CHAPTER 14

Sugar-Sweetened Beverages

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14.1 INTRODUCTION

Between 1990 and 2019, the share of the global burden of disease associated with noncommunicable diseases (NCDs), including cardiovascular diseases, diabetes, cancers, and chronic respiratory diseases, increased from 43% to 54%.[1] NCDs now account for 71% of deaths globally, and this proportion is expected to rise to more than 85% by 2030.[2] Among NCD deaths, two-thirds are related to modifiable risk factors: tobacco use, alcohol use, physical inactivity, and unhealthy dietary intake.[3] With respect to dietary intake, sugar-sweetened beverages (SSBs), such as sodas, fruit drinks, sweetened teas and coffees, and sports and energy drinks, are of particular concern. Their overconsumption is strongly associated with weight gain, obesity, an increased incidence of NCDs, and overall mortality.[4]

These effects are due to the large amounts of SSBs consumed, the calories and direct metabolic effects of the sugars they deliver, the rapid absorption of those sugars in liquid form, and the displacement of calories from more nutritious sources.[4] SSB products comprise the largest source of added sugars in the diet in some countries and provide few or no other nutrients.[4] Higher SSB consumption and its associated illnesses are more common among low-income groups and those experiencing income disparities, systemic racism, and discrimination; the effects of COVID-19 are also more severe among these groups.[5]

Nutrition scientists, health scholars, public health practitioners, and policymakers have for decades focused on *proximal determinants* of health, meaning individual biological and behavioral risk factors that influence health

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outcomes. From a public health perspective, these are downstream factors. The focus on proximal determinants has led to a bias toward encouraging individuals to improve their health by modifying use of tobacco, alcohol, and drugs, as well as their diets. This approach has generated criticism for its focus on individuals and its limited effect in curbing NCDs.[2] This focus on individual risk is reinforced by the wide availability of behavioral health data, dominant biomedical paradigms of health education and practice, disease intervention research funding, and the medicalization of health.[6]

In recent decades, an emphasis on the *distal determinants* of health has emerged with a focus on the socioeconomic and environmental causes of health problems—the upstream factors that shape proximal determinants.[7] This chapter examines one distal determinant—the role of the SSB industry as a commercial vector of disease. It reviews the strategies of this industry and provides examples of best practices to address commercial determinants of health to combat the NCD epidemic and its consequences.

14.2 EXAMINING THE VECTOR: THE SSB INDUSTRY

Epidemiologists who study communicable diseases such as malaria, tuberculosis, HIV/AIDS, and COVID-19 focus on the vector of the disease, whether animal, insect, or viral. In the case of diet-influenced NCDs, the food and beverage industries must be considered as disease vectors. They help facilitate the spread of NCDs by producing and marketing calorie-dense, ultra-processed foods and by influencing science and public policy to protect their profits. For the remainder of this chapter, we focus on the SSB industry vector.

The SSB industry was globally valued at $1.55 trillion in 2018 and is expected to be worth $1.885 trillion in 2023. Although this industry's supply chain includes many producers, manufacturers, and distributors, it is dominated by two transnational beverage corporations—Coca-Cola and PepsiCo. As of April 2021, these two companies reported a net worth of $229.17 billion and $196.75 billