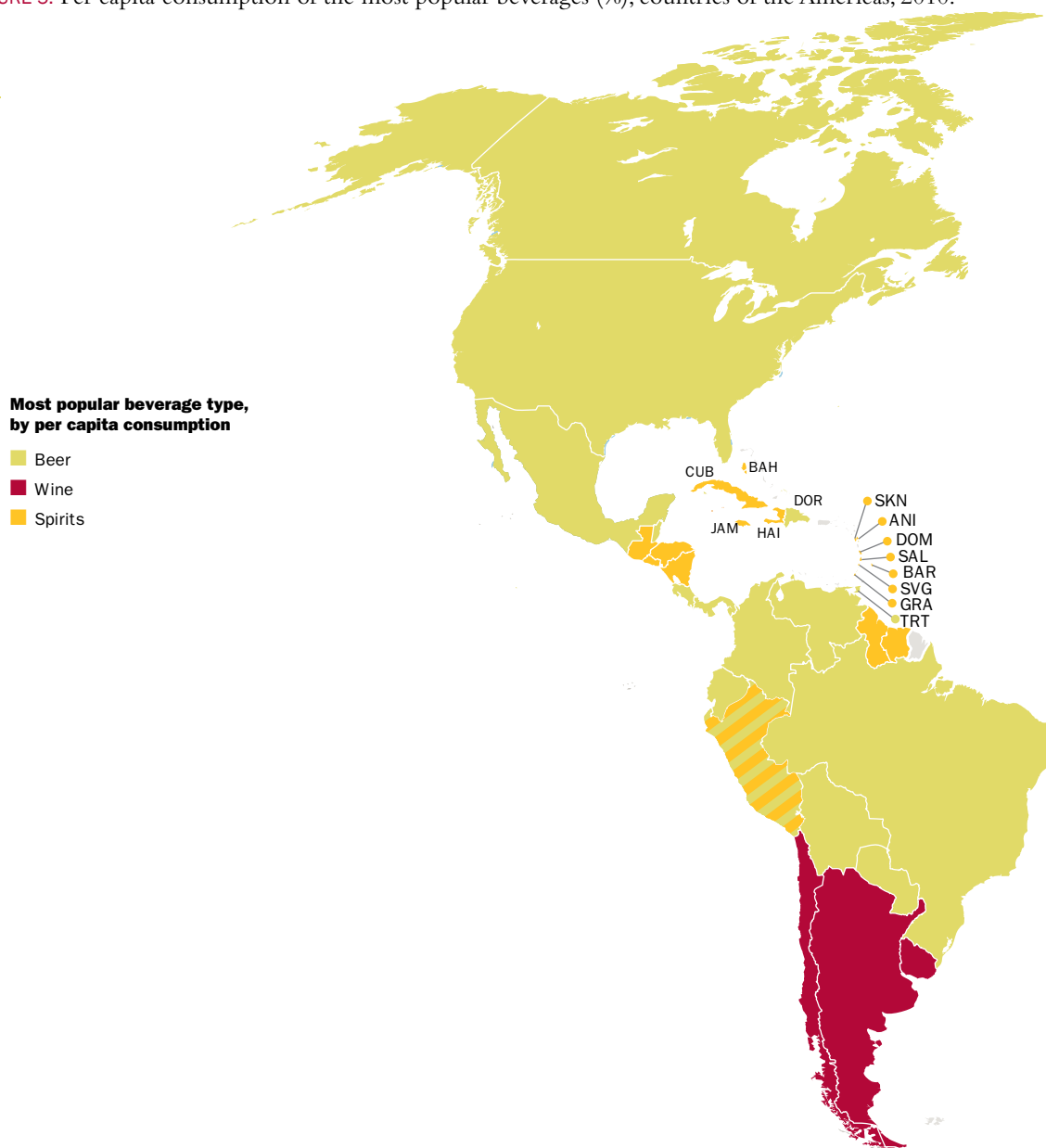


<sup>a</sup> Population 15 years of age and older.

<sup>b</sup> Recorded three-year average of total adult per capita consumption.

**Source:** World Health Organization. Observatory Data Repository (Region of the Americas. Global Information System on Alcohol and Health, *Recorded alcohol per capita consumption, three-year average* and *Unrecorded consumption*. Available from: <http://apps.who.int/gho/data/node.main-amro.A1022?lang=en&showonly=GISAH> [last accessed on 18 December 2014].

FIGURE 5. Per capita consumption of the most popular beverages (%), countries of the Americas, 2010.



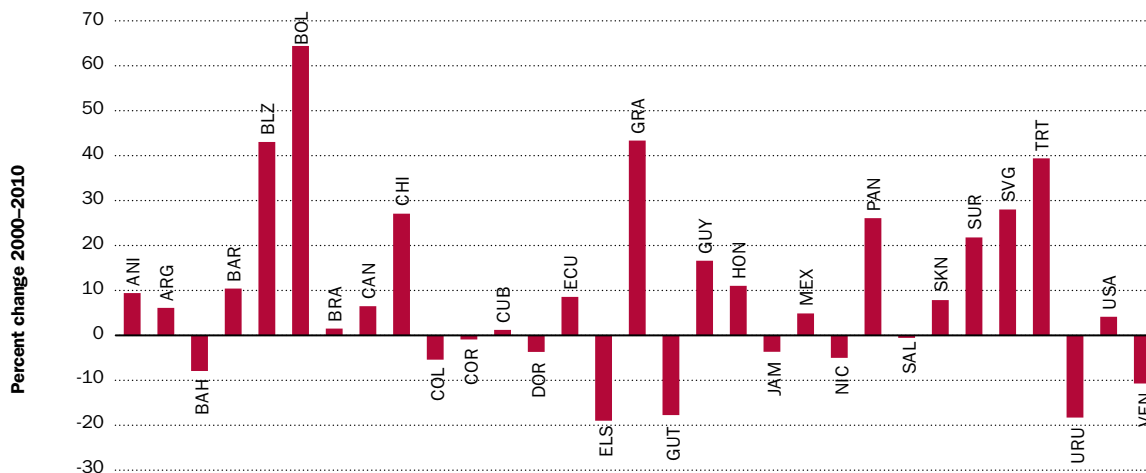
**Source:** World Health Organization. Observatory Data Repository (Region of the Americas. Global Information System on Alcohol and Health, Consumption of pure alcohol by type of beverage. Available from: <http://apps.who.int/gho/data/node.main-amro.A1022?lang=en&showonly=GISAH> [last accessed on 18 December 2014].

Beer consumption increased relative to other alcoholic beverages in 24 out of the 35 countries of the Americas covered in this report, and decreased in 11. One of the most dramatic changes in beverage types was seen in Peru, where the proportion of beer consumed fell from 70% to 47%, and the consumption of spirits

increased by nearly 20%. However, the decrease in beer consumption relative to spirits did not translate into a decrease in overall consumption; rather, beer consumption increased from about 2.2 liters per capita to 2.9, while the consumption of spirits increased nearly four-fold.



**FIGURE 6.** Changes in recorded adult per capita alcohol consumption (in liters of pure alcohol), countries of the Americas,<sup>b</sup> 2000 to 2010.



<sup>a</sup> Population 15 years of age and older.

<sup>b</sup> 2010 data not available for DOM, HAI, PAR, PER.

**Source:** World Health Organization. Observatory Data Repository (Region of the Americas. Global Information System on Alcohol and Health, Total consumption by country. Available from: <http://apps.who.int/gho/data/node.main-amro.A1022?lang=en&showonly=GISAH> [last accessed on 18 December 2014].

Importantly, the most recent data available is from 2010, and given that the *Plan of Action to Reduce the Harmful Use of Alcohol* was only approved by PAHO Member States in 2011 (Resolution CD51.R14), any changes that may have occurred since then are not reflected in this report.

## DRINKING PATTERNS

### Abstinence rates

While data on APC is a useful tool for comparing consumption between countries, it obscures one very important detail—not everyone consumes alcohol. Total adult APC in the Americas is about 8.4 liters, on average; when those who report not consuming alcohol in the past year are subtracted from the figure, the average jumps to 13.6 liters per drinker. This difference is more pronounced in regions or countries where people are more likely to abstain from alcohol. Although the Americas ranks second highest among all regions in the proportion of current drinkers worldwide, abstinence rates vary widely from country to country. For example, almost 80% of Canadians consumed alcohol in 2010, compared to fewer than 30% of Belizeans.

Former drinkers are people who have consumed alcohol but not in the past year. The Region of the Americas has the highest proportion of former drinkers in the world—roughly 22% of the populations of Jamaica, Saint Kitts and Nevis, Guatemala, and El Salvador reported that they had not drunk alcohol in 2010 despite having consumed alcohol in the past. There are multiple factors that cause people to stop drinking, including religion and health concerns. Since people tend to stop drinking when they experience negative health, social, and/or economic consequences, high proportions of former drinkers might reflect an increase in the incidence of problems caused by alcohol. More research is needed to understand these changes. Table 1 shows the prevalence of lifetime abstainers, former drinkers, and current drinkers by WHO Region and worldwide.

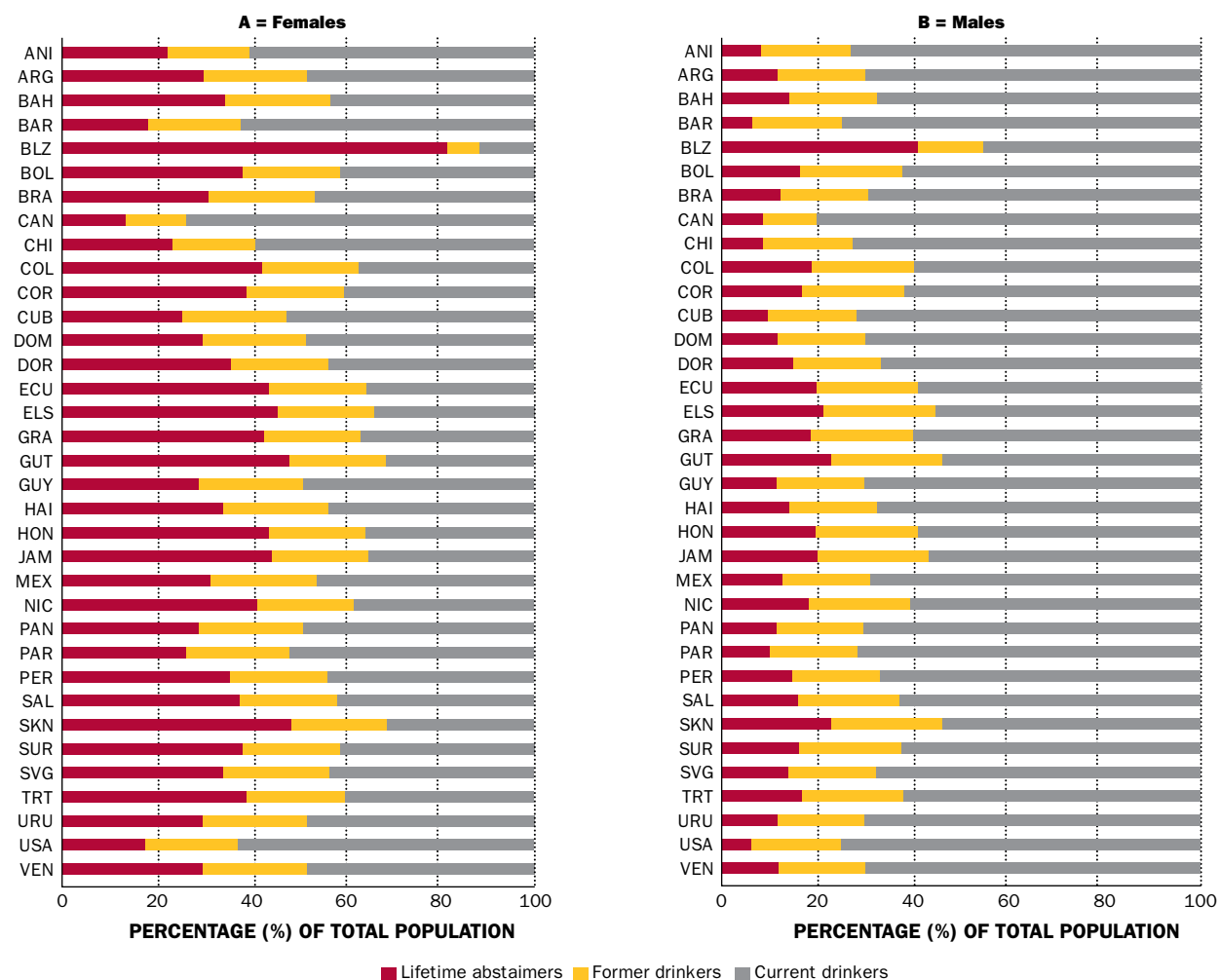
Figure 7 shows the prevalence of current drinkers, former drinkers, and lifetime abstainers among men and women by country for the Americas in 2010. There is wide variation from country to country and between the sexes in the prevalence of different drinking statuses.

TABLE 1. Percentage of lifetime abstainers, former drinkers, and current drinkers, WHO Regions and worldwide, 2010.

WHO Region and worldwide	Lifetime abstainers (%)	Former drinkers (%)	Current drinkers (%)
AFR	57.4	12.8	29.8
AMR	<b>18.9</b>	<b>19.6</b>	61.5
EMR	<b>89.8</b>	<b>4.8</b>	<b>5.4</b>
EUR	20.6	13.0	<b>66.4</b>
SEAR	76.6	9.9	13.5
WPR	37.1	17.1	45.8
<b>GLOBAL AVG</b>	<b>48.0</b>	<b>13.7</b>	<b>38.3</b>

Source: World Health Organization. Global status report on alcohol and health 2014. (Geneva, Switzerland: World Health Organization, 2014).

FIGURE 7. Percentage of lifetime abstainers, former drinkers, and current drinkers, by sex, countries of the Americas, 2010.



Source: World Health Organization. Observatory Data Repository (Region of the Americas. Global Information System on Alcohol and Health, Abstainers, lifetime and Alcohol consumers, past 12 months and Former drinkers. Available from: <http://apps.who.int/gho/data/node.main-amro.A1038?lang=en&showonly=GISAH> [last accessed on 18 December 2014].

Table 2 shows differences in APC between drinkers and the overall adult population for countries in the Region. In Belize, for example, which has a low percentage of current drinkers, the APC figures for the total adult population are much lower than the APC rates among the population of drinkers only. In Canada, on the other hand, whose population has a relatively high proportion of current drinkers, rates do not vary as much. The variation in the APC among the total adult population as compared to drinkers also clearly demonstrates the importance of using surveys to look at consumption habits of certain groups, and not just of the total adult population.

APC among female drinkers in the Americas is higher than the global average; in particular, female drinkers in Belize and Grenada rank fourth and seventh highest in the world, respectively, for their average consumption.

### Heavy episodic drinking

Heavy episodic drinking (HED) is another indicator that measures risky drinking patterns and is key for gauging health risks caused by alcohol consumption. While some evidence shows that there are *limited* health benefits to drinking *small* amounts of alcohol regularly, most people do not consume alcohol in this manner. HED helps to identify patterns of drinking that cancel out any potential positive effects of consuming small average volumes of alcohol and that greatly increase a person's risk for health and other harms.

In the Americas, the prevalence of HED is high, with one in five (22%) current drinkers engaging in HED at least once a month, higher than the global average of 16%. Both Paraguay and Saint Kitts and Nevis have HED prevalences above 50%. Chile, on the other hand, has the lowest HED prevalence, despite relatively high APC, potentially reflecting a culture of drinking wine with meals rather than at bars or parties (though trends among youth in this country seem to reflect changes in this drinking culture). See Figure 8 for details on the prevalence of HED in countries of the Americas for 2010.

Men and women, and people in different age groups, show large differences in the prevalence of HED. As with total consumption, men are much more likely

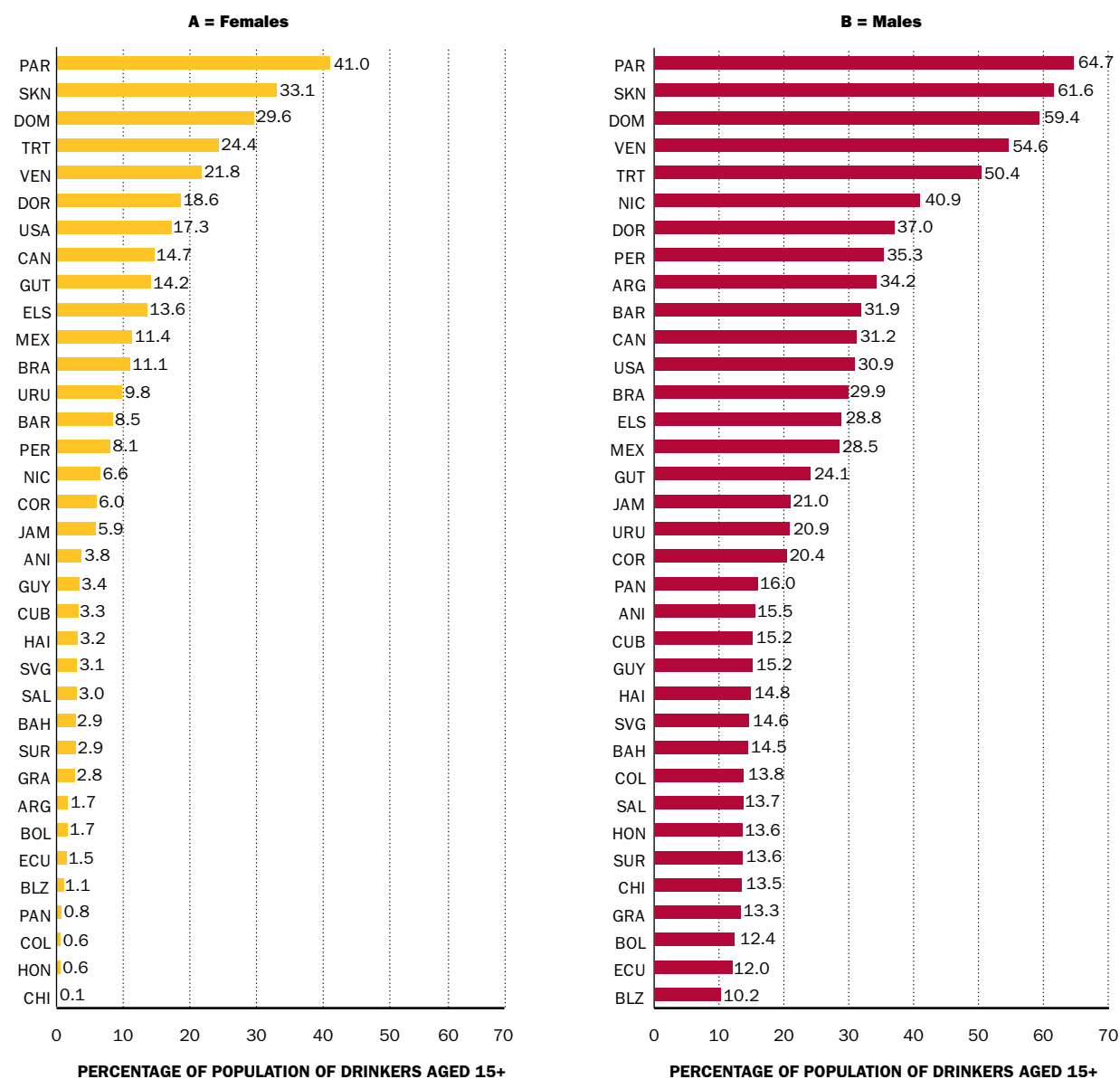
**TABLE 2.** Differences in estimates of per capita<sup>a</sup> consumption of alcohol between the total adult population and the drinking population, by country and by sex, Region of the Americas, 2010.

Country	Females		Males	
	Drinkers	All	Drinkers	All
ANI	5.1	3.1	10.6	7.7
ARG	10.9	5.2	19.5	13.6
BAH	9.0	3.9	14.9	10.1
BAR	6.3	4.0	13.1	9.8
BLZ	<b>21.2</b>	2.5	<b>32.1</b>	14.5
BOL	6.6	2.7	14.5	9.1
BRA	8.9	4.2	19.6	13.6
CAN	7.4	5.5	18.8	15.1
CHI	9.3	5.5	19.2	13.9
COL	9.4	3.5	15.2	9.1
COR	7.8	3.2	12.1	7.5
CUB	3.0	1.6	12.3	8.8
DOM	8.4	4.1	14.6	10.2
DOR	9.0	4.0	14.7	9.8
ECU	9.4	3.4	18.8	11.1
ELS	5.1	1.7	<b>9.0</b>	<b>5.0</b>
GRA	19.6	<b>7.3</b>	29.9	<b>17.9</b>
GUT	<b>1.7</b>	<b>0.5</b>	13.9	7.5
GUY	9.5	4.7	16.7	11.7
HAI	6.7	2.9	15.0	10.1
HON	6.4	2.3	9.7	5.7
JAM	7.8	2.8	12.5	7.1
MEX	5.7	2.6	18.0	12.4
NIC	3.8	1.5	14.3	8.7
PAN	9.6	4.7	16.0	11.2
PAR	9.9	5.2	17.3	12.4
PER	8.6	3.8	18.6	12.4
SAL	14.1	5.9	24.0	15.1
SKN	15.0	4.7	21.9	11.8
SUR	9.3	3.9	15.1	9.4
SVG	8.9	3.9	13.6	9.2
TRT	9.6	3.9	15.6	9.7
URU	8.7	4.2	16.1	11.3
USA	7.8	4.9	18.1	13.6
VEN	10.7	5.2	18.2	12.7
<b>REGIONAL AVG</b>	<b>8.9</b>	<b>3.8</b>	<b>16.7</b>	<b>10.8</b>
<b>GLOBAL AVG</b>	<b>8.4</b>	<b>2.9</b>	<b>18.8</b>	<b>9.6</b>

<sup>a</sup> Population 15 years of age and older.

**Source:** World Health Organization. Observatory Data Repository (Region of the Americas. Global Information System on Alcohol and Health, Drinkers only by country and Total consumption by country. Available from: <http://apps.who.int/gho/data/node.main-amro.A1022?lang=en&showonly=GISAH> [last accessed on 18 December 2014].

FIGURE 8. Prevalence of heavy episodic drinking among drinkers, by sex, countries of the Americas, 2010.



**Source:** World Health Organization. Observatory Data Repository (Region of the Americas. Global Information System on Alcohol and Health, Heavy episodic drinking, past 30 days. Available from: <http://apps.who.int/gho/data/node.main-amro.A1038?lang=en&showonly=GISAH> [last accessed on 18 December 2014].

than women to engage in HED. The countries with the highest prevalence of HED among both men and women are Paraguay, Saint Kitts and Nevis, and Dominica, in descending order. Conversely, while in Chile almost no women report HED (about 0.1%), Chilean men are much more likely to engage in HED.

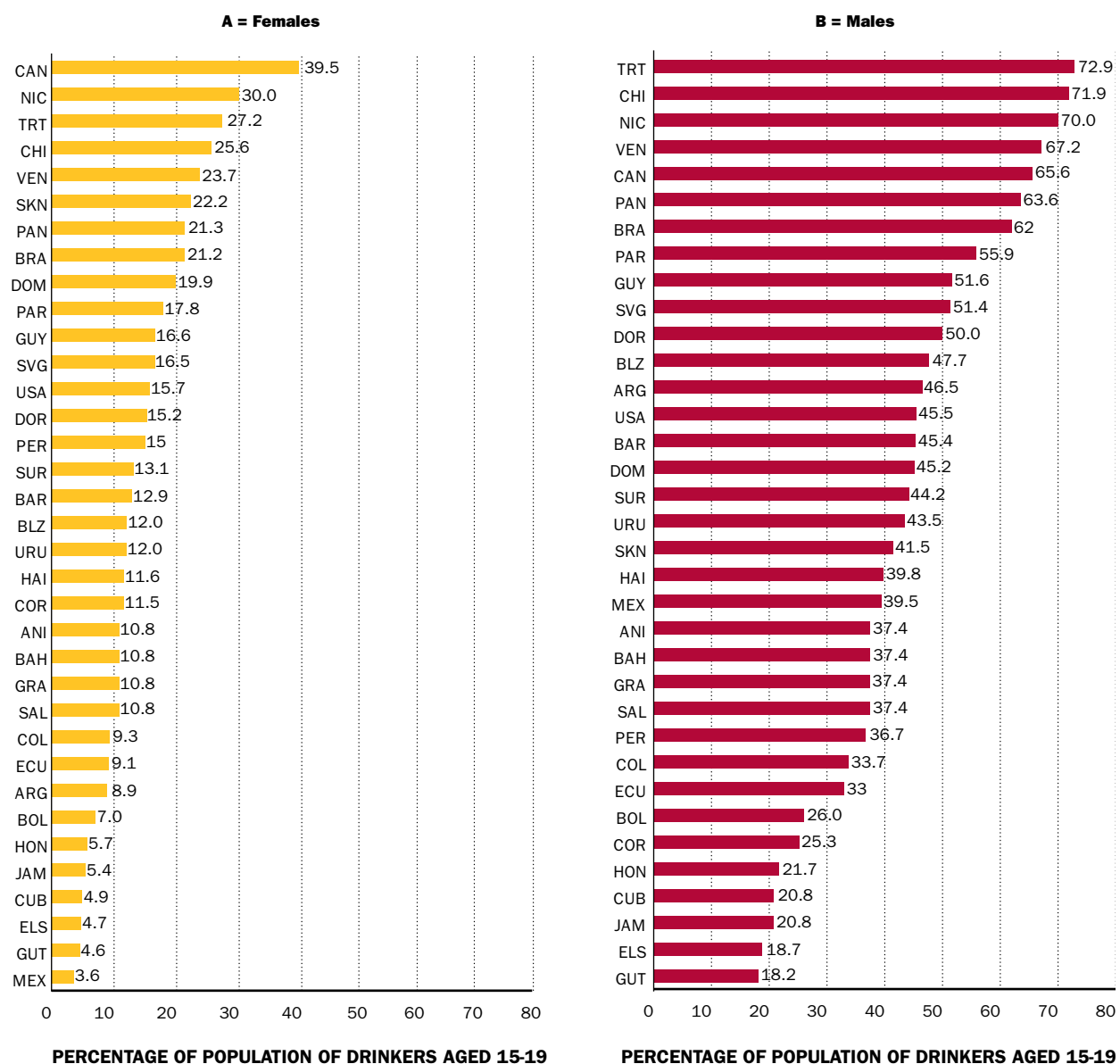
Youth, too, are generally much more likely to engage in risky alcohol-consumption patterns in the Americas when compared to elsewhere. Interestingly, many countries with relatively low drinking rates among the total population have a much higher relative prevalence of drinking among youth. For example, HED rates in Chile are the fourth and second highest in the Region



for young women and men, respectively (Figure 9). Moreover, HED among adolescents 15–19 years of age is more common in the Americas than almost anywhere in the world, after Europe (Figure 10). Information on the prevalence of HED among youth is valuable for estimating and preventing harms, since it is likely that costs

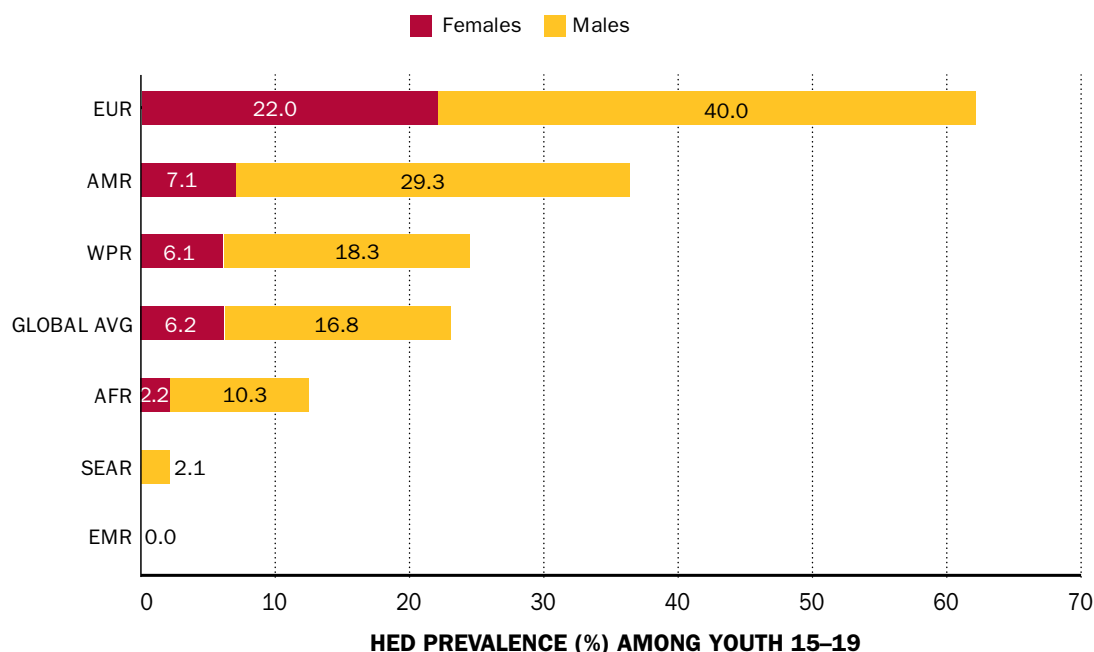
caused by alcohol consumption will grow significantly in the future if nothing is done now to eliminate heavy drinking among younger generations. In addition, any drinking itself is a matter of concern for adolescents, since the links between any alcohol consumption and impairments in brain development at early ages have been well

FIGURE 9. Heavy episodic drinking among youth, by sex, countries of the Americas, 2010.



Source: World Health Organization. Observatory Data Repository (Region of the Americas. Global Information System on Alcohol and Health, 15–19 years old heavy episodic drinkers (drinkers only), %. Available from: <http://apps.who.int/gho/data/node.main-amro.A1206?lang=en&showonly=GISAH> [last accessed on 18 December 2014].

FIGURE 10. Heavy episodic drinking among adolescents 15–19 years of age, by WHO Region, 2010.



Source: World Health Organization. Global status report on alcohol and health 2014. (Geneva, Switzerland: World Health Organization, 2014).

established. Such consumption also increases the risks of alcohol use disorders later in life. Other problems associated with drinking early in life include suicide, early and unwanted pregnancies, violence, and alcohol-related deaths (National Research Council, 2004).

### Measuring harm: drinking patterns

Alcohol-consumption volume, frequency, and pattern can all contribute to alcohol-related harms. The patterns of drinking score is a composite measure that combines data from various indicators of patterns of alcohol consumption (Figure 11). The patterns of drinking score ranges from 1 (less risky) to 5 (most risky) and is based on the following measures: quantity of alcohol consumed per occasion, festive drinking (common at festivities or community celebrations), proportion of drinking occasions when the drinker gets drunk, proportion of drinkers who drink daily or nearly daily, drinking with meals, and drinking in public places. While the patterns of drinking score is a useful measure of risky drinking, this indicator does not fully account for other factors—such as access to

health services or socioeconomic inequality—which can also influence the burden of alcohol in a country.

### Recent changes

On average, the prevalence of lifetime abstinence in the Americas fell for both sexes between 2005 and 2010, which means that more people are drinking in the Region overall. Table 3 shows each country's abstinence rates as reported for 2005 and 2010. While a few countries—especially Colombia, Argentina, and Peru—appear to have greatly increased their proportions of lifetime abstainers, these differences are likely due to poor data in 2005, rather than to a true decrease in the number of drinkers. Because lifetime abstainers do not suffer the direct health consequences associated with alcohol consumption, a higher rate of abstainers is regarded as positive—though these people can still suffer from the drinking of others, as will be discussed further. Many countries did not provide data on abstinence rates in 2005, further complicating the comparability of these changes over time.

FIGURE 11. Patterns of drinking score, Region of the Americas, 2010.



**Source:** World Health Organization. Observatory Data Repository (Region of the Americas. Global Information System on Alcohol and Health, Patterns of drinking score, Available from: <http://apps.who.int/gho/data/node.main-amro.A1038?lang=en&showonly=GISAH> [last accessed on 18 December 2014].

Data on the prevalence of HED over time are sparse and thus comparisons of HED face many of the same challenges as those for abstinence rates. Potentially, many of the reported gains in HED since 2005 in reality only reflect the limited data sources that were available for most

countries at that point, rather than a real decrease in rates of heavy drinking. When looking at the data through a regional lens, we see more clearly that rates of HED have risen over time, from 4.6 to 13.0% among women and 17.9 to 29.4% among men in that same period (Table 4).

TABLE 3. Lifetime abstention rates, by sex, countries of the Americas and regionwide, 2005 and 2010.

Country	Females		Males	
	2005	2010	2005	2010
ANI	...	22.1	...	8.3
ARG	<b>4.6</b>	29.7	<b>1.6</b>	11.7
BAH	...	34.2	...	14.2
BAR	32.3	18.0	27.0	6.5
BLZ	59.3	<b>81.3</b>	20.6	<b>41.0</b>
BOL	22.0	38.0	25.0	16.4
BRA	22.7	30.8	14.5	12.4
CAN	10.8	<b>13.3</b>	5.7	8.7
CHI	17.0	23.2	16.0	8.7
COL	8.0	42.1	1.8	18.9
COR	18.9	38.8	8.8	16.8
CUB	59.0	25.3	17.7	9.6
DOM	30.9	29.5	9.8	11.7
DOR	35.4	35.5	12.1	14.9
ECU	70.5	43.6	42.8	19.8
ELS	...	45.5	...	21.3
GRA	...	42.5	...	18.7
GUT	<b>84.7</b>	47.9	<b>49.4</b>	22.8
GUY	...	28.8	...	11.5
HAI	...	33.8	...	14.1
HON	...	43.5	...	19.7
JAM	39.1	44.1	20.7	20.0
MEX	64.3	31.3	37.5	12.8
NIC	52.5	41.0	12.1	18.1
PAN	...	28.8	...	11.4
PAR	28.1	26.0	7.9	10.0
PER	8.4	35.3	3.3	14.8
SAL	...	37.3	...	15.9
SKN	...	48.2	...	22.8
SUR	...	37.9	...	16.2
SVG	...	33.9	...	13.9
TRT	...	38.9	...	16.7
URU	43.2	29.6	25.0	11.6
USA	22.9	17.4	12.0	<b>6.2</b>
VEN	...	29.6	...	11.8
<b>REGIONAL AVG</b>	<b>27.4</b>	<b>26.6</b>	<b>15.2</b>	<b>10.8</b>
<b>GLOBAL AVG</b>	<b>55.0</b>	<b>...</b>	<b>34.9</b>	<b>...</b>

Note: ... = data not available.

Source: Centre for Addiction and Mental Health's World Health Organization/Pan-American Health Organization (WHO/PAHO) Collaborating Centre in Addiction and Mental Health, 2014.

TABLE 4. Rates of heavy episodic drinking, by sex, countries of the Americas and regionwide, 2005 to 2010.

Country	Females		Males	
	2005	2010	2005	2010
ANI	...	3.8	...	15.5
ARG	<b>0.3</b>	1.7	17.5	34.2
BAH	...	2.9	...	14.5
BAR	2.0	8.5	14.2	31.9
BLZ	8.8	1.1	28.2	<b>10.2</b>
BOL	...	1.7	...	12.4
BRA	10.1	11.1	32.4	29.9
CAN	3.5	14.7	15.5	31.2
CHI	...	<b>0.1</b>	...	13.5
COL	...	0.6	...	13.8
COR	<b>12.5</b>	6.0	13.8	20.4
CUB	...	3.3	...	15.2
DOM	5.5	<b>29.6</b>	26.2	<b>59.4</b>
DOR	10.0	18.6	22.0	37.0
ECU	6.3	1.5	25.3	12.0
ELS	...	13.6	...	28.8
GRA	...	2.8	...	13.3
GUT	...	14.2	...	24.1
GUY	...	3.4	...	15.2
HAI	...	3.2	...	14.8
HON	...	0.6	...	13.6
JAM	...	5.9	...	21.0
MEX	2.9	11.4	12.6	28.5
NIC	11.0	6.6	32.7	40.9
PAN	...	0.8	...	16.0
PAR	8.0	41.0	<b>37.7</b>	64.7
PER	0.4	8.1	<b>7.0</b>	35.3
SAL	...	3.0	...	13.7
SKN	...	33.1	...	61.6
SUR	...	2.9	...	13.6
SVG	...	3.1	...	14.6
TRT	...	24.4	...	50.4
URU	4.6	9.8	11.5	20.9
USA	3.4	17.3	13.0	30.9
VEN	...	21.8	...	54.6
<b>REGIONAL AVG</b>	<b>4.6</b>	<b>13.0</b>	<b>17.9</b>	<b>29.4</b>
<b>GLOBAL AVG</b>	<b>...</b>	<b>5.7</b>	<b>...</b>	<b>21.5</b>

Note: ... = Data not available.

Source: Centre for Addiction and Mental Health's World Health Organization/Pan American Health Organization (WHO/PAHO) Collaborating Centre in Addiction and Mental Health, 2014.





## Health and other consequences

Many people are aware of only a few of the negative consequences caused by alcohol—the most well-known being traffic injuries and liver disease. These widely known harms, while clearly serious, represent just the tip of the iceberg in terms of the total harms caused by alcohol consumption.

There are various ways to measure alcohol's impact on health. First, it is important to estimate alcohol's impact on mortality (in the Americas in 2010 alcohol caused 4.7% of all deaths) and measures of disability, such as DALYs, where alcohol causes 6.7% of the total years lost due to premature mortality and years lived with disability combined.

Measures of death and disability caused by alcohol vary, since they often rely on survey data and have to be calculated based on the best available data of consumption patterns and resulting consequences. The number of deaths and DALYs caused by alcohol consumption are calculated using an alcohol-attributable fraction. The term “alcohol-attributable” (in the context of deaths or DALYs) refers to mortality and morbidity that would not have occurred had a person never consumed alcohol.

Alcohol consumption is causally related to over 200 three-digit ICD-10 health conditions (Table 5). Except for its potential positive effects (under extremely circumscribed circumstances) on the risk of diabetes, ischemic heart disease, and ischemic stroke, the effects of alcohol consumption on health at the population level have always been observed to be overwhelmingly negative.

In the Americas in 2012, the top three causes of death and disability caused by alcohol overall were AUDs, liver cirrhosis, and interpersonal violence. When disaggregated by sex, certain differences come to light. For example, breast cancer replaces interpersonal violence as one of the leading causes of death and disability

caused by alcohol among women. Table 5 also shows each cause as a proportion of the total alcohol-attributable deaths in the Americas.

Most of the conditions listed are associated with heavy, long-term drinking, but some—especially injuries, which account for around 35% of deaths and DALYs—are associated with acute drinking patterns. It is important to recognize, therefore, that *anyone* who drinks is at an increased risk of suffering one or another negative health consequence.

### FACTORS IMPACTING ALCOHOL CONSUMPTION AND HARM

#### Sex and gender

Historically, men have been the major consumers of alcohol and, consequently, have suffered more alcohol-attributable mortality and morbidity. However, women are increasingly drinking more and drinking more often; in many countries, they are on track to catch up to their male counterparts. This shift is partly due to changing cultural attitudes, but also to deliberate marketing campaigns funded by the alcohol industry that target women.

Biologically, women's increased alcohol consumption is worrisome because women tend to suffer more problems caused by alcohol at a lower level of consumption than of men. This difference is the result of various factors: in addition to having smaller bodies, on average, women also metabolize alcohol differently (NIH, 2013). Excessive alcohol consumption increases women's risk of breast cancer, heart disease, sexually transmitted diseases, unintended pregnancy, and a host of other health problems (CAMY, 2012). One sign of the long term and excessive drinking in which women in the Americas are engaging is the prevalence of alcohol use disorders, which is the highest in the world.

TABLE 5. Proportion (%) of deaths and DALYs attributable to alcohol, by cause, Region of the Americas, 2012.

Cause	Deaths	DALYs
<b>Communicable, maternal, perinatal, and nutritional conditions</b>		
<i>Infectious and parasitic diseases</i>		
Tuberculosis	1.2	1.1
HIV/AIDS	0.8	0.7
<i>Respiratory infections</i>		
Lower respiratory infections	5.4	2.1
<i>Maternal conditions</i>		
Preterm birth complications	0.1	0.2
<b>Noncommunicable diseases</b>		
<i>Malignant neoplasms</i>		
Mouth and oropharynx cancers	2.9	1.5
Esophagus cancer	2.5	1.2
Colon and rectum cancers	3.7	1.6
Liver cancer	1.9	0.9
Pancreas cancer	0.9	0.4
Breast cancer	2.9	1.5
Other malignant neoplasms	0.8	0.4
<i>Diabetes mellitus</i>	-4.3	-2.9
<i>Mental and behavioral disorders</i>		
Alcohol use disorders	10.1	37.1
<i>Neurological conditions</i>		
Epilepsy	0.7	1.9
<i>Cardiovascular diseases</i>		
Hypertensive heart disease	4.6	2.2
Ischemic heart disease	-3.8	-2.9
Stroke (hemorrhagic)	6.6	3.2
Stroke (ischemic)	-1.1	-0.3
Other circulatory diseases	1.1	0.5
<i>Digestive diseases</i>		
Cirrhosis of the liver	24.3	13.8
Other digestive diseases	1.4	0.9
<b>Injuries</b>		
<i>Unintentional injuries</i>		
Road injury	9.4	9.0
Poisonings	0.9	0.8
Falls	2.1	1.8
Fire, heat, and hot substances	0.4	0.3
Drowning	1.3	1.1
Other unintentional injuries	3.9	3.3
<i>Intentional injuries</i>		
Self-harm	5.5	4.6
Interpersonal violence	14.0	13.9

Note: Percentages may not add up to 100% due to rounding.

Source: Centre for Addiction and Mental Health's World Health Organization/Pan American Health Organization (WHO/PAHO) Collaborating Centre in Addiction and Mental Health, 2014.

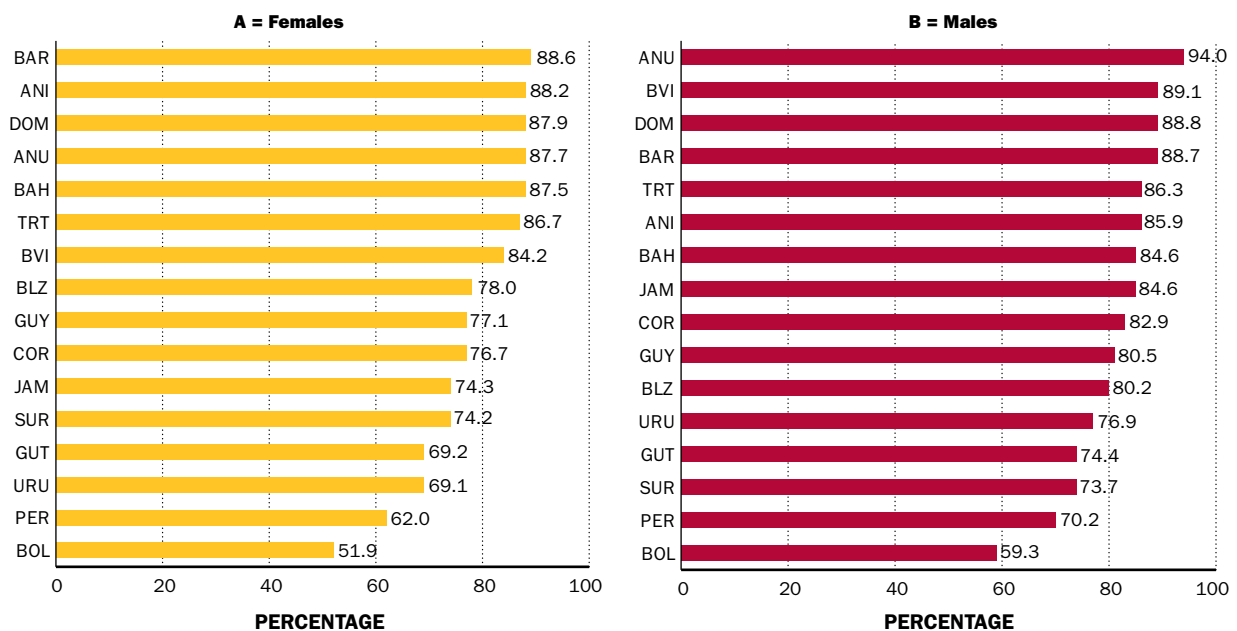
Alcohol consumption in men and women has historically been a reflection of their traditional gender roles in societies. Typically, alcohol use was (and may still be) accepted and encouraged for men but not women; drinking is frequently perceived as a sign of power, domination, and success. While these norms may be changing, the data reveal that more men drink and do so more heavily than women, and women tend to drink in private settings while men do so more often in public. Another difference is that alcohol intoxication and associated violence is more accepted and normalized for men but not women (and drunkenness is often given as an excuse for perpetrating violence against others, including partners). Women also have a higher burden of intimate violence: they tend to suffer more severe forms of physical and sexual assault, which are only aggravated by the alcohol consumption of their partners. Finally, women are more stigmatized than men for having alcohol problems and face several additional barriers that may prevent them from seeking services (e.g. shame, child care and home responsibilities, care for other family members, economic barriers) (Graham et al., 2008).

### Age

Studies have shown that the earlier people start drinking, the more likely they are to develop an alcohol problem—young people who start drinking before 15 years of age are five times more likely to suffer from an alcohol use disorder, four times more likely to become dependent on alcohol, and almost seven times more likely to be injured in a motor vehicle crash or a physical fight. Multiple studies conducted in the U.S. confirm that youth who start drinking before 15 years of age are more likely to develop an AUD later on in life (CDC, 2014).

The Global School-based Student Health Survey (GSHS) collects data on students between 13 and 17 years of age. The survey found that most students in the Americas had consumed at least one standard drink of alcohol before 14 years of age. Although boys, in general, are slightly more likely to drink than are girls, gender differences among youth are much less pronounced than they are in adults. According to surveys performed in Antigua and Barbuda, the Bahamas, and Suriname, girls are actually more likely to have consumed alcohol before 14 years of age (Figure 12). These figures

**FIGURE 12.** Percentage of students aged 13–15 years of age who had their first drink before age 14, by sex, selected countries of the Americas, 2003–2013 data.



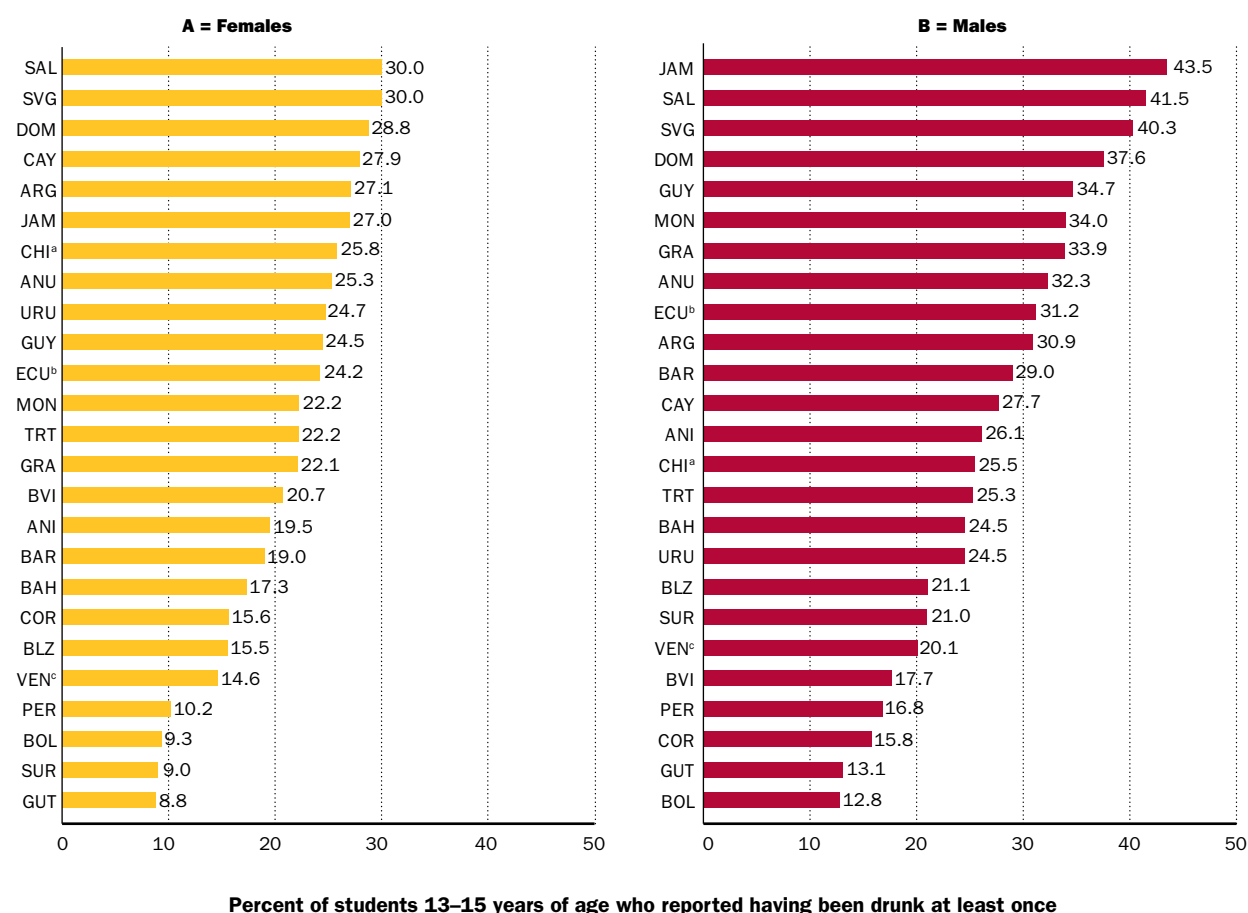
**Source:** World Health Organization. Global School-Based Student Health Survey (GSHS) Country Datasets. WHO: Geneva. Available from <http://www.who.int/chp/gshs/datasets/en/> [last accessed 5 December 2014].

may reflect new trends in alcohol marketing, which targets women much more aggressively than in the past. The figures also indicate the increased chance of future problems caused by alcohol, since it is clear that the prevalence of lifetime alcohol abstainers is decreasing.

The GSHS also asks adolescents whether they have ever been drunk (for example, staggering when walking, not being able to speak right, and throwing up) (WHO 2013a). The question is not based on actual amounts of alcohol consumed, since youth generally have less experience with alcohol and smaller bodies compared with adults. In this case, less alcohol is needed to cause

intoxication and negative effects. On average, among the countries completing the survey, over 20% of female adolescents and 28% of male adolescents reported getting drunk at least once in their lives (Figure 13). When compared with the rates of HED among adolescents 15–19 years of age, some surprising differences emerge: male adolescents (15–19 years of age) report much higher rates of HED than do females in that same age group, 23.2% and 5.0%, respectively. While these indicators are not perfectly compatible, the magnitude of the differences between the sexes could indicate that HED represents only the tip of the iceberg of harmful drinking, especially among young female drinkers.

**FIGURE 13.** Percent of students 13–15 years of age who reported having been drunk at least once, by sex, selected countries of the Americas, 2003–2013 data.



<sup>a</sup> Metropolitan Region only

<sup>b</sup> Quito only

<sup>c</sup> Lara only

**Source:** World Health Organization. Global School-Based Student Health Survey (GSHS) Country Datasets. WHO: Geneva. Available from <http://www.who.int/chp/gshs/datasets/en/> [last accessed 5 December 2014].



Given the negative effects of alcohol on developing brains (Hiller-Sturmhöfel and Swartzwelder, 2004), any youth drinking at all is considered harmful. While rates of “youth HED” help to show the proportion of young people that drink amounts that are excessive even for adults, it is important to recognize that even one drink is dangerous for this age group.

The United States has conducted studies of drinking habits by age, and found that youth below the legal drinking age tend to drink less often than adults; however, on average they drink one to two drinks more per occasion than do adults (Figure 14). It is, therefore, imperative for alcohol policies to target youth, in order to be able to alter their consumption habits early on.

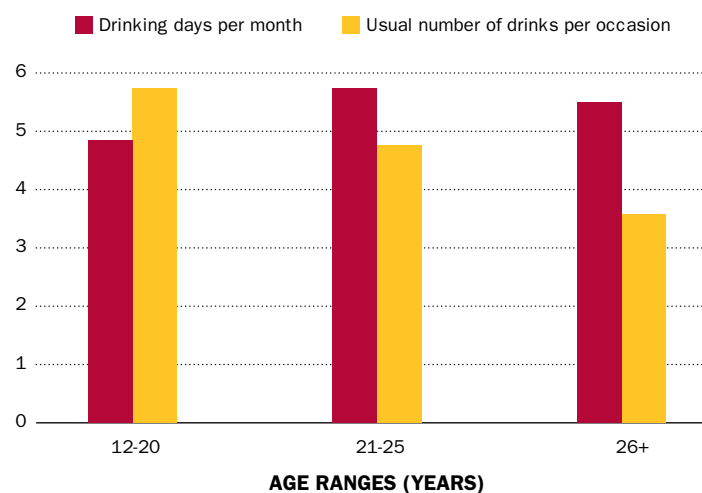
Alcohol is by far the greatest risk factor for death among adolescents 15–19 years of age. According to the Institute for Health Metrics and Evaluation (IHME)’s *Global Burden of Disease* study, Brazil has the highest rate of alcohol-attributable deaths among this age group, followed by Guatemala and Venezuela. Around 14,000 deaths of children and youths under 19 years of age in the Americas were attributed to alcohol in 2010. Figure 15 shows the death rate among people 15–19 years of age by subregions of the Americas.

### Income and inequality

There are multiple ways in which income and alcohol consumption relate to one another. Studies show that a country’s economic development is positively associated with alcohol consumption; therefore, as countries in the Americas develop economically, it is expected that they will experience an increase in alcohol consumption and resulting harms. At the same time, evidence suggests that the socioeconomically disadvantaged often experience more harm from the same levels of consumption than do their wealthier counterparts, possibly due to differences in consumption patterns, a lack of access to health care resources, or because they experience greater social exclusion (Room, 2004). Figure 16 shows this relationship on the country level, where less economically-developed countries tend to suffer a higher burden of death and disability *per liter* of alcohol consumed.

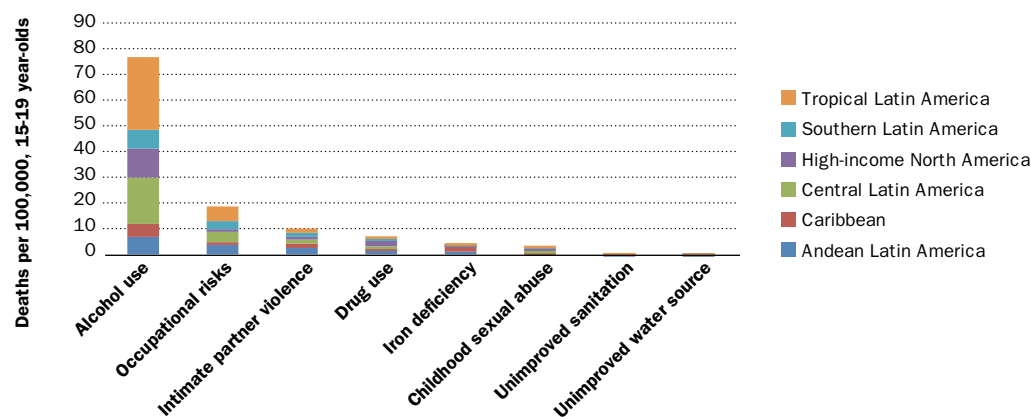
While inequality, consumption habits, and harms are relatively easy to compare *between* countries, they are much more difficult to estimate *within* countries. Latin America has more income inequality than any other region of the world (Ortiz and Cummins, 2011), which raises enormous questions both for the representativeness of national-level data as well as for the effective development and implementation of national policies or inter-

FIGURE 14. Drinking patterns of adolescents compared to other age groups, United States of America, 2010.



**Source:** United States, Department of Health and Human Services (HHS), Substance Abuse and Mental Health Services Administration (SAMSHA) (2011). Results from the 2010 National Survey on Drug Use and Health: Summary of National Findings. NSDUH Series H-41, HHS Publication No. (SMA) 11-4658. Rockville, MD: Substance Abuse and Mental Health Services Administration. Available from: <http://archive.samhsa.gov/data/NSDUH/2k10nsduh/2k10results.htm> [last accessed on 2 December 2014].

**FIGURE 15.** Death rates among people 15–19 years of age, by risk factor and by subregion, Region of the Americas, 2010.



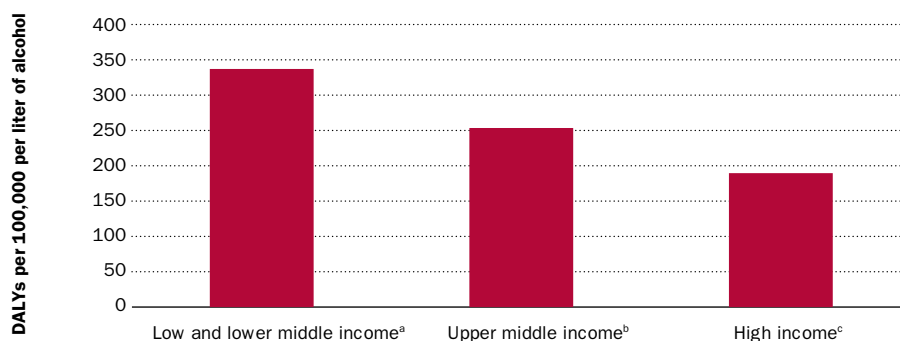
**Note:** These data are modelled by the Institute for Health Metrics and Evaluation (IHME) and may not compare with WHO mortality data. Nonetheless, it is valuable for comparing relative deaths from different causes between subregions.

**Source:** Institute for Health Metrics and Evaluation (IHME). Global Burden of Disease Study 2010 (GBD 2010) Results by Risk Factor 1990–2010 – Country Level. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2013. Available from: <http://ghdx.healthdata.org/global-burden-disease-study-2010-gbd-2010-data-downloads> [last accessed on 1 December 2014].

ventions. Countries with higher inequality within their borders should therefore pay special attention to the distribution of the harms caused by alcohol. As countries in the Americas continue to develop economically, public health professionals and policymakers have the responsibility of ensuring that policies and services reach the most vulnerable populations. People who had been unable to afford alcoholic beverages in the past, but who have

benefitted from their country's recent economic growth, may become targets for the alcohol industry's marketing strategies. These groups are particularly vulnerable, in that they may still face barriers to education and to health and social services. Thus, it is crucial that governments of developing countries recognize this relationship and make alcohol control and treatment programs a priority.

**FIGURE 16.** Burden of death and disability attributed to alcohol per liter of alcohol consumed per capita, by country income level, Region of the Americas, 2012.



<sup>a</sup> Low and lower middle-income countries: BLZ, BOL, ELS, GUT, GUY, HAI, HON, NIC, PAR.

<sup>b</sup> Upper middle-income countries: ANI, ARG, BRA, CHI, COL, COR, CUB, DOM, DOR, ECU, GRA, JAM, MEX, PAN, PER, SAL, SKN, SUR, SVG, URU, VEN.

<sup>c</sup> High-income countries: BAH, BAR, CAN, TRT, USA.

**Source:** Centre for Addiction and Mental Health's World Health Organization/Pan American Health Organization (WHO/PAHO) Collaborating Centre in Addiction and Mental Health, 2014.

**Indigenous peoples**

Culture plays an important role in drinking patterns and the harms caused by alcohol consumption, giving rise to differences from country to country and within countries themselves. Factors such as religious beliefs, traditional gender roles, ethnic traditions, or other environments can work to diminish or aggravate a person’s drinking habits.

In the Americas, where indigenous peoples account for approximately 13% of the population (Sealey, 2013), monitoring patterns of consumption and harm among these and other vulnerable groups is an important responsibility for public health researchers and practitioners. Mexico has the largest indigenous population in the Region—over 15 million people. Other countries with high indigenous populations include Peru, Guatemala (where indigenous peoples make up 60% of the country’s population), Bolivia (where 41% of the population 15 years of age and older is of indigenous origin), and Ecuador (IWGIA, 2014). Unfortunately, data on indigenous populations in general are scarce, and even less is documented on alcohol consumption and harms in these groups beyond anecdotal reports or limited case studies. One study found that indigenous populations are at a higher risk for alcohol use disorders, depression, and suicide, among many other

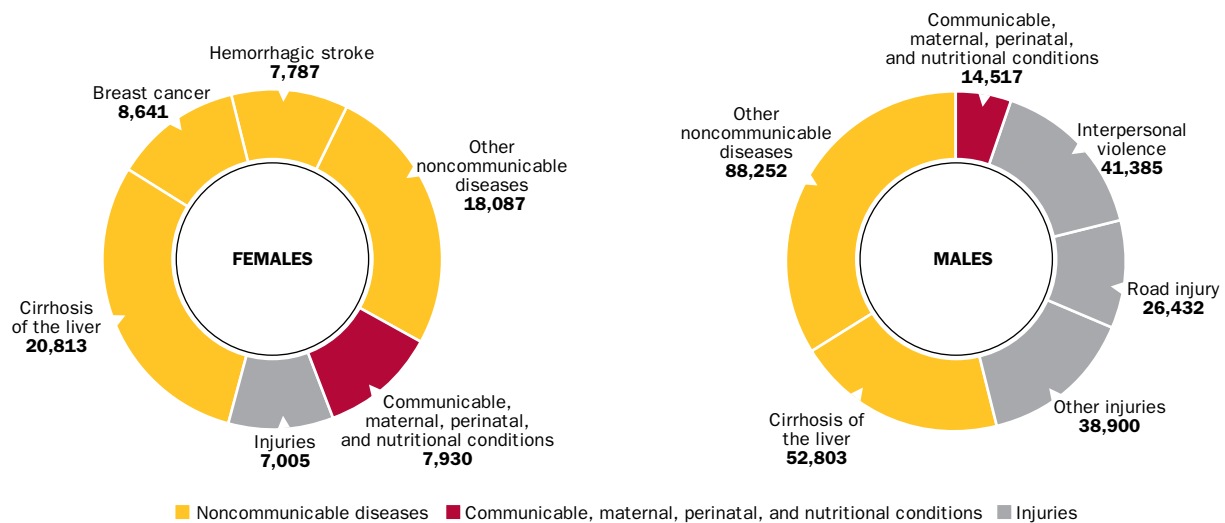
physical and mental health conditions causally related to alcohol consumption (Pedrero and Oyarce, 2011). The wide diversity of indigenous groups also makes data collection difficult. One PAHO study looked at the unique interactions between alcohol and culture in five distinct groups from all over the Americas and found differences in how people perceived and reacted to the harms from alcohol; all groups experienced significant problems (PAHO, 2005).

Considering the large and diverse indigenous populations in many countries of the Americas, much more research is needed to better understand the links between consumption and harms in these groups as well as the effectiveness of interventions and policies that could reduce this burden.

**MORTALITY**

Alcohol caused over 300,000 deaths in the Americas in 2012—a number that exceeds the entire population of many Caribbean countries. Of those deaths, more than 80,000 represent deaths where alcohol was a necessary cause (i.e. all deaths from these conditions would not have occurred if alcohol were not involved (Gawryszewski and Monteiro, 2014)). On average, alcohol led

**FIGURE 17.** Number of alcohol-attributable deaths, by cause and by sex, Region of the Americas, 2012.



**Source:** Centre for Addiction and Mental Health’s World Health Organization/Pan American Health Organization (WHO/PAHO) Collaborating Centre in Addiction and Mental Health, 2014.

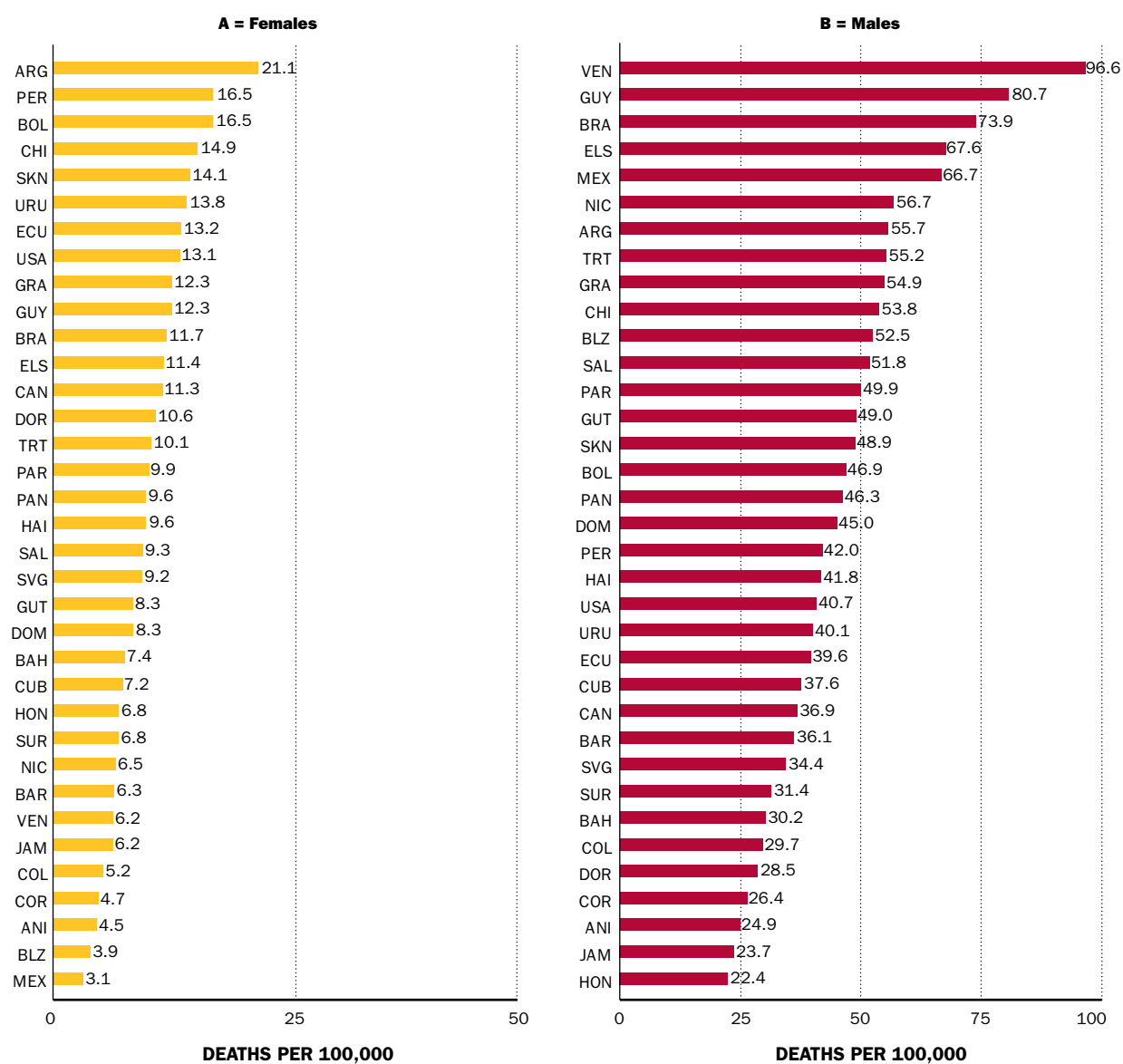
to approximately one death every 100 seconds in the Americas in 2012.

Figure 17 shows the burden of alcohol-attributable deaths by cause in the Americas for women and men. While liver cirrhosis is the leading reported cause of alcohol-attributable death for both sexes, many differences arise in alcohol-attributable mortality between

men and women. Men, for example, tend to die much more from alcohol-attributable injuries (shown in gray in the figure); alcohol-attributable breast cancer, non-existent in men, accounts for 16% of deaths caused by alcohol consumption in women.

As shown in Figure 18, large differences exist between the alcohol-attributable death rates for women and

**FIGURE 18.** Alcohol-attributable deaths rates (per 100,000 population), by sex, countries of the Americas, 2012.



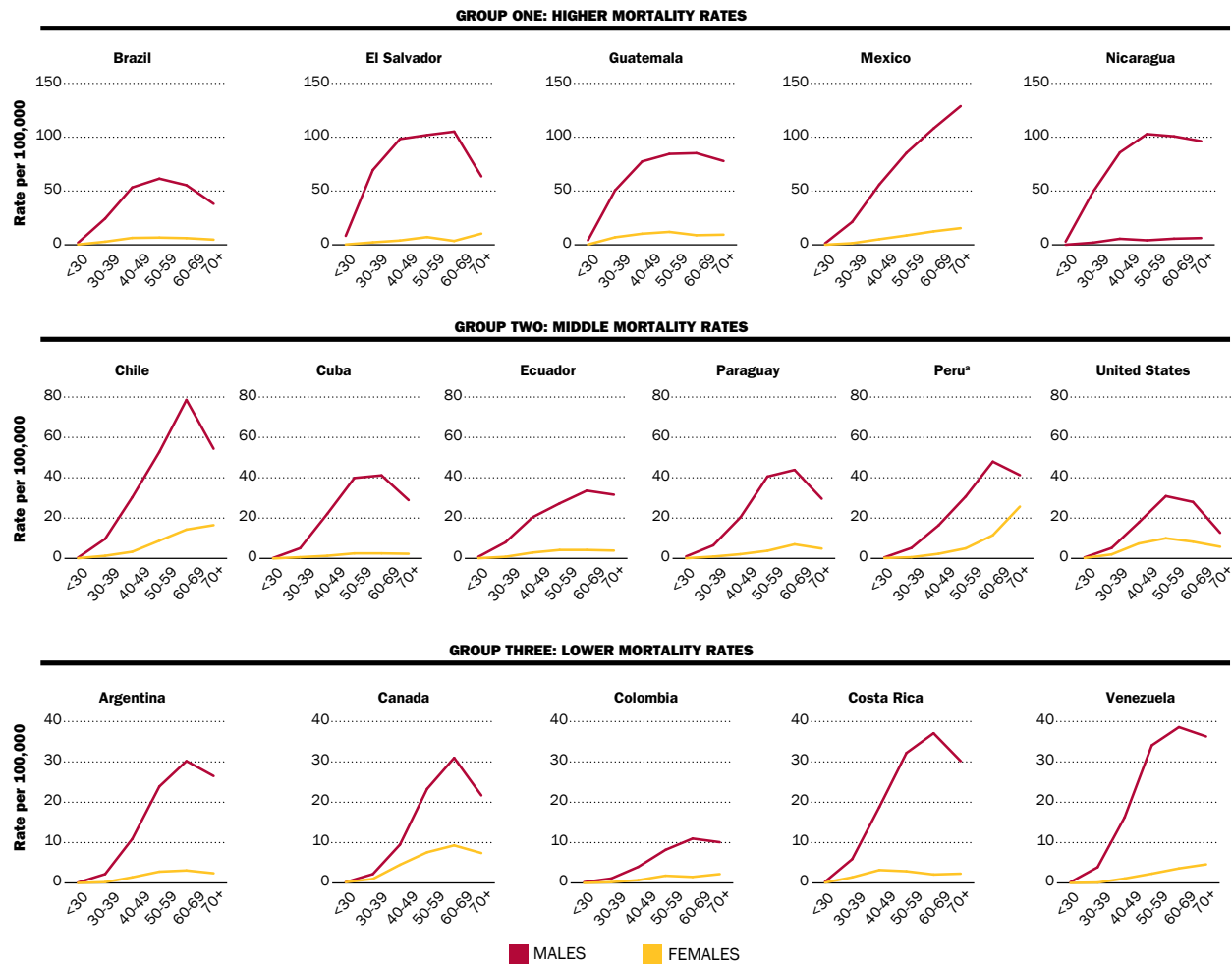
**Source:** Centre for Addiction and Mental Health's World Health Organization/Pan American Health Organization (WHO/PAHO) Collaborating Centre in Addiction and Mental Health, 2014.

men. Venezuela has the highest rates among men, but women in that country seem to die at much lower rates from alcohol-attributable consequences. Antigua and Barbuda boast some of the lowest rates for both men and women, although Mexican women appear to have the lowest risk for alcohol-attributable death overall—potentially a reflection of their high lifetime abstention and low HED rates.

In terms of deaths from conditions that are fully attributable to alcohol (conditions that would not exist if there was no alcohol consumption, such as alcoholic

liver diseases and alcohol poisoning), countries vary widely. Overall, however, these deaths tend to be more common in men than in women and increase with age up to about 70 years, when other causes of mortality take over. These fully alcohol-attributable deaths also stand in contrast with causes of alcohol-related deaths overall, where injuries tend to play a much larger role and more profoundly affect younger people. Figure 19 shows the rates of deaths fully attributable to alcohol, by age and sex in selected countries, which have been organized into three groups based on the rates of alcohol-attributable deaths per 100,000 people. Group one

**FIGURE 19.** Rates of deaths fully attributable to alcohol, by age group and by sex, selected countries of the Americas, 2007–2009.



\* Data are from 2007 and 2009 only.

Source: Gawryszewski VP and Monteiro MG (2014). Mortality from diseases, conditions, and injuries where alcohol is a necessary cause in the Americas, 2007–2009. *Addiction*, 109. doi: 10.1111/add.12418.

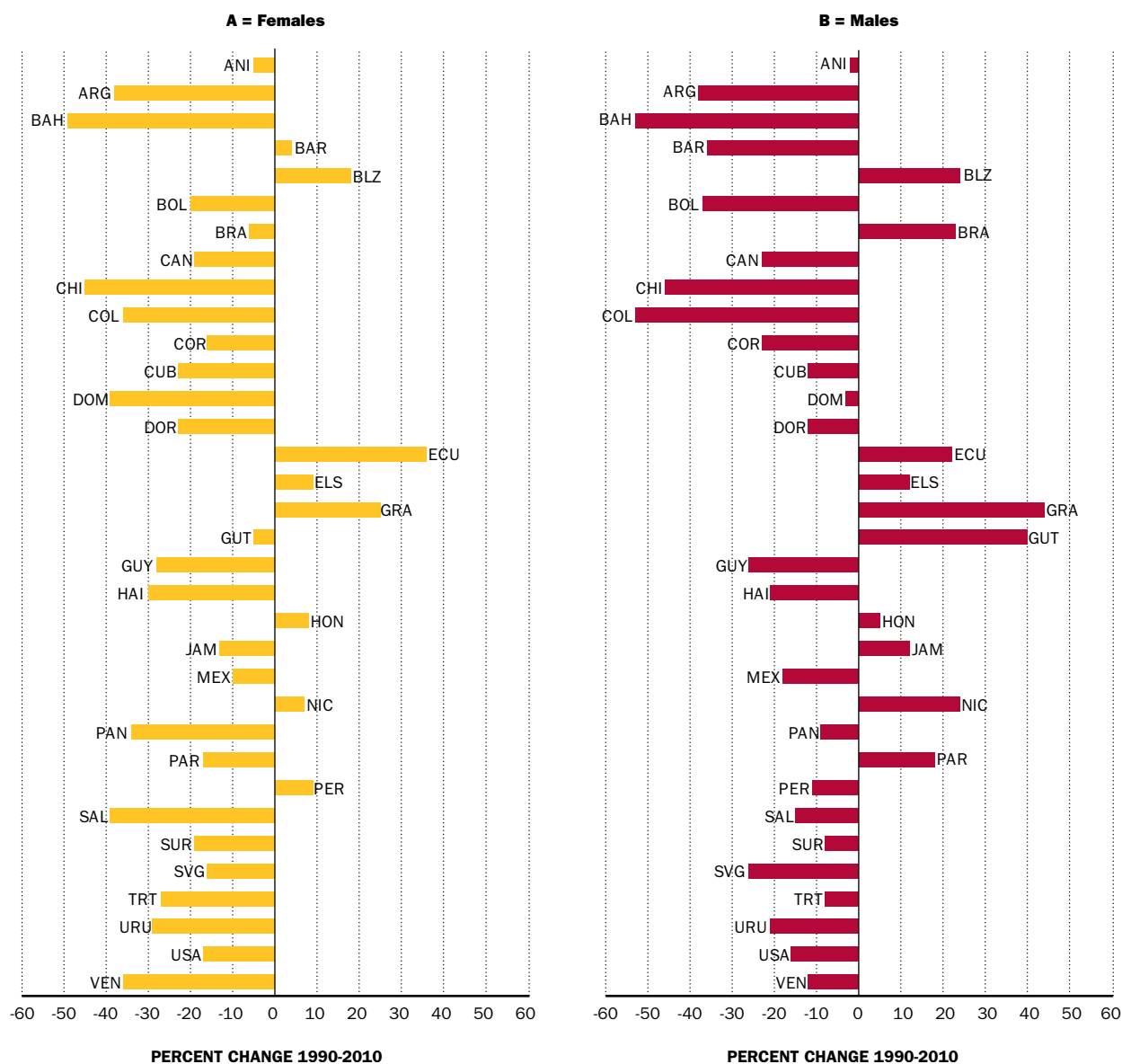


(Brazil, El Salvador, Guatemala, Mexico, and Nicaragua) has rates that sometimes exceed 100 per 100,000 population, while Group three (Argentina, Canada, Colombia, Costa Rica, and Venezuela) has some of the lowest rates (under 40 per 100,000 population).

### Recent changes

Figure 20 shows the changes in alcohol-attributable death rates between 1990 and 2010. Most countries have reduced the rates of alcohol-attributable death. However, it is important to look at these data in the context of changes in other causes of death. Region-

**FIGURE 20.** Changes in alcohol-attributable death rates (per 100,000 population), by sex, countries of the Americas, 1990 to 2010.



**Note:** These data are modelled by the Institute for Health Metrics and Evaluation (IHME) and may not compare with WHO mortality data. Nonetheless, it is valuable for comparing relative changes over time between countries.

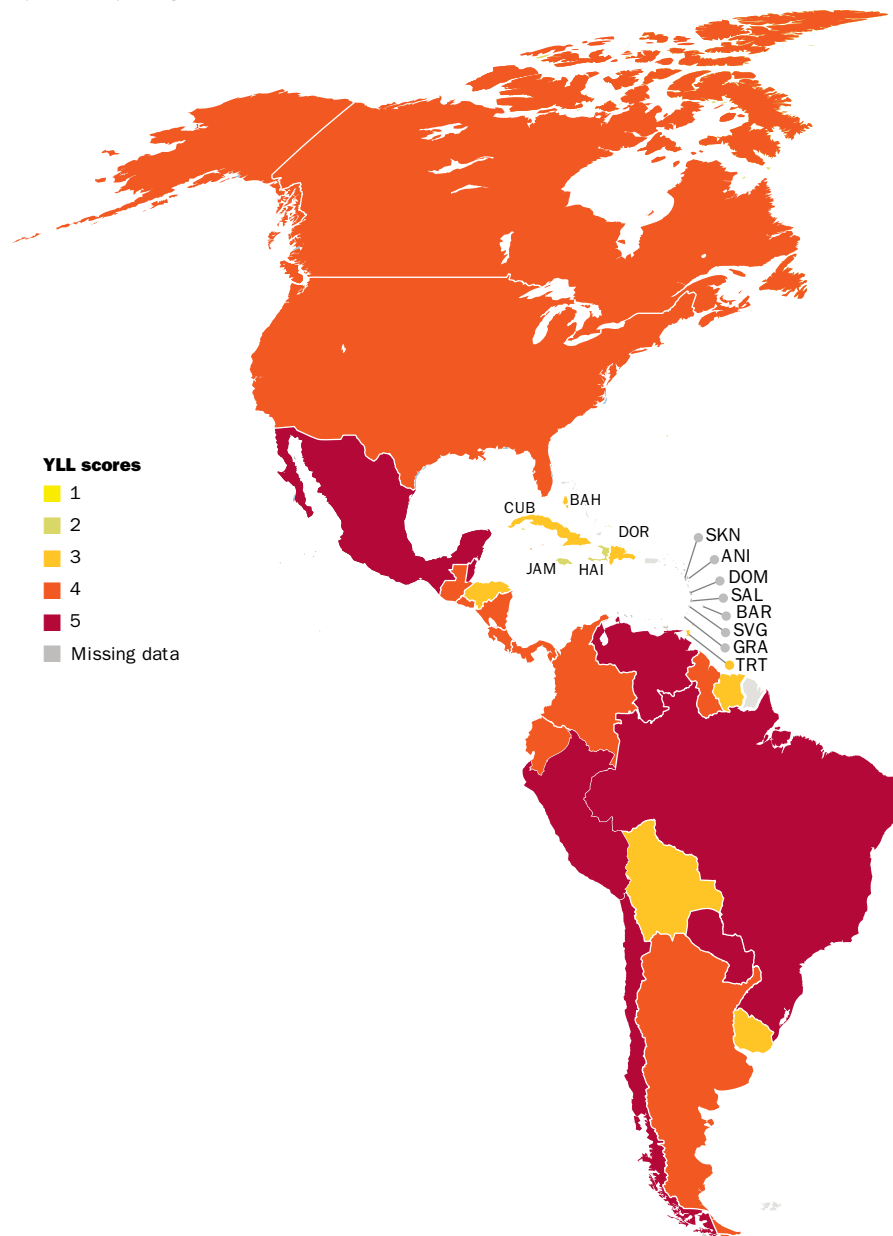
**Source:** Institute for Health Metrics and Evaluation (IHME). Global Burden of Disease Study 2010 (GBD 2010) Results by Risk Factor 1990-2010 - Country Level. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2013, Available from: <http://ghdx.healthdata.org/global-burden-disease-study-2010-gbd-2010-data-downloads> [last accessed on 1 December 2014].

ally, mortality overall has fallen over the past 20 years, but alcohol continues to be one of the top risk factors for death and disability. Furthermore, as the number of people abstaining from alcohol decreases and consumption increases, these positive effects may not be long-lasting.

### Measuring harm: years of life lost (YLL) scores

The alcohol-attributable years of life lost (YLL) score (Figure 21) is another way to measure the harm caused by alcohol. YLL is an indicator commonly used in public health to estimate the full effects of early death. Since the harmful use of alcohol is the major risk factor

FIGURE 21. YLL scores by country, Region of the Americas, 2010.



**Source:** World Health Organization. Observatory Data Repository (Region of the Americas. Global Information System on Alcohol and Health, Alcohol-attributable YLL score, Available from: <http://apps.who.int/gho/data/node.main-amro.A1109?lang=en&showonly=GISAH> [last accessed on 18 December 2014].

for death among people in their most productive years (among people 15–49 years of age), YLL is a valuable tool for gauging the alcohol-attributable burden and for being able to make comparisons across countries. YLL scores are beginning to replace the patterns of drinking scores as the best representation of alcohol-attributable harm, because they are easier to calculate and depend less on survey data.

## MORBIDITY

While mortality is the most extreme outcome of alcohol's harm, it is but a small proportion of the negative consequences from harmful alcohol consumption. Many more people suffer from health conditions caused by their drinking, even if those conditions are not fatal. When included in measures of disease and injury, alcohol caused more than 274 million years of healthy life lost (DALYs) in the Americas in 2012.

Alcohol use disorders account for the largest proportion of DALYs in the Region. This indicator includes people who are dependent on alcohol, as well as those whose drinking causes physical or mental harm. About 5.7% of the Region's population reported suffering from an AUD, although the number is likely higher since alcohol use disorders may be underreported (Walters et al., 2013).

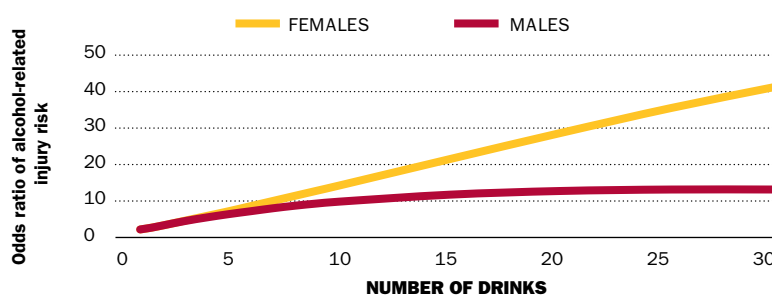
Injury is another important factor in harms caused by alcohol consumption; about one-third of all alcohol-attributable DALYs are caused by injuries such as interpersonal violence and motor vehicle crashes. One

recent study (Cherpitel et al., 2014) looked at the relationship between alcohol and injuries, and found a clear relationship between the average number of drinks consumed and the risk of injury. Another important finding was that the risk of injury for women increased much more quickly than for men for the same increase number of drinks consumed during a drinking occasion (Figure 22).

Gender differences in alcohol-attributable DALYs follow trends similar to alcohol-attributable deaths. Men are at a much higher risk for alcohol-attributable DALYs because of their generally riskier drinking patterns. On average, DALYs attributable to alcohol are about five times higher in men than they are in women. As seen in the data on alcohol-attributable mortality, men are much more likely to suffer from injuries (especially interpersonal violence), while women who drink are more likely to lose a large portion of healthy years due to breast cancer (Figure 23). As mentioned previously, however, for the same levels of consumption on a drinking occasion, women tend to have a much higher risk of injury. AUDs are another large component of disability among both men and women, reflecting the fact that mental disorders play a substantial, and negative, role in alcohol-attributable DALYs lost.

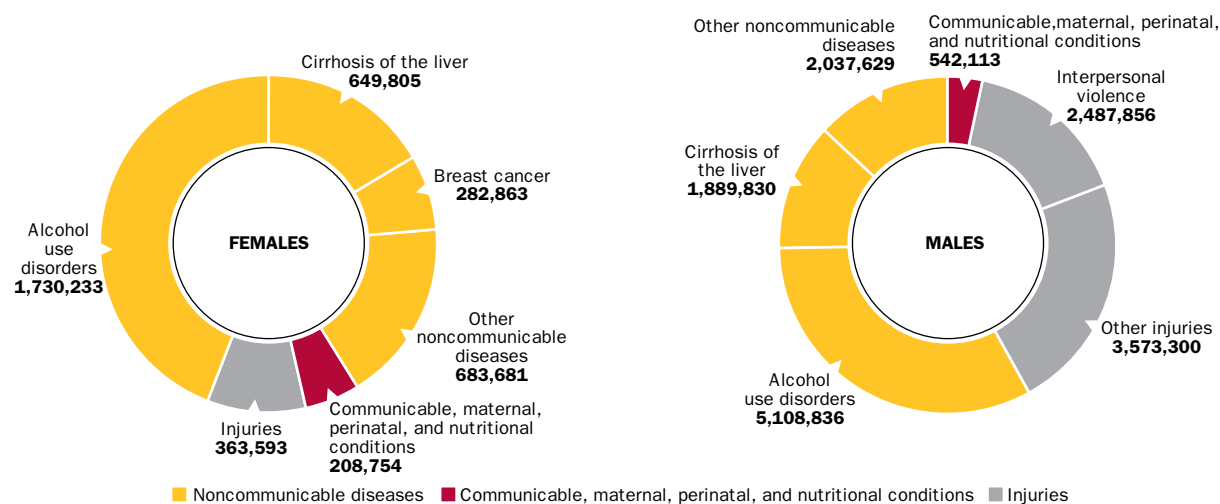
Guyana and Peru provide an important example related to consumption patterns and harm: while both countries experience some of the highest loss of DALYs per 100,000 people, they do not have the highest rates of APC or HED. Therefore, it is important to examine the country-specific factors other than alcohol con-

FIGURE 22. Relative risk of alcohol-related injury, by sex, Region of the Americas, 2014.



Source: Cherpitel CJ, Yu Y, Bond J, Borges G, Monteiro MG (2014). Relative risk of injury from acute alcohol consumption: modeling the dose-response relationship in emergency department data from 18 countries. *Addiction*. doi : 10.1111/add.12755.

FIGURE 23. Alcohol-attributable DALYs, by cause and by sex, Region of the Americas, 2012.



**Source:** Centre for Addiction and Mental Health's World Health Organization/Pan American Health Organization (WHO/PAHO) Collaborating Centre in Addiction and Mental Health, 2014.

sumption that contribute to a higher burden of disease among diseases and conditions that are causally related to alcohol consumption. These factors may include a higher proportion of youth populations, level of economic development and inequality, lack of policies and their enforcement, or cultural factors not reflected in the data. Furthermore, large differences exist between rates of DALYs attributable to alcohol for men and women within the same country. In El Salvador, for example, men suffer some of the highest losses in DALYs attributable to alcohol, while women are much closer to the regional average (Figure 24).

The average prevalence of AUDs in the Americas hovers around 3.2% and 9.0% for the population of adult women and men, respectively. These figures are higher than the global averages and, most alarmingly, a greater proportion of women suffer from AUDs in the Americas than anywhere else in the world (see the chart showing data for women in Figure 25).

### Recent changes

The burden of disease caused by alcohol in the Americas is high, and is, in large part, preventable. While all countries of the Americas have committed themselves to reducing the burden of alcohol, little progress has been seen on alcohol-attributable DALYs since the

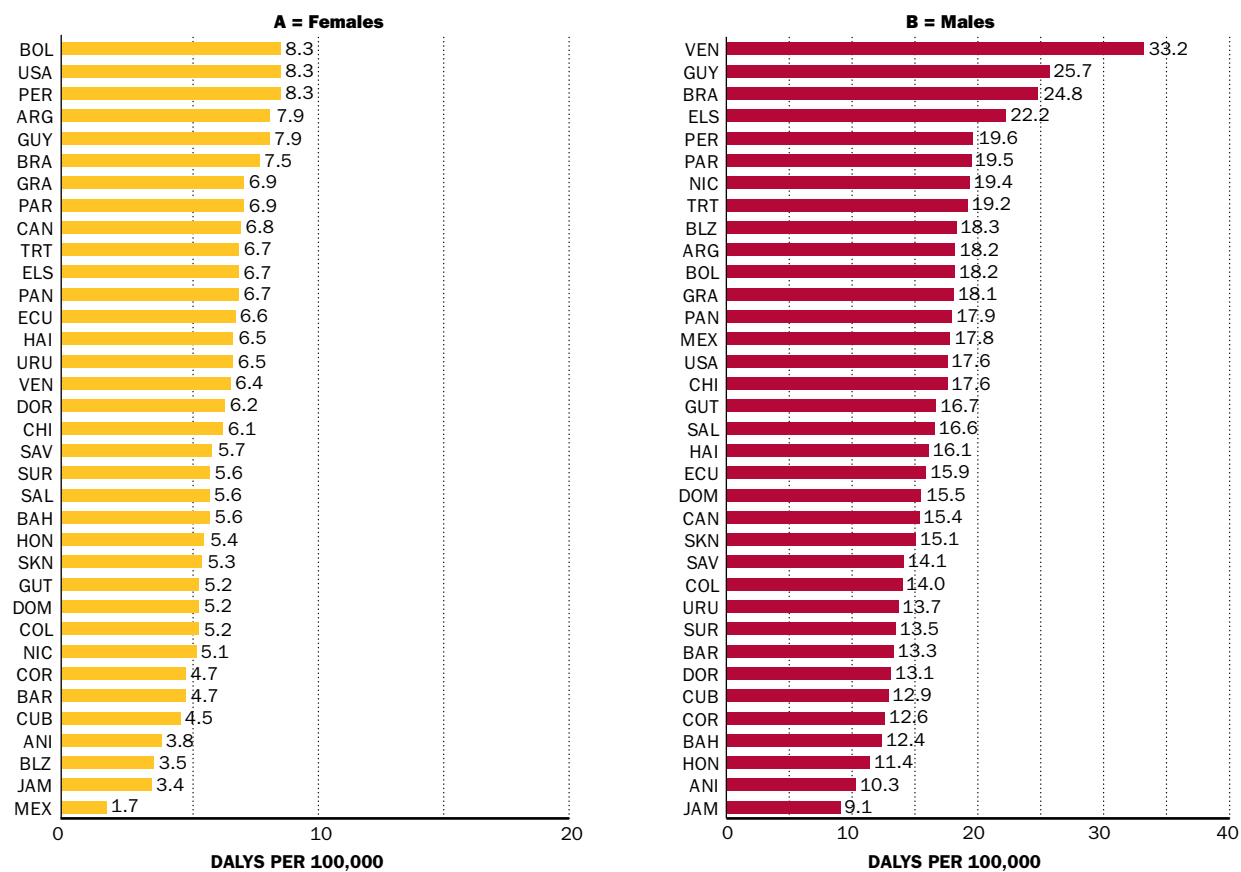
2010 launch of WHO's *Global Strategy to Reduce the Harmful Use of Alcohol* (WHA63.13 of the Sixty-third World Health Assembly), that Organization's publication of the *Global Status Report on Alcohol and Health* in 2011, and the adoption by PAHO Member States of the *Plan of Action to Prevent the Harmful Use of Alcohol* that same year. In general, while countries are working to implement effective interventions to combat the harmful use of alcohol, few, if any, have come to fruition to date.

Figure 26 shows the ranking of the top ten risk factors that contribute to DALYs in the Americas. In 1990, alcohol was the fifth risk factor for DALYs in the Region. While DALYs overall have fallen over the past 20 years, alcohol has remained one of the top five or six risk factors. While the importance of alcohol as a risk factor for DALYs appears to have fallen since 2005, a closer look at the actual rates reveals that alcohol-attributable DALYs have, in fact, increased slightly—unfortunately, so have other risk factors such as high-fasting plasma glucose.

### ECONOMIC COSTS

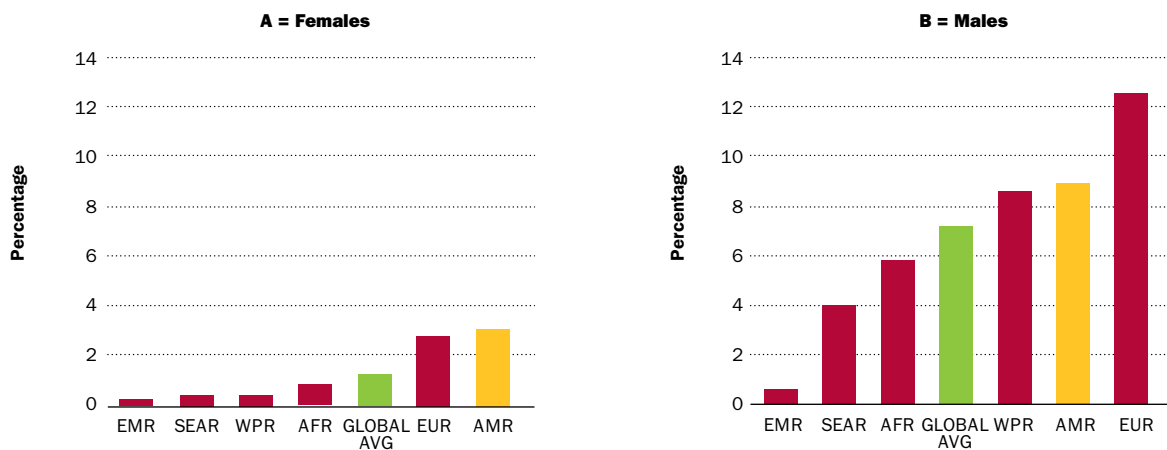
In addition to the health burden caused by alcohol, its consumption also causes a large economic burden.

FIGURE 24. Alcohol-attributable DALYs (per 100,000 population), by sex, countries of the Americas, 2012.



Source: Centre for Addiction and Mental Health's World Health Organization/Pan American Health Organization (WHO/PAHO) Collaborating Centre in Addiction and Mental Health, 2014.

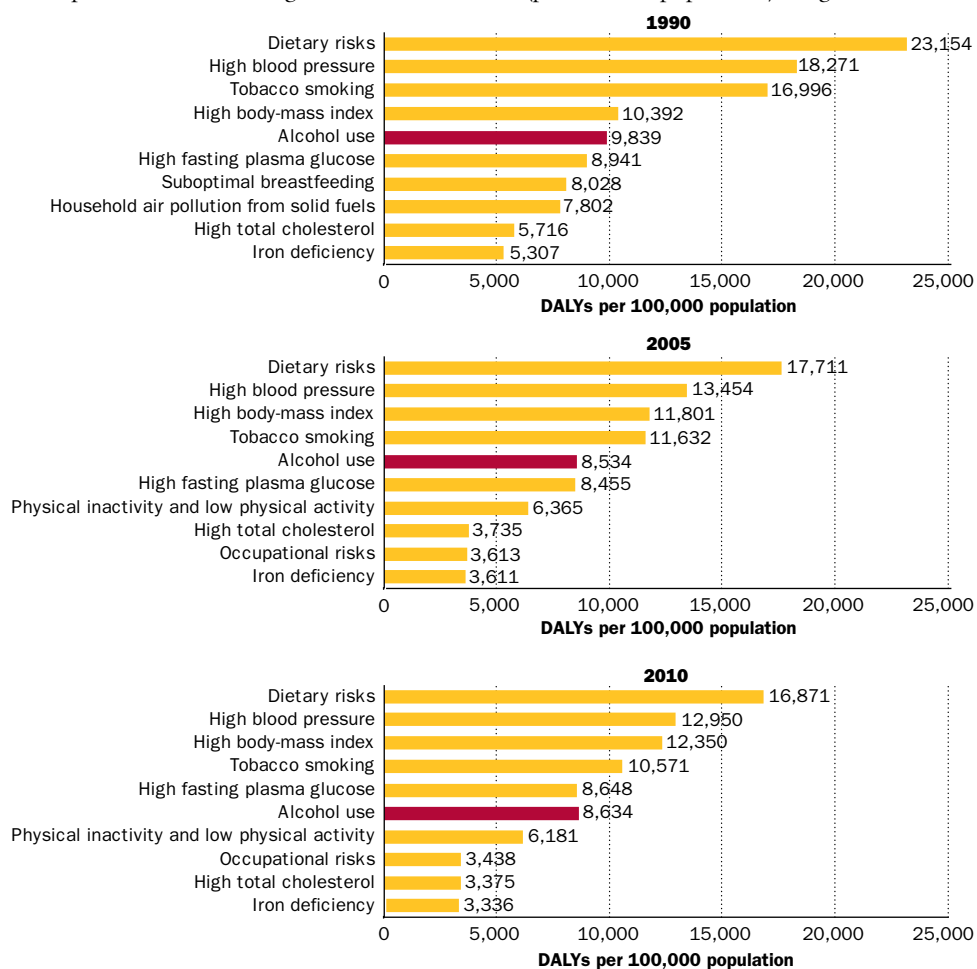
FIGURE 25. Percentage of the population 15 years of age and older with an alcohol-use disorder (AUD), by sex, WHO Regions and worldwide, 2010.



Source: World Health Organization. Global status report on alcohol and health 2014. (Geneva, Switzerland: World Health Organization, 2014).



FIGURE 26. Top 10 risk factors for age-standardized DALYs (per 100,000 population), Region of the Americas, 1990 to 2010.



**Note:** These data are modelled by the Institute for Health Metrics and Evaluation (IHME) and may not compare with WHO data. Nonetheless, it is valuable for comparing relative DALYs from different causes between years.

**Source:** Institute for Health Metrics and Evaluation (IHME). Global Burden of Disease Study 2010 (GBD 2010) Results by Risk Factor 1990–2010 – Country Level. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2013, Available from: <http://ghdx.healthdata.org/global-burden-disease-study-2010-gbd-2010-data-downloads> [last accessed on 1 December 2014].

There are multiple ways to measure the economic costs caused by alcohol, including those to health care, law enforcement, and wage loss. The money spent on alcohol itself can be considered a burden as well, especially when wages are used to buy alcohol or care for a drinker rather than for other needs such as food or school supplies. Alcohol's economic costs to society can be classified into three categories, which can then be further divided into the costs borne by the drinkers themselves, costs borne by persons close to the drinker (such as family, friends, coworkers), and costs borne by society at large (Marsden Jacob Assoc., 2012).

No known society exists in which alcohol's economic benefits outweigh the costs derived from its associated problems. See Table 6 for more details.

The greatest proportion of alcohol-attributable costs results from loss of productivity. In general, people are more productive economically from 15–49 years of age—precisely the ages where alcohol takes the largest toll on death and disability. Furthermore, the harmful use of alcohol likely results in billions of dollars of lost wages each year in the Americas.

TABLE 6. Alcohol's cost to drinkers, others, and society at large.

<b>Harm to drinkers' health</b>	Drinkers	Includes money spent on emergency room or mental health services.
	Family, friends, coworkers	People close to the drinker often sacrifice their own time and money to care for drinkers.
	Society	When medical services or insurance are partially or fully subsidized by all.
<b>Loss of productivity in the workplace</b>	Drinkers	The harmful use of alcohol is associated with absenteeism, lost productivity, and workplace injuries.
	Family, friends, coworkers	Includes absenteeism to care for a loved one and lost productivity for coworkers taking on the drinkers' responsibilities as well as their own.
	Society	The loss of productivity due to the use of alcohol likely contributes to significant losses in a country's GDP.
<b>Harm to others</b>	Can affect family, friends, coworkers, or strangers. Includes health services in the case of motor vehicle crashes and violence; counseling services for victims of abuse or violence; criminal justice systems; insurance systems (for health and property); child protection systems; losses due to burglary/robbery; property damage; and lowered quality of life for both drinkers and loved ones.	

**Source:** Based partially on Marsden Jacob Associates (2012). Bingeing, collateral damage and the benefits and costs of taxing alcohol rationally. Report prepared for the Foundation for Alcohol Research and Education.

For example, a 2006 U.S. study estimated that the harmful use of alcohol cost that country approximately US\$ 224 billion (an average of US\$ 750 per person), 76% of which was attributed to binge drinking (at least four or five drinks per occasion for women and men, respectively). More than half the costs were borne by state, local, and federal governments or by people other than the drinkers (Bouchery et al., 2011). Few other countries in the Americas have attempted to calculate the economic burden of alcohol, but the limited studies available estimate that more than 1% of the GDP (PPP) is lost due to harms caused by alcohol consumption in high- and middle-income countries (Rehm et al., 2009).

## HARMS TO OTHERS

Most studies on the burden attributable to alcohol in society have focused on the effects on drinkers themselves, but these studies overlook what could be a larger burden caused by alcohol—the harms drinkers cause to others. As discussed in the previous section on the economic costs of alcohol, a person's drinking can lead to various and often unintended consequences for others, including loved ones, community members, and society as a whole. Harms to others include injury (intentional or unintentional), neglect or abuse (often of family members), neglect of social responsibilities (to family members, friends, and coworkers), property damage, fetal alcohol disorders, and loss of peace of mind (such

as loss of sleep, fear, or concern for loved ones) (WHO–ThaiHealth 2012). Women, in particular, appear to suffer more from the drinking of others (Laslett et al., 2011).

A conservative economic study of drinking's harms to others conducted in Australia found that 75% of that country's population was exposed to alcohol's "third-party harm." Compared with the 4.3% of the Australian population that suffered from alcohol use disorders that same year, it becomes clear that people are much more likely to be affected by the drinking of those who are not dependent (including loved ones, colleagues, or strangers) than they are to suffer any harm from their own drinking (Marsden Jacob Assoc., 2012).

Many of the impressions of alcohol-attributable harms other than health harms are informed by cultural or individual perceptions of harm—what may seem extremely upsetting to one person might not seem that important to others, or it might be considered more socially acceptable in some situations than in others. That said, it is important for countries to attempt to study and quantify the consequences outside of clearly defined health indicators, since a better understanding of alcohol's total burden will help guide discussions about the substance's future role in society. Tobacco's "second-hand" effect has been a major driver in policy changes regarding that substance, and similar arguments can be made regarding the negative effects of alcohol.

# Alcohol policies

## HISTORICAL CONTEXT OF ALCOHOL POLICIES

The consumption of alcoholic beverages has been a part of human society for millennia. Recognizing alcohol's potential for harm, however, many societies have restricted its consumption to specific ceremonies or social classes. After the arrival of European colonizers to the Americas near the end of the 15<sup>th</sup> century, alcohol became a major trading commodity, produced—and regulated—by these colonial powers. The legacy of colonial drinking practices and regulatory structures for alcohol production and sale continue to impact consumption patterns to this day (Room et al., 2002). As alcohol became even more prevalent, temperance movements emerged in many places, with mixed reactions from the populations they affected (Pierce G and Toxqui A, 2014). After many of these prohibition efforts failed, alcohol regulation as a public health tool lost much of its momentum. More recently, in part inspired by the success of tobacco regulation frameworks, a public-health-based approach to alcohol policy is beginning to take priority in many parts of the Americas. Some countries in the Americas have made substantial progress in advancing policies to combat the harms caused by alcohol consumption. However, much progress remains to further reduce the burden of alcohol, especially among high-risk populations such as youth and heavy drinkers.

## FROM DATA TO POLICY ACTION: PAHO/WHO'S ROLE

WHO collects information on alcohol-policy interventions that have been implemented in each of its Member States through the Global Survey on Alcohol and Health, which is conducted every two years. This information is used to help study the effects of specific interventions on harms caused by alcohol consumption, and to develop a toolbox of actions that can be

implemented by policymakers to improve the health of their populations. This toolbox includes the ten target areas outlined in WHO's *Global Strategy to Reduce the Harmful Use of Alcohol* (WHO, 2010b) and PAHO's *Plan of Action to Reduce the Harmful Use of Alcohol* (WHO, 2011). PAHO and WHO have worked to connect government officials to the information and tools they need to implement better policies in their countries.

### BOX 1. TARGET AREAS OF THE GLOBAL STRATEGY TO REDUCE THE HARMFUL USE OF ALCOHOL

- Leadership, awareness and commitment
- Health services' response
- Community action
- Drink-driving policies and countermeasures
- Availability of alcohol
- Marketing of alcoholic beverages
- Pricing policies
- Reducing the negative consequences of drinking and alcohol intoxication
- Reducing the public health impact of illicit alcohol and informally produced alcohol
- Monitoring and surveillance

A fair amount of research evidence exists on the relative value of different strategies (for more detailed evaluations of best practices in alcohol policies, see Babor et al, 2010).

There are a number of measures to evaluate policies: 1) effectiveness in reducing alcohol consumption and/or the resulting harms; 2) breadth of research that supports evidence of effectiveness; and 3) extent of testing across diverse countries. Table 7 outlines the framework developed by alcohol policy experts to rate each of the three criteria (Babor et al, 2010).

TABLE 7. Rating criteria of effectiveness, research support, and cross-national testing in evaluating alcohol policies.

	<b>Effectiveness</b>	<b>Breadth of research support</b>	<b>Cross-national testing</b>
0	Evidence indicates a lack of effectiveness	No studies of effectiveness have been undertaken	This strategy has only been studied in one country
+	Evidence for limited effectiveness	One or two well-designed effectiveness studies completed	This strategy has been studied in at least two countries
++	Evidence for moderate effectiveness	Several effectiveness studies have been completed, sometimes in different countries, but no integrative reviews were available	This strategy has been studied in several countries
+++	Evidence for a high degree of effectiveness	Enough studies of effectiveness have been completed to permit integrative literature reviews or meta-analyses	This strategy has been studied in many countries
?	No controlled studies have been undertaken or there is insufficient evidence upon which to make a judgment		

**Source:** Babor TF, Caetano R, Casswell S, Edwards G, Giesbrecht N, Graham K, Grube J, Hill L, Holder H, Homel R, Livingston M, Osterberg E, Rehm J, Room R, Rossow I (2010). *Alcohol: No Ordinary Commodity. Research and Public Policy*. Second Edition. Society for the Study of Addiction and World Health Organization. Oxford University Press.

## WHO “BEST BUYS”

Although WHO’s *Global Strategy to Reduce the Harmful Use of Alcohol* and PAHO’s *Plan of Action to Reduce the Harmful Use of Alcohol* include 10 recommended policy areas for action, three of them are considered to be more cost-effective in reducing the harms caused by alcohol when compared to the others: regulating the availability, marketing, and price of alcoholic beverages. Considering that even the most economically developed countries must deal with resource limitations, it is crucial that policies be evaluated based on cost as well as efficacy. The successful implementation of specific cost-effective policies can also help generate political and cultural support for other health interventions.

### Controlling the availability of alcohol

Since the beginning of recorded history, societies have imposed regulations on the availability of alcohol in order to offset its harmful effects. While the mass production of alcohol has drastically increased access to the substance by the public at large, many policymakers have continued to support legislation that restricts its availability. In most countries of the Americas, alcohol is produced and sold by private entities, and governments may or may not regulate and monitor these activities

in the interest of public health. Based on past experiences, a total ban on alcohol is not realistic for the Americas, but there are many actions that governments can take to control access to alcohol, including government monopolies, limiting hours and days of sale, and enforcement of minimum purchasing ages. Licensing systems, for example, allow governments to control the number of alcohol producers and retailers in a given area by capping the number of permits they issue. Table 8 shows the various interventions to control the availability of alcohol to the public and their effectiveness.

Most of the countries of the Americas (almost 80%) have in place some type of restriction on the hours and days in which alcohol can be sold; fewer (under 30%) implement restrictions on outlet density, and only three countries of the Americas have a government monopoly on retail sales (Table 9).

Minimum drinking ages, in particular, have a significant impact on youth drinking. In particular, higher minimum purchasing ages in the U.S. and Canada have been associated with reductions in traffic injuries, which are the number one cause of death among youth in the Region. Most countries in the Americas prohibit the sale of alcohol to minors less than 18 years of age (Figure 27).

TABLE 8. Interventions to limit the availability of alcohol and their ratings.

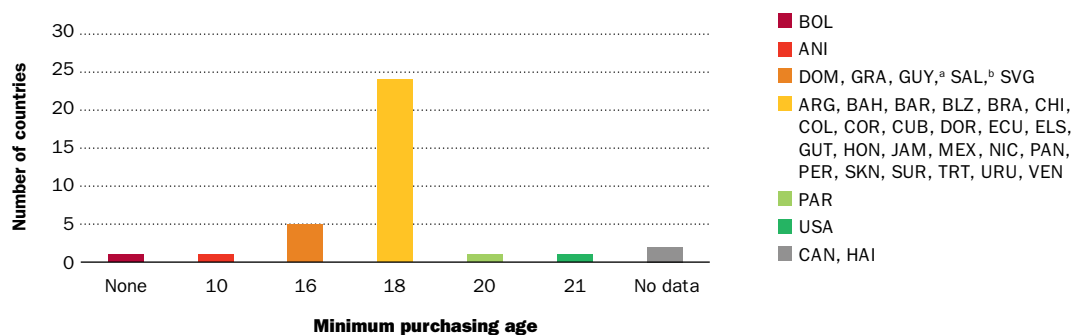
Strategy or intervention	Effectiveness	Breadth of research support	Cross-national testing	Comments
Ban on sales	+++	+++	++	Can reduce consumption and harm substantially, but often with adverse side-effects from black market, which is expensive to suppress. Ineffective without enforcement.
Ban on drinking in public places	?	+	+	Affects young or marginalized high-risk drinkers; may displace harm without necessarily reducing it.
Minimum legal purchase age	+++	+++	++	Effective in reducing traffic fatalities and other harms with minimal enforcement but enforcement substantially increases effectiveness and cost.
Rationing	++	++	++	Effects greater on heavy drinkers.
Government monopoly of retail sales	++	+++	++	Effective way to limit alcohol consumption and harm. Public health and public order goals by government monopolies increase beneficial effects.
Hours and days of sales restrictions	++	++	+++	Effective where changes in trading hours meaningfully reduce alcohol availability or where problems such as late-night violence are specifically related to hours of sale.
Restrictions on density of outlets	++	+++	++	Evidence for both consumption and problems. Changes to outlet numbers affect availability most in areas with low prior availability, but bunching of outlets into high-density entertainment districts may cause problems with public order and violence.
Different availability by alcohol strength	++	++	++	Mostly tested in terms of different strengths of beer and for broadened availability of wine.

Source: Babor et al, 2010.

Critical to the success of all initiatives to restrict alcohol availability is a focus on strengthening enforcement mechanisms. These mechanisms can be funded through permit fees from licensing systems or other regulatory

measures. Most of these strategies are best implemented and enforced at the local level, where they can reduce violence, crime, and other harms caused by alcohol.

FIGURE 27. Minimum age for purchasing alcohol, countries of the Americas, 2012.



<sup>a</sup> Age limit off-premise sales: 16 years; Age limit on-premise sales: 18 years.

<sup>b</sup> Age limit off-premise sales: 18 years; Age limit on-premise sales: 16 years.

Source: World Health Organization. Observatory Data Repository (Region of the Americas. Global Information System on Alcohol and Health, Age limits, Available from: <http://apps.who.int/gho/data/node.main-amro.A1119?lang=en&showonly=GISAH> [last accessed on 18 December 2014].

TABLE 9. Alcohol sales restrictions, by type, countries of the Americas, 2012.

Country	Hours and days	Outlet density	Government monopoly
ANI	Partial	No	No
ARG	No	No	No
BAH	Yes	Yes	No
BAR	Partial	No	No
BLZ	Partial	No	No
BOL	No	No	No
BRA	No	No	No
CAN	Partial	Yes	Yes
CHI	Partial	Partial	No
COL	No	No	No
COR	Yes	Yes	No
CUB	Yes	Yes	Yes
DOM	Partial	No	No
DOR	Partial	No	No
ECU	Partial	No	No
ELS	Partial	No	Partial
GRA	Partial	No	No
GUT	Partial	No	No
GUY	Partial	Yes	No
HAI	...	...	...
HON	Partial	No	No
JAM	Partial	No	No
MEX	Partial	Yes	No
NIC	Partial	No	No
PAN	Partial	Yes	Yes
PAR	No	No	No
PER	Partial	Partial	No
SAL	Yes	No	No
SKN	Yes	Yes	No
SUR	No	No	No
SVG	Yes	No	No
TRT	Yes	No	No
URU	Partial	No	No
USA	...	...	No
VEN	Partial	No	No

**Note:** ... = Data not available.

**Source:** World Health Organization. Observatory Data Repository (Region of the Americas. Global Information System on Alcohol and Health, Selling off-premise and Selling on-premise, Available from: <http://apps.who.int/gho/data/node.main-amro.A1119?lang=en&showonly=GISAH> [last accessed on 18 December 2014].

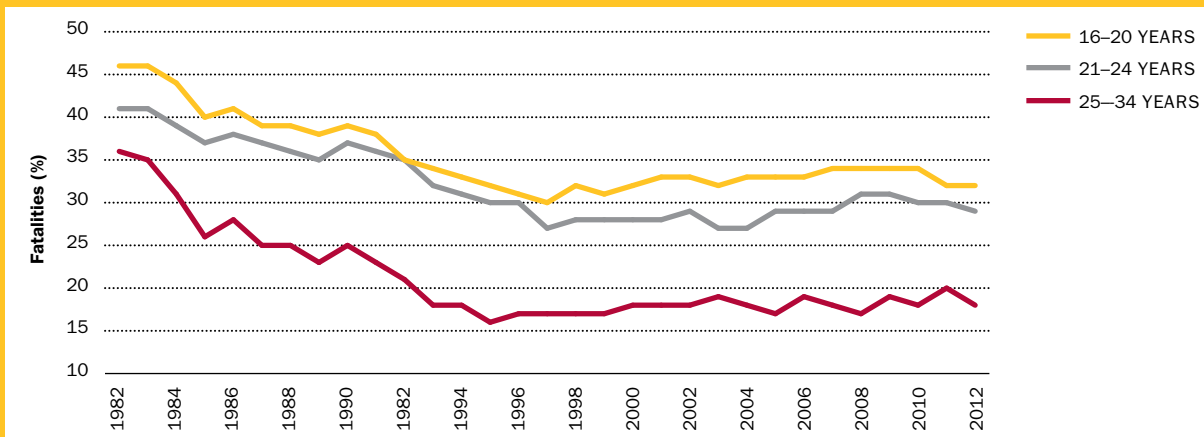


## BOX 2. THE MINIMUM LEGAL DRINKING AGE IN THE UNITED STATES OF AMERICA.

The United States offers a singular example of how minimum-age laws can affect harms caused by alcohol. In 1984, the National Minimum Drinking Age Act was signed into law, requiring all states to raise their minimum drinking age to 21 years or forfeit federal highway funds. As more states began enacting the new minimum age, the proportion of alcohol-related traffic deaths also fell. By 1988, all 50 states had set their minimum age at 21. Alcohol-related traffic deaths among people 16–20 years of age declined from 5,244 to 1,202 between 1983 and 2011, and binge drinking among high school seniors fell nearly 20%.

Figure B2 shows the effect of this minimum-age restriction on alcohol-related fatalities in the U.S. While the proportion of alcohol-related deaths decreased among all age groups from 1983 to 1985, the decrease among people 16–20 years of age was more dramatic (approximately 25%) (NHTSA, 2012).

**FIGURE B2. Percent of automobile-related fatalities among drivers with a blood alcohol content of 0.08 or higher, by age group, United States, 1982–2012.**



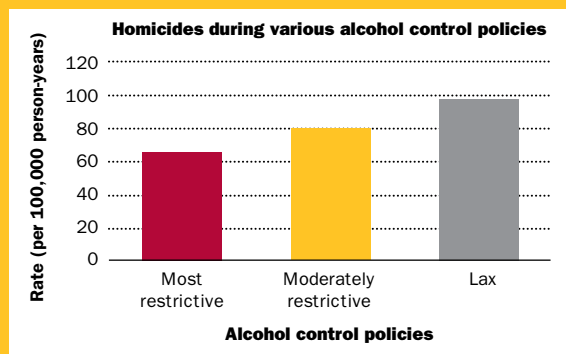
**Note:** NHTSA estimates alcohol involvement when alcohol test results are unknown. For more information, see page 7 of this report.

**Source:** United States, Department of Transportation, National Highway Traffic Safety Administration, Traffic Safety Facts, 2012, page 50–53.

### BOX 3. LIMITING ALCOHOL-SALE HOURS, CALI, COLOMBIA.

Beyond drinking age minimums, policies restricting the hours of alcohol sales have also proven effective at reducing the harms caused by alcohol. In an attempt to reduce the alcohol-fueled violence in the city, policymakers in Cali, Colombia, implemented various targeted policies over several years, which have yielded extremely useful information on the effects of alcohol policies. Researchers studying the relationship between these restrictions and injury rates found that more restrictive policies were associated with decreased interpersonal violence and road traffic deaths (Sanchez et al., 2011).

**FIGURE B3. Effect of limiting alcohol-sale hours on rates of homicides, Cali, Colombia, 2004–2008.**



**Source:** Sánchez AI, Villaveces A, Kraffy RT, Park T, Weiss HB, Fabio A, Puyana JC, Gutiérrez MI (2011). Policies for alcohol restriction and their association with interpersonal violence: a time-series analysis of homicides in Cali, Colombia. *International Journal of Epidemiology* 2011;40(4):1037-1046. doi:10.1093/ije/dyr051.

### Controlling the marketing of alcohol

A substantial amount of evidence, primarily from high-income countries, documents that marketing influences drinking and initiation rates (Snyder et al., 2006). Consequently, marketing bans are likely to have a large impact on women, who are less prone to have started drinking than are men, and an even greater effect on youth, who are more susceptible to advertising. In the United States, for instance, girls 12–20 years of age were exposed to almost 20% more alcohol advertisements in magazines than were boys, and to almost 70% more exposure than were women 21 years of age and older. Youth in that country are also almost 100 times more

likely to be exposed to alcohol marketing than to messages that discourage underage drinking (CAMY, 2006).

According to WHO's *Global Strategy to Reduce the Harmful Use of Alcohol*, "the exposure of children and young people to appealing marketing is of particular concern, as is the targeting of new markets in developing and low- and middle-income countries with a current low APC and/or high abstinence rates. Both the content of alcohol marketing and the amount of exposure of young people to that marketing are crucial issues. A precautionary approach to protecting young people against these marketing techniques should be considered" (WHO 2010b).

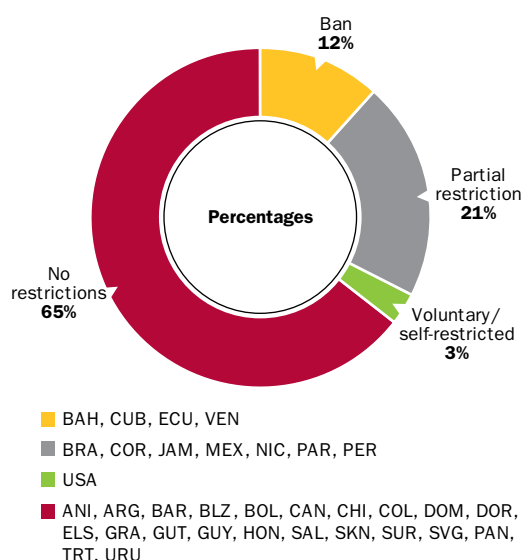
Since alcohol marketing also reinforces cultural attitudes that encourage drinking, restricting these practices could have an impact on the drinking habits of the population as a whole. Partial restrictions or industry self-regulation are the most common forms of control in the Americas, but partial restrictions are difficult to enforce, especially on new media venues such as social networking sites, and self-regulatory measures have been largely violated, are not enforced independently by governments, and have not been proven to be effective.

Industry marketing efforts are especially difficult to counter because of the vast economic resources of the alcohol industry. In 2011, five alcohol companies reported spending US\$ 5.5 billion on traditional advertising alone (AdAge, 2012). Considering, for example, that Saint Lucia (which has some of the highest rates of youth drinking in the Americas) had a GDP of 1.3 billion in 2013 (World Bank, 2014) it is unlikely that any one country in the Region will be able to devote enough resources to counter the industry's spending power.

Total bans clearly are the most effective type of marketing regulation and are relatively inexpensive to enforce. Regardless of the type of marketing restriction employed, however, countries should include effective systems for the surveillance of marketing of alcohol products and strategies to deter any violations on marketing restrictions. The restrictions also need to be statutory, so they can be regulated adequately regardless of any self-regulatory measures. Policies to regulate alcohol marketing need to be the sole responsibility of governments, without undue influence by the alcohol industry.

Almost 70% of the Region's countries have no regulations in place on marketing alcohol on national television or have only self-regulation by the alcohol industry (Figure 28). As observed in Table 10, voluntary self-regulation codes are largely ineffective.

**FIGURE 28.** Percentage of countries that have restrictions on the marketing of the most popular alcoholic beverages on national television, by type of restriction, Region of the Americas, 2012.



**Source:** World Health Organization. Observatory Data Repository (Region of the Americas. Global Information System on Alcohol and Health, Advertising restrictions, Available from: <http://apps.who.int/gho/data/node.main-amro.A1119?lang=en&showonly=GISAH> [last accessed on 18 December 2014].

#### BOX 4. ALCOHOL ADVERTISING AND YOUTH DRINKING, BRAZIL AND THE UNITED STATES OF AMERICA.

Many of the countries in the Americas do not regulate the marketing of alcohol at all or allow the alcohol industry to define and enforce its own regulatory codes. Two studies, one from Brazil and the other from the United States, show the importance of imposing and enforcing restrictions on the marketing of alcoholic beverages. In both countries, it was clear that youth under the legal drinking age were exposed to alcohol advertising, despite industry claims otherwise.

Brazil's study looked at the content of alcohol marketing, considering that the alcohol industry in that country has agreed to self-regulate under 16 principles, including: "(a) protection of children and teenagers and (b) prohibition against the encouragement of irresponsible consumption of alcoholic beverages." A closer look at advertisements shown during the World Cup, however, showed that the ads violated, on average, 12 out of 16 of the responsible marketing guidelines (Vendrame et al., 2010).

The U.S. study found that each additional advertisement seen by youth increased the number of drinks consumed by 1%, and each additional dollar spent per person on advertising increased the number of drinks consumed by 3% (Snyder et al., 2006).

**TABLE 10.** Interventions to limit the marketing of alcohol and their ratings.

Strategy or intervention	Effective-ness	Breadth of research support	Cross-national testing	Comments
Legal restrictions on exposure	+ / ++	+++	++	Strong evidence of dose-response effect of exposure on young people's drinking, but evidence of small or insignificant effects on per-capita consumption from partial advertising bans; advertising bans or restrictions may shift marketing activities into less-regulated media (e.g. Internet).
Legal restrictions on content	?	0	0	Evidence that advertising content affects consumption but no evidence of the impact of content restrictions as embodied in industry self-regulation codes.
Alcohol industry's voluntary self-regulation codes	0	++	++	Industry voluntary self-regulation codes of practice are ineffective in limiting exposure of young persons to alcohol marketing, nor do they prevent objectionable content from being aired.

**Source:** Babor et al, 2010.

### Controlling the price of alcohol

Many studies show that increasing the price of alcohol has an effect on all aspects of drinking, including prevalence of drinking, frequency, and intensity of consumption, as well as on many of the consequences of excessive drinking (Wagenaar et al., 2009, 2010). As with other regulations such as minimum purchasing ages and restrictions on marketing, price increases have a greater impact on youth consumption, which makes them a useful intervention for promoting healthier consumption habits at young ages.

Levying or raising **taxes** on alcohol is one of the most cost-effective and well-supported means to reduce consumption and harms (Babor et al., 2010). There are a number of economic arguments for alcohol taxes. First, the harms attributed to alcohol consumption tend not to be included in the sales price, and taxes can help correct for these externalities. Alcohol is a commodity that can be detrimental to health and addictive, and should not be treated as an ordinary or necessary consumer good. Second, alcohol taxes reduce consumption and harms on a population level. Since low-income

individuals suffer more harm per liter of alcohol consumed, taxes can lead to greater equity within a population. Finally, alcohol taxes are an efficient way to raise government revenue. They require relatively little additional enforcement mechanisms (most countries in the Americas already collect taxes on at least some alcoholic beverages) and the revenues can be used to provide health and social services, further improving equity at the population level.

One study modeled the potential impact of a 25-cent-per-drink tax increase in the United States. The authors found that this increase would reduce total alcohol consumption by 9.2% and heavy drinking by 11.4%. Compared with lower-risk drinkers, higher-risk drinkers paid 4.7% times more per year in taxes, accounting for about 83% of the total additional taxes. Lower-risk drinkers paid less than US\$ 30 extra per year. The authors also found that “in aggregate, groups who paid the most in net tax increases included those who were white, male, 21 to 50 years of age, earning  $\geq$ US\$ 50,000 per year, employed, and had a college degree” (Daley et al., 2012). A tax increase, therefore, has the potential to

TABLE 11. Interventions to increase the price of alcohol and their ratings.

Strategy or intervention	Effectiveness	Breadth of research support	Cross-national testing	Comments
Alcohol taxes	+++	+++	+++	Increased taxes reduce alcohol consumption and harm. Effectiveness depends on government oversight and control of the total alcohol supply.
Minimum price	?	+	0	Logic based on price theory, but there is very little evidence of effectiveness. Competition regulations and trade policies may restrict implementation unless achieved via taxation policy.
Bans on price discounts and promotions	?	+	0	Only weak studies in general populations of the effect of restrictions on consumption or harm; effectiveness depends on availability of alternate forms of cheap alcohol.
Differential price by beverage	+	+	+	Higher prices for distilled spirits shifts consumption to lower-alcohol content beverages resulting in less overall consumption. Evidence for the impact of tax breaks on low-alcohol products is suggestive.
Special or additional taxation on alcopops and youth-oriented beverages	+	+	+	Evidence that higher prices reduce consumption of alcopops by young drinkers without complete substitution; no studies of impact on harms.

Source: Babor et al, 2010.

raise millions of dollars in revenue while also impacting the consumption habits mainly of the heaviest drinkers.

Figure 29 shows the relationship between binge drinking (comparable to HED) and the amount of tax added to beer in the United States—states that imposed higher taxes on beer had lower rates of binge drinking.

The United States reported US\$ 8.1 billion in excise tax revenues from alcohol in 2000, enough to cover the estimated 7.4 billion in direct law costs. But the total social cost of alcohol use that same year was estimated at around US\$ 216.2 billion, which means that taxes would have to be increased substantially in order to cover that shortfall. In Canada, alcohol excise tax revenues represented more than 40% of the estimated 14.0 billion CAD in total social costs of alcohol in 2002 (Babor et al., 2010).

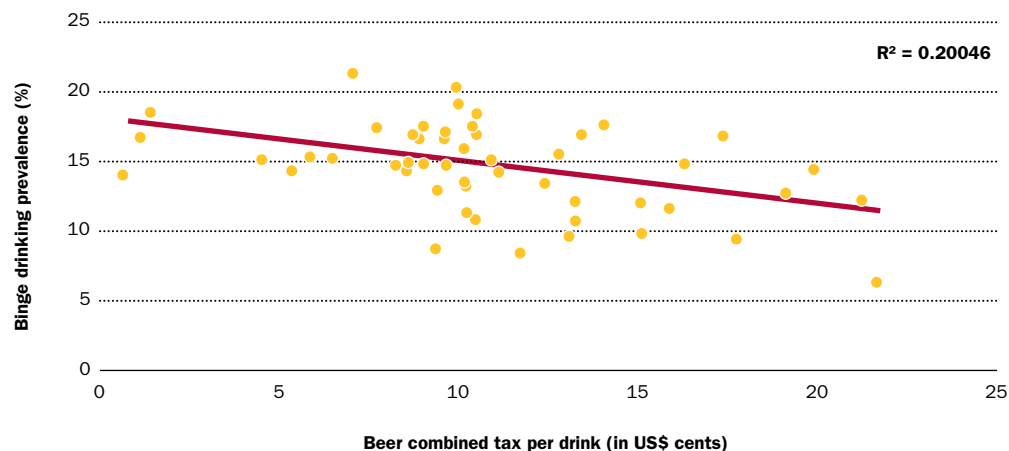
An extreme increase in alcohol taxes may lead to some smuggling, growth of the informal market, and illegal production. Governments with already high levels of unrecorded alcohol consumption and those planning a large tax increase should also make control of the illegal and informal markets part of their strategy in order to maximize revenues from the tax while avoiding an expansion in illicit production and the consumption of unsafe beverages.

Yet another factor that impacts the effectiveness of price measures is inflation; setting a tax for alcohol based on its volume will be ineffective as inflation decreases the impact of the tax. Unfortunately, about 80% of the Region's countries that have imposed a tax on their most popular alcoholic beverage do not adjust those taxes for inflation. In these cases, as prices rise due to inflation, the value of the tax diminishes.

A recommended solution is to peg a tax rate to the country's consumer price index and income growth, which ensures that the price of alcohol will rise and fall relative to its citizens' purchasing power, thus reducing affordability. This strategy is especially important for countries that are developing rapidly, as are many countries in the Americas (Babor et al., 2010). Figure 30 shows how alcoholic beverage prices have fallen relative to the consumer price index in the United States, thereby making alcoholic beverages more affordable in 2010 than they were in 1953. Tobacco products, on the other hand, have greatly increased in price; a trend which is reflected in the great reductions in tobacco use over the past several decades (Chaloupka, 2014).

Any government implementing an alcohol excise tax will have to decide whether to do so based on the volume of pure alcohol in the container (ABV, or the "strength"), the volume of each beverage (the size of

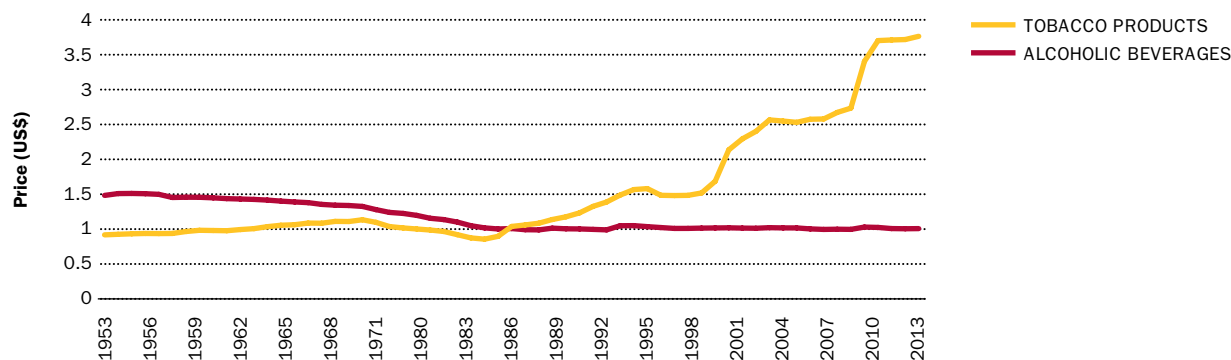
**FIGURE 29.** Relationship between levied beer taxes and the prevalence (%) of binge drinking, by state, United States of America, 2010.



**Note:** Each yellow dot represents a different U.S. state.

**Source:** Xuan Z, Chaloupka FJ, Blanchette J, Nguyen T, Heeren T, Nelson TF, Naimi TS (2014). The Relationship between Alcohol Taxes and Binge Drinking: Evaluating New Tax Measures Incorporating Multiple Tax and Beverage Types. *Addiction*. doi: 10.1111/add.12818.

**FIGURE 30.** Prices of alcoholic beverages and tobacco products relative to the consumer price index, United States of America, 1953–2010.



**Source:** Chaloupka F (2014). Alcoholic Beverage and Tobacco Product Prices, Relative to CPI, United States, 1953–2013. Consumer Price Indexes (CPI) from U.S. Bureau of Labor Statistics. Washington, DC.

the container), the price of the product (as a percent of the sales or production price, for example), or a combination; there are advantages and disadvantages to each. Taxing based solely on alcohol content, for example, is beneficial because it allows policymakers to keep the price of lower strength beverages relatively low, encouraging their consumption over higher strength beverages while still setting a “floor” for low strength beverages. This, when combined with a strategy to adjust the taxes to combat inflation and reduce affordability, will likely have the greatest impact on public health and government revenue. Excise taxes can also be combined with value added, or sales taxes, which further increase the final cost of alcoholic beverages.

While levying taxes is the most recommended strategy, ideally it should be combined with other price measures, such as bans on discounts or promotions. Without these additional restrictions, the alcohol industry can offset the impact of taxes by offering promotions. Table 11 outlines how countries in the Americas have employed various pricing measures on alcohol.

Of the Region’s countries that report their tax policies to WHO, only Paraguay reported no taxation whatsoever on alcoholic beverages as of 2012. That the vast majority of countries have implemented excise taxes

is unsurprising, given that most countries in the world have done so, because of their potential to raise government income. Again, despite the fact that most countries in the Region have a taxation system, the taxes may be outdated and out of pace with inflation or the index price of other goods; alcoholic beverages therefore continue to be very cheap. Those that answered “yes” in Table 12 may have the infrastructure to raise and collect taxes, but existing taxes may not be sufficient to have a measurable impact on consumption. Some may be so low that consumption has continued to increase, providing revenues which have only a fiscal impact but end up generating higher health and social costs to governments and society. Furthermore, very few countries have implemented complementary policies, such as bans on discounts or promotions.

While valuable, an excise tax is only partially effective. In order to be fully effective, taxes have to lower the affordability of alcohol in relation to income and the prices of other goods. In Venezuela, for example, while the government does adjust taxes on imported beverages, those produced in the country can be considerably cheaper. It is likely that in this case, consumption habits will change in favor of less expensive options, reducing the effectiveness of the taxes currently in place.



TABLE 12. Pricing measures on alcoholic beverages, countries of the Americas, 2012.

Country	Excise tax on any alcoholic beverages, 2012	Tax adjusted for inflation on any beverage, 2012	Value-added tax (VAT) on alcohol, 2012	Ban on below-cost selling, 2012	Ban on volume discounts, 2012	Minimum price policy, 2012	Non-alcoholic beverages at lower price, 2012
ANI	No	...	Yes	No	No	No	No
ARG	Yes	Yes	Yes	No	No	No	No
BAH	Yes	Yes	No	No	No	No	No
BAR	Yes	No	Yes	No	No	No	No
BLZ	No	...	Yes	No	No	No	No
BOL	Yes	...	No	No	No	No	No
BRA	Yes	No	...	No	No	No	No
CAN	Yes	No	No	No	No	Yes	No
CHI	Yes	No	Yes	No	No	No	No
COL	Yes	Yes	No	No	No	No	No
COR	Yes	Yes	No	No	No	No	No
CUB	...	...	...	Yes	Yes	Yes	Yes
DOM	Yes	No	Yes	No	No	No	No
DOR	Yes	No	No	No	No	Yes	No
ECU	Yes	Yes	Yes	No	No	No	No
ELS	Yes	No	Yes	No	No	No	No
GRA	Yes	No	Yes	No	No	No	No
GUT	No	...	Yes	No	No	No	No
GUY	Yes	No	Yes	No	No	No	No
HAI	...	...	...	...	...	...	...
HON	Yes	Yes	No	No	No	No	No
JAM	Yes	No	Yes	No	No	No	No
MEX	Yes	No	Yes	No	No	No	No
NIC	Yes	No	Yes	No	No	No	No
PAN	Yes	Yes	...	No	No	No	No
PAR	No	...	No	No	No	No	No
PER	Yes	No	No	No	No	No	Yes
SAL	Yes	No	Yes	No	No	No	No
SKN	Yes	No	Yes	No	No	No	No
SUR	Yes	No	Yes	No	No	Yes	Yes
SVG	Yes	No	Yes	No	No	No	No
TRT	Yes	No	Yes	No	No	No	No
URU	Yes	Yes	Yes	No	No	No	No
USA	Yes	...	...	...	...	...	...
VEN	Yes	Yes	Yes	No	No	No	No

**Note:** ... = Data not available.

**Source:** World Health Organization. Observatory Data Repository (Region of the Americas. Global Information System on Alcohol and Health, Price measures and Taxation measures, Available from: <http://apps.who.int/gho/data/node.main-amro.A1119?lang=en&showonly=GISAH> [last accessed on 18 December 2014].

**BOX 5. MINIMUM PRICING, CANADA.**

In Canada, all provinces now impose some kind of minimum price on the retail price of alcohol. This practice has become more common over the last decade. In some instances (e.g. Alberta) this is only for bars, others for the much larger off-premise market via private or government-owned liquor stores (e.g. Prince Edward Island) and others for both bars and liquor stores (e.g. British Columbia). The manner in which minimum price regulations are operated also varies substantially across the provinces in terms of types of beverage to which they apply, whether they are varied to reflect alcohol content, adjusted by container size and updated to match inflation. These policies, originally designed to uphold government revenue, eliminate price wars between alcohol suppliers, and stabilize alcohol pricing, also have benefitted the country's overall health.

Published studies on the effects of these policies on consumption and related harms found that:

- A 10% increase in the minimum price of a type of beverage resulted in a 16% decrease in that beverage's consumption relative to other beverages (a useful strategy to influence alcohol consumption in favor of lower strength beverages) (Stockwell et al, 2012a);
- A 10% increase in the minimum prices of all beverages resulted in range of 3.4% to 8.4% decrease in total alcohol consumption, depending on the province (Stockwell et al, 2012b);
- A 10% increase in the average minimum prices resulted in a 32% reduction in deaths fully attributable to alcohol (Zhao et al, 2013);
- A 10% increase in the minimum price resulted in a 9% reduction in acute and chronic hospital admissions (Stockwell et al., 2013).

**DRINK DRIVING**

Drink driving is a major risk factor for road traffic injuries, one of the leading causes of death among young people globally. Drink driving injuries and deaths are preventable and offer a well-defined example of the harm to others caused by alcohol consumption.

Blood alcohol limits, when enforced through interventions to combat drink driving such as sobriety checkpoints and random breath testing, are cost-effective and can greatly reduce injuries caused by alcohol (Table 13).

While many countries in the Americas have established legal limits to blood alcohol content (BAC) while driving, Bolivia, Guatemala, Paraguay, and many Caribbean countries and territories have no such limits. Furthermore, a BAC above 0.04 g/dL significantly increases the risk of being involved in a traffic crash (WHO, 2013b); still, only five countries in the Americas have capped the legal limit at this amount (Figure 31).

TABLE 13. Interventions to cap the breath-alcohol level while driving and their ratings.

Strategy or intervention	Effective-ness	Breadth of research support	Cross-national testing	Comments
Sobriety check points	++	+++	+++	Effects of police campaigns typically short term. Effectiveness as a deterrent is proportional to frequency of implementation and high visibility.
Random breath testing	+++	++	++	Effectiveness depends on number of drivers directly affected and the extent of consistent and high profile enforcement.
Lowered BAC limits	+++	+++	+++	The lower the BAC legal limit, the more effective the policy. Very low BAC levels ('zero tolerance') are effective for youth, and can be effective for adult drivers, but BAC limits <0.02 g/dL are difficult to enforce.
Administrative license suspension	++	++	++	When punishment is swift, effectiveness is increased. Effective in countries where it is applied consistently.
Low BAC for young drivers ('zero tolerance')	+++	++	++	Clear evidence of effectiveness for those below the legal drinking or alcohol purchase age.
Graduated licensing for novice drivers	++	++	++	Can be used to incorporate lower BAC limits and licensing restrictions within one strategy. Some studies note that 'zero tolerance' provisions are responsible for this effect.
Designated drivers and ride services	0	+	+	May be effective in getting impaired drinkers not to drive, but can also encourage people to drink more. Does not affect alcohol-related crashes.
Severity of punishment	0/+	++	++	Mixed evidence concerning mandatory or tougher sanctions for drink-driving convictions. Effects decay over time unless accompanied by renewed enforcement or media publicity.

Source: Babor et al, 2010.

### BOX 6. DRINK DRIVING ENFORCEMENT, BRAZIL.

While Brazil has repeatedly enacted legislation to lower the legal BAC levels and increase penalties for drink driving, its efforts have not had lasting effects on road safety (Sousa et al., 2013).

Figure B6 shows the importance of having effective *enforcement* of drink driving legislation. Every effort made by the government or outside donors (shown by the dotted lines) has been able to reduce road traffic mortality, but these gains tend to last no more than a few years.

FIGURE B6. Road traffic mortality rate per 100,000 population, Brazil, 1996–2011.

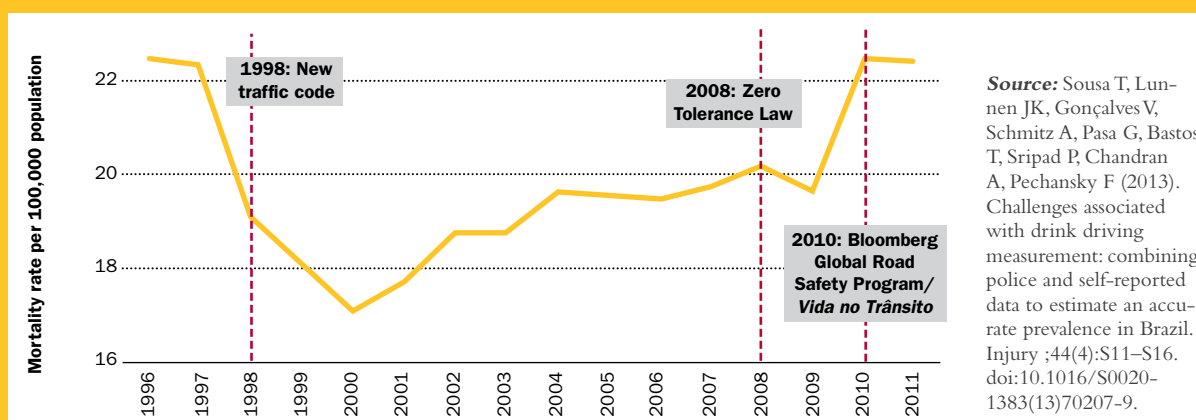


FIGURE 31. Legal blood-alcohol-concentration (BAC) levels in the general population, by country, 2012.



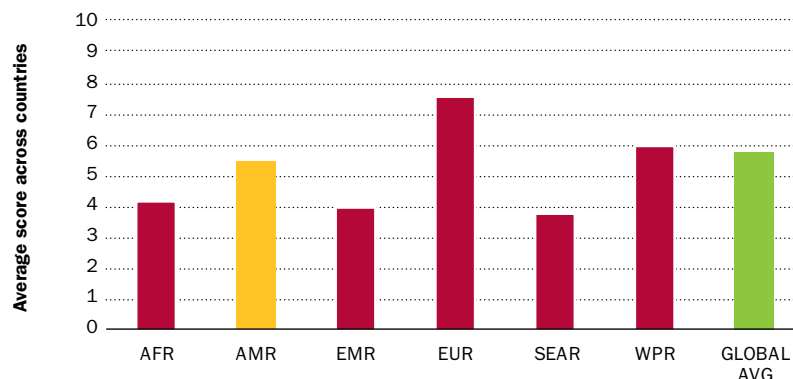
**Source:** World Health Organization. Observatory Data Repository (Region of the Americas. Global Information System on Alcohol and Health, Drink driving, Available from: <http://apps.who.int/gho/data/node.main-amro.A1119?lang=en&showonly=GISAH> [last accessed on 18 December 2014].

## IMPLEMENTATION AND ENFORCEMENT

The political will and capacity of countries to implement and enforce alcohol policies is critical to the success of any policy intervention, as seen in Box 6. Enforcement mechanisms include education, prosecu-

tion for violation of laws by individuals or businesses, license revocation or suspension, or financial sanctions. The choice of mechanism should depend on the persons or organizations involved, and the types of regulations and the relative harms associated with violating them (WPRO, 2006). In the Americas, enforcement of

**FIGURE 32.** Average perceived score of enforcement of maximum blood-alcohol-concentration-level policies, WHO Regions and worldwide, 2012.



**Source:** World Health Organization. Global status report on alcohol and health 2014. (Geneva, Switzerland: World Health Organization, 2014).

maximum BAC levels is estimated to be only around 50%, and thus improvements in enforcement of drink driving laws are needed. Figure 32 shows the degree of enforcement of maximum BAC levels while driving, by WHO Region.

Also vital to the success of alcohol policies is the appropriate allocation of human and financial resources. In order for policies to be effective and sustainable,

funding needs to be secured for implementation and enforcement, including training current staff, purchasing equipment, and hiring more people if necessary.

#### HEALTH SERVICE RESPONSE

The first step in providing an effective health service response involves ensuring that primary care services are universally accessible. Primary care providers must

**TABLE 14.** Treatment strategies to address alcohol consumption and resulting harm, and their ratings.

Strategy or intervention	Effective-ness	Breadth of research support	Cross-national testing	Comments
Brief intervention with at-risk drinkers	+++	+++	+++	Can be effective but most primary care practitioners lack training and time to conduct screening and brief interventions.
Mutual help/self-help attendance	++	++	++	A feasible, cost-effective complement or alternative to formal treatment in many countries.
Mandatory treatment of drink-driving repeat offenders	+	++	0	Punitive and coercive approaches have time-limited effects, and sometimes distract attention from more effective interventions.
Medical and social detoxification	+++	++	++	Safe and effective for treating withdrawal symptoms. Reduces alcohol-related harms through prevention of mortality. Little effect on long-term alcohol consumption unless combined with other therapies.
Talk therapies	++	+++	++	A variety of theoretically based theories to treat persons with alcohol dependence in outpatient and residential settings. Population reach is low because most countries have limited treatment facilities.
Pharmaceutical therapies	+	++	++	Consistent evidence for a modest improvement over talk therapies and clinical management only for naltrexone.

**Source:** Babor et al, 2010.

also have the capacity and work conditions to routinely screen all patients for risky drinking habits and conduct brief interventions and refer at-risk patients to more intensive treatments when appropriate. Such tasks would be best incorporated into routine health care in order for them to become part of the essential functions of primary care workers. Brief interventions (BI) can effectively reduce alcohol consumption and resulting harms. They mainly target those drinkers who are at risk but are not necessarily suffering from an alcohol use disorder, which often requires more intensive treatment. Since at-risk drinkers make up a relatively large proportion of the population of drinkers, efforts to target them can have a population-level impact and can reduce costs from problems that would later escalate.

PAHO has produced a virtual self-learning course in both Spanish and English for those interested in learning more about implementing screening and brief intervention programs, which is available at: <http://cursos.campusvirtualsp.org/course/view.php?id=149>.

## POLICY TRENDS

It is possible to model the expected potential impact of certain policies and interventions, but these measures are based on subregional estimates and are often imperfect (Chisholm et al., 2004). The only way to truly gauge the effect of implementing a policy in a certain country is to follow the trends in consumption and health and economic outcomes in the long term.

Most of the data presented in this report were collected not long after the launch of WHO's *Global Strategy to Reduce the Harmful Use of Alcohol* (2010) or PAHO's *Plan of Action to Reduce the Harmful Use of Alcohol* (2011) and thus any effects of policies implemented since 2010 and 2011 on the health of the population may not be able to be statistically tested. That said, by looking at the countries' actions before and after these efforts came to pass, it is possible to begin to gauge how much more work governments need to do to reduce the harmful use of alcohol.

## THE ALCOHOL INDUSTRY

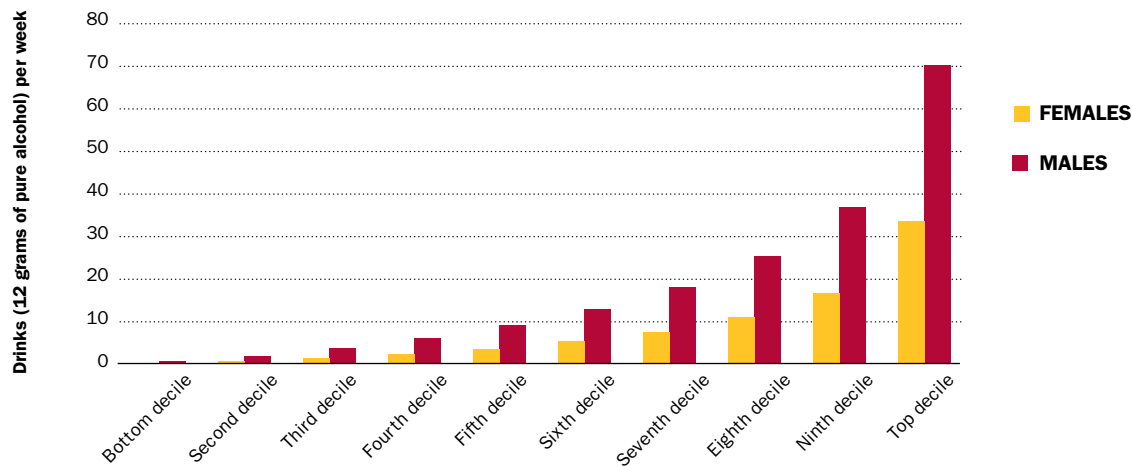
Over time, the alcohol industry—including producers, distributors, and sellers—has become increasingly globalized and increased political lobbying efforts. Smaller, locally-owned producers began to merge, and these newly consolidated companies then were able to tap into more diverse markets. To put this consolidation in perspective, this is what alcohol production now looks like: in 2005, 44% of beer was produced by four companies (Inbev, Anheuser-Busch, SABMiller, and Heineken), and spirits and wine production is currently dominated by just two companies (Diageo and Pernod Ricard) (Babor et al., 2010). The growth in profits also has been exponential: the alcohol industry earns approximately US\$ 1 trillion in annual revenues, and the 10 largest companies combined earned US\$ 159 billion in operating profit and 33 billion in profit in 2010 (M. Shanken 2012).

Many of the most cost-effective strategies for reducing harms caused by alcohol—such as increasing taxes, reducing availability, and restricting marketing—run into conflict with the alcohol industry's goal of maximizing revenue. It is not surprising, therefore, that the industry lobbies vigorously against these regulations (Freudenberg 2014). In Brazil, for example, FIFA pushed lawmakers to lift a decade-old ban on the sales of alcohol in stadiums during the 2014 World Cup, one of the main sponsors of which was Budweiser.

Sports sponsorship is also an important marketing strategy for the alcohol industry in the Americas. In Brazil, for example, where soccer is considered the national pastime, stadiums are filled with alcohol advertisements and are sometimes named after alcohol brands, despite the ban on selling alcohol in stadiums. The industry's sponsorship of other sporting events, especially within universities, is yet another strategy that elicits brand loyalty among youth, who are relatively new drinkers (Andrade et al., 2010). Outside of Brazil, the industry's sponsorship of Formula One races has been criticized by experts, who argue that alcohol advertisement should not be linked with driving (Skar, 2014). Sponsorship of sports and cultural events, endorsements by famous figures (such as national heroes, actors and actresses, and athletes), and the use of national symbols



FIGURE 33. Alcohol consumption in the Americas by decile and sex.



**Source:** Centre for Addiction and Mental Health's World Health Organization/Pan American Health Organization (WHO/PAHO) Collaborating Centre in Addiction and Mental Health, 2014. Based on figure "Time for a Stiff Drink" from a Washington Post article dated 25 September 2014 (<http://www.washingtonpost.com/blogs/wonkblog/wp/2014/09/25/think-you-drink-a-lot-this-chart-will-tell-you>, accessed 25 January 2015).

in alcohol marketing campaigns creates an environment that promotes and normalizes alcohol consumption while ignoring the many resulting harms.

Alcohol industry spokespeople often focus their messages on preventing consumption by underage and dependent drinkers. However, one study from the United States showed that between 37.5% and 48.8% of consumer spending on alcohol, or as much as US\$ 62.9 billion dollars, came from these two populations (Foster, 2006). Another study estimated that "binge drinking" makes up 70% of adult consumption and 90% of youth consumption in the United States ("binge drinking" was defined as more than four drinks for women and five drinks for men in two hours (OJJDP, 2005)).

While the alcohol industry frequently touts its "social responsibility programs," there is limited, if any, evidence that these interventions, including educational campaigns, are effective. Often cited by social responsibility representatives are the alcohol industry's efforts to promote "responsible" drinking, which in general are limited to a small disclaimer on advertisements and packaging. In contrast, one study suggested that if the top 10% of drinkers in the United States (who consume on average 73.85 drinks per week) reduced their

consumption to 15.28 drinks per week (the next highest group), total sales would fall by 60% (Cook, 2007).

Figure 33 shows how much of the alcohol in the Americas is consumed by a relatively small proportion of drinkers. Among men, the top 10% of drinkers consume about 70 drinks (approximately 120 grams of pure alcohol) per week. If the both men and women in this top decile reduced their drinking to the next lowest level, overall consumption (and alcohol industry profits) would fall significantly.

The alcohol industry also sponsors and funds research and social aspect organizations, such as the Latin American School of Social Sciences (FLACSO) in Costa Rica, the Center for Information on Health and Alcohol (CISA) in Brazil, the Foundation for Social Research (FISAC) in Mexico, and the International Center for Alcohol Policies (ICAP) in the United States. Experts have disproven the conclusions from many studies produced by industry-sponsored researchers (Babor and Xuan, 2004 and Zhang and Monteiro, 2013).

In the words of WHO Director-General Dr. Margaret Chan, "it is not just Big Tobacco anymore. Public health must also contend with Big Food, Big Soda, and Big Alcohol. All of these industries fear regula-

tion, and protect themselves by using the same tactics. Research has documented these tactics well. They include front groups, lobbies, promises of self-regulation, lawsuits, and industry-funded research that confuses the evidence and keeps the public in doubt. Tactics also include gifts, grants, and contributions to worthy causes that cast these industries as respectable corporate citizens in the eyes of politicians and the public. They include arguments that place the responsibility for harm to health on individuals, and portray government actions as interference in personal liberties and free choice...When industry is involved in policy-making, rest assured that the most effective control measures will be downplayed or left out entirely. This, too, is well documented, and danger-

ous. In the view of WHO, the formulation of health policies must be protected from distortion by commercial or vested interests (Chan, 2012).” Documenting the influence of the alcohol industry in areas such as policy formulation, education, and research has helped identify the need for clear principles for interaction with the industry to avoid conflicts of interest with public health goals. As countries in the Region develop, they will become even greater targets for alcohol companies looking to expand into markets with a high prevalence of lifetime abstainers, specifically young drinkers and women. Countries looking to limit the burden of alcohol in their populations will need to weigh the objectives of the alcohol industry against those for the public good.

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## Conclusions

Ample evidence exists, as shown in this publication and elsewhere, that alcohol consumption causes extensive health, social, and economic harms. In the Americas, where alcohol consumption is generally culturally accepted, much work remains to be done to raise awareness about the resulting harms and gain support for policies and interventions that can limit alcohol's negative consequences.

The information presented in this publication provides a scientific basis for understanding who drinks and how, the consequences of alcohol consumption, and what can be done to combat these harms. In particular, this report outlined how sex, gender, age, and socioeconomic status affect alcohol consumption; attempted to provide comparisons in terms of alcohol consumption and alcohol-attributable harms over time and framed these numbers in a historical context; and provided evidence-based solutions as part of a roadmap for policymakers in the Americas.

Overall, alcohol consumption and the resulting harms are relatively high in the Americas, compared to most other regions of the world. While APC appears to be leveling off in some cases, increased drinking among certain groups, including women and youth, offsets these gains.

Moreover, if preventive measures are not put in place, countries (especially developing countries) could face an increased magnitude of harms caused by alcohol in the future. This is especially important, since as economies develop, so does the amount of disposable income people have. The resulting increase in the amount of money spent on alcohol thereby increases the amount spent and consumed per person, the prevalence of current drinkers, and the harms caused by alcohol. It is important to acknowledge the gains that have been already made—research into the full extent of the harms caused by alcohol consumption is becoming much more advanced, and many governments are revisiting their policies and rethinking their relationships with the alcohol industry. Regional efforts to address the burden of alcohol include activities within the Pan American Network for Alcohol and Public Health (PANNAPH), as well as a wide variety of research efforts and publications (many of which are cited in this report).

Countries of the Americas could pioneer the fight against harmful alcohol consumption, saving millions of lives and billions of dollars each year. Action is needed now if the preventable consequences are to be addressed. The following section outlines a series of evidence-based recommendations for the Region. Furthermore, these recommendations give consideration to the unique challenges and opportunities that define the countries in the Americas.



## Recommendations

These recommendations are based on the five objectives set forth in WHO's *Global Strategy to Reduce the Harmful Use of Alcohol* and PAHO's *Plan of Action to Reduce the Harmful Use of Alcohol*.

These recommendations can help provide some guidance for those looking for meaningful, lasting change in relation to the burden of alcohol in society. Though the circumstances vary by country, all can benefit from gaining a clearer understanding of the situation and bolstering their current efforts.

### **Raise awareness and political commitment**

Raising awareness about drinking is an important first step in changing cultural attitudes around the issue and gaining public support for policies and interventions to reduce harms caused by alcohol. The dissemination of the findings in this report can help raise awareness about the burden of alcohol in the Americas, gaps in monitoring the data, and evidence-based policies available. Policymakers will need to make hard choices in order to save lives and reduce the costs of alcohol in society.

Political commitment is crucial to the success of any policy or intervention. Alcohol policy is in nature intersectoral and ministries of health should work side by side with the finance, security, labor, transportation, education and social sectors with the aim of reducing the harms caused by alcohol. Enlisting the support of different sectors will add legitimacy to any efforts to address these harms.

In addition, the commitment to develop and implement effective alcohol policy needs to be independent from economic operators and above commercial interests. Governments have a lot to gain from taking a public health approach to reducing the harmful use of alcohol, including increasing revenues to finance health care or

social services and promoting sustainable development, besides saving lives and increasing the quality of life of their citizens.

### **Improve the knowledge base about the magnitude of alcohol-related problems and the effectiveness of interventions to address them**

Being well-informed about the magnitude of the problems associated with alcohol and the effectiveness of interventions is crucial to using resources responsibly and effectively. As a public health institution, PAHO is responsible for promoting evidence-based research efforts and policies. The indicators presented in this document are valuable, but not all countries of the Region collect and report on them on a systematic basis. Countries that conduct surveys should take care to capture information on vulnerable subgroups, such as youth, indigenous, or low-income individuals or groups, to better understand the distribution of harms caused by alcohol and implement better targeted interventions. Routine data collection on production, sales, exports and imports, consumption, harms, youth exposure to marketing, and other indicators included in this report will greatly improve the ability of policymakers to justify taking action.

### **Increase technical support to Member States**

Many policymakers in the Americas are interested in reducing the burden associated with alcohol but face barriers such as a lack of understanding about which interventions to use and how to implement them. WHO developed ten target policy areas (see Box 1) and provides technical support to countries in order to help implement these interventions. The policy "best buys" outlined in this report (controlling the availability, marketing, and price of alcohol) were developed by WHO to help guide countries with limited resources to implement the most effective policies at minimal cost.



PAHO can provide technical cooperation to countries to develop national action plans, policies, and interventions, and can provide guidance on how to integrate these plans with other issues such as non-communicable diseases, tuberculosis, HIV, violence prevention strategies, and across other sectors.

### **Strengthen partnerships**

Combatting the burden of alcohol should not be solely the responsibility of the ministry of health. It is crucial that policymakers and officials from all government sectors, as well as researchers and civil-society organizations, join forces to this end. Civil society must be strengthened to improve its ability to advocate for better policies and mobilize communities to support local policies. Within the health sector itself, alcohol experts should work with experts that cover other risk factors, such as tobacco and nutrition, to learn from each other's experiences and develop integrated approaches.

The alcohol industry should continue to have a role in their capacity as producers, distributors, sellers, and advertisers of alcoholic beverages, proposing effective ways they can contribute to reducing the harmful use of alcohol.

### **Improve monitoring systems, surveillance, and dissemination of information for advocacy, policy development, and evaluation**

On a regional level, WHO collects and publishes information on its website through the Global Information System on Alcohol and Health

(GISAH), and issues reports such as the *Global Status Report on Alcohol and Health*, the most recent version having been published in 2014. Countries can do more to improve the quality of the information collected by WHO by taking advantage of the technical support available through PAHO and WHO advisers.

WHO recently developed a set of basic health indicators to help countries collect standardized, evidence-based data. Three key indicators measure alcohol use: recorded APC, rates of HED, and prevalence of AUDs; these indicators are expected to most comprehensively collect information on the burden of alcohol.

Still, much work remains to be done to collect reliable data on many other alcohol-related indicators. For example, estimates of unrecorded consumption remain unreliable, and more needs to be done to understand its true extent, especially in lower income countries where the rates tend to be higher and funds for research fewer. Data on alcohol policies also may be often unreliable due to reporting mechanisms, which should be strengthened to better understand and validate the information available.

Much more can be done, as well, to disseminate information for advocacy purposes. Research published in peer-reviewed journals should be made more readily available for non-technical audiences, and high level meetings of policy counterparts can benefit from greater media coverage. Combatting the extensive lobbying power of the alcohol industry will require concerted efforts from public health professionals to get the right information out.



**ANNEX 1.**

# The PAHO/WHO commitment to reduce the harmful use of alcohol: a timeline

**1999*****Global Status Report on Alcohol, WHO***

This report marks the formal beginning of WHO's Global Alcohol Initiative. The 1999 *Global Status Report* is the first of its kind to gather data and information about key aspects of the alcohol situation in WHO Member States, including consumption and policy indicators as well as country profiles.

**2001*****Global Status Report: Alcohol and Young People, WHO***

This report provides an overview of the specific consumption patterns, consequences, and policies relating to the use of alcohol among young people.

**2004*****Global Status Report: Alcohol Policy, WHO***

This report provides information on the status of alcohol policies used in 2004 and provides countries with a baseline for monitoring the situation.

***Global Status Report on Alcohol, WHO***

This report is an update of the data from the 1999 *Global Status Report*, placing more emphasis on the need to enhance the comparability of data. Unlike the 1999 *Global Status Report*, the 2004 *Global Status Report* does not include alcohol policy indicators due to the publication of the *Alcohol Policy* report in the same year.

**2005*****Brasilia Declaration, PAHO***

This declaration was developed at the first Pan American conference on alcohol policy and public health in Brasilia, Brazil, with 26 countries of the Region represented.

**2007*****Alcohol and Public Health in the Americas: A Case for Action, PAHO***

This report provides evidence based research to demonstrate alcohol's threat to public health in the Americas and reinforce the effectiveness of public health policies.

**2008*****Unhappy Hours: Alcohol and Partner Aggression in the Americas, PAHO***

This book provides evidence on the effect of alcohol consumption on intimate partner violence.

**2010*****Global Strategy to Reduce the Harmful Use of Alcohol, WHO***

The 2010 *Global Strategy* on alcohol is the first WHO resolution to confront the harmful use of alcohol in recognition of its high burden on health around the world. It includes five main objectives (including improving knowledge on the magnitude of problems and effectiveness of interventions) and ten target policy areas (including leadership, awareness, and commitment).

***Global Status Report on Noncommunicable Diseases, WHO***

This report includes a list of highly cost-effective 'best buys' proven to address NCDs. Alcohol is listed as one of four major behavioral risk factors for NCDs and three alcohol-specific policy regulations are included in the 'best buys': restricting access to retail alcohol, enforcing bans on alcohol advertising, and raising taxes on alcohol.

***Alcohol: No Ordinary Commodity: Research and Public Policy, Oxford***

This book, first published in 2003 and revised in 2010, was a seminal work in the field of alcohol and public health. It won first prize in the public health category

of the British Medical Association's 2004 medical book competition. WHO provided valuable support to the authors in their development of the content for the work.

## 2011

### ***Global Status Report on Alcohol and Health, WHO***

This report is another update of the 1999 and 2004 global status reports and provides comparable global information on the consumption of alcohol, the consequences of the harmful use of alcohol, and the policy responses.

### ***Regional Plan of Action to Reduce the Harmful Use of Alcohol, PAHO***

Following the 2010 *Global Strategy*, PAHO's Member States approved the 2011 *Regional Plan* as a framework for action in the Region of the Americas. PAHO's *Regional Plan* prioritizes the five objectives of the *Global Strategy*. Member States have worked to implement the target policy areas where possible, though much remains to be done.

## 2012

### ***First Regional Meeting of the Pan American Network on Alcohol and Public Health (PANNAPH), PAHO***

PANNAPH was created in 2011 in order to better implement the *Global Strategy* in countries in the Americas. In 2012, representatives from 30 countries in the Region, as well as other experts, met in Mexico City, Mexico.

## 2013

### ***Virtual Course on Public Health Policy for Alcohol and Other Substance Use, PAHO***

This self-learning course combines evidence on the harms associated with alcohol and provides policy tools for reducing its burden.

### ***Virtual Course on AUDIT-SBI, PAHO***

This self-learning course is designed to help primary care workers implement screening and brief interventions for alcohol use disorders among their patients.

### ***Prevention of Alcohol Related Injuries in the Americas: From Evidence to Policy Action, PAHO***

This book compiles studies from emergency rooms across the Region to increase the evidence base on the relationship between alcohol and injuries. This evidence is used to inform policy interventions that can be implemented to reduce alcohol-related injury in the Americas.

## 2014

### ***Second Regional Meeting of the Pan American Network on Alcohol and Public Health (PANNAPH), PAHO***

In 2014, representatives from 28 countries in the Region, as well as other experts, met in Cartagena, Colombia, to discuss progress made since the previous PANNAPH meeting, reinforce shared goals, and discuss new strategies for reducing alcohol-related harm.

### ***Global Status Report on Alcohol and Health, WHO***

The most recent update of the global reports on alcohol, the 2014 report provides the basis for most of the information presented in this *Regional Status Report*.

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## Glossary

Below are definitions of the key terms used in this report. Definitions for most terms are also available in the World Health Organization's data repository (WHO 2011a).

**Age of drinking initiation:** The age at which a person first consumes at least one standard drink of alcohol (usually 12 grams of pure alcohol).

**Alcohol-attributable deaths:** The number of deaths that would not have occurred if everyone was a *lifetime abstainer*.

**Alcohol-attributable fractions (AAF):** The proportion of a health outcome (for example, death or injury) which is caused by alcohol (in other words, that proportion of an outcome that would not have occurred if everyone was a *lifetime abstainer*).

**Alcohol dependence prevalence:** The proportion of a population with diagnosed alcohol dependence. *Alcohol dependence* is defined as a group of behavioral, mental, and physical outcomes that result from repeated consumption. Symptoms include impaired control over drinking, continued use of alcohol despite harmful consequences, increased tolerance, and withdrawal. Also commonly referred to as alcoholism (WHO 2010).

**Alcohol per capita consumption (APC):** liters of pure alcohol consumed per person per year, usually measured as a proportion of the population 15 years of age and older. (See *recorded APC*, *unrecorded APC*).

**Alcohol use disorders (AUD) prevalence:** The proportion of a population that suffers from disorders attributable to alcohol consumption. *Alcohol use disorders* include people with both *alcohol dependence* and *harmful use*. This is the most commonly accepted measure of *alcohol-attributable deaths* (*mortality*).

**Beverage type:** To calculate the most popular beverage in each country, researchers looked at the percentage of *APC* from wine, beer, spirits, or other (including some traditional beverages and alcohol not intended for consumption, such as commercial ethanol).

**Conceptual causal model:** Depicts the relationship between consumption and other factors and their consequences.

**Current abstainers:** The proportion of a population who have not consumed at least one standard drink of alcohol in the past 12 months, regardless of whether or not they have consumed alcohol in their lifetime. This indicator includes both *lifetime abstainers* and *former drinkers*.

**Current drinkers:** The proportion of a population that has consumed at least one standard drink of alcohol in the past 12 months. This indicator is valuable because the inclusion of *lifetime abstainers* and *former drinkers* in consumption estimates can skew the data.

**Disability-adjusted life years (DALYs):** DALYs attributable to alcohol are calculated as the sum of the *Years of Life Lost (YLL)* and the *Years Lost due to Disability (YLD)* due to alcohol consumption: One DALY can be thought of as one lost year of "healthy" life. The sum of DALYs across the population, or the burden of disease, can be thought of as a measurement of the gap between current health status and an ideal health situation where the entire population lives to an advanced age, free of disease and disability.

**Drink driving:** The generally favored term for the criminal action of driving a vehicle with a blood alcohol level over a specified limit. The legislation that criminalizes this action is called a "per se" law; reflecting the supplementation of older legislation by per se laws,

the term “drink-driving” includes, but is not limited to, drunk driving, driving under the influence (DUI), and driving while intoxicated (DWI).

**Drinking status:** Describes individuals or populations based on whether they have consumed alcohol ever in their lives or in the past year. (See *current abstainers, current drinkers, former drinkers, lifetime abstainers*).

**Excise tax:** A tax on a specific product, such as alcohol, is called an excise tax.

**Former drinkers:** The proportion of a population that did not consume at least one standard drink of alcohol in the past 12 months, but who have consumed at least one standard drink of alcohol in their lifetime. This group often includes people who have stopped drinking due to the severity of harms they have experienced caused by alcohol.

**Harmful use prevalence:** The proportion of a population diagnosed with harmful use of alcohol. *Harmful use of alcohol* is defined as a pattern of consumption that causes damage to the drinker’s physical or mental health (WHO 2010).

**Heavy episodic drinking (HED):** The proportion of a population that has consumed at least 60 grams (approximately 5 standard drinks) or more of pure alcohol on at least one occasion in the past 30 days. This indicator is often further specified by removing all non-drinkers (*current abstainers*) to get a clearer sense of the proportion of drinkers who are most likely at risk for harms caused by alcohol. Other definitions of HED are used depending on country and/or the study.

**Lifetime abstainer:** A person who has never consumed at least one standard drink of alcohol. Lifetime abstainers may experience indirect harms associated with alcohol (for example, they can experience physical, emotional, economic, and social consequences due to the drinking of those around them).

**Morbidity:** A measure of ill health, excluding death. Alcohol-attributable morbidity includes a wide variety of conditions that are caused or exacerbated by the use of alcohol. Measures of morbidity generally look at the

number of people living with these conditions and the impact of these conditions on disability and functioning. (See *harmful use prevalence, alcohol dependence prevalence, alcohol use disorders (AUD) prevalence*).

**Mortality:** Another term for death. (See *alcohol-attributable deaths, years of life lost (YLL) score*).

**Patterns of drinking score:** A metric used to evaluate the alcohol-attributable burden of disease of a country on a scale of 1 (least risky drinking pattern) to 5 (most risky drinking pattern). It is based on dimensions such as frequency of and amount consumed at heavy drinking occasions, drinking in public places, and drinking with meals.

**Popular beverage:** (See *beverage type*).

**Recorded APC:** Consumption recorded from production, import, export, and sales data.

**Surrogate alcohol:** Liquids (usually containing ethanol) that are not intended for human consumption, such as mouthwash or rubbing alcohol.

**Unrecorded APC:** An estimate of all alcohol not tracked through methods used to measure recorded alcohol. The market for unrecorded alcohol is outside the usual system of governmental control, such as alcohol produced in homes or informally (legal or illegal), smuggled alcohol, surrogate alcohol (which is alcohol not intended for human consumption), or alcohol obtained through cross-border shopping.

**Years of life lost (YLL) score:** YLL are calculated from the number of deaths multiplied by a standard life expectancy at the age at which death occurs. *Years of life lost (YLL)* take into account the age at which deaths occur by giving greater weight to deaths at younger age and lower weight to deaths at older age. The YLL score in this report was calculated by separating each country’s YLL ratio into quintiles and scoring them from 1 to 5, where countries with a score of 1 had the lowest YLL ratio and those with a score of 5 had the highest YLL ratio.





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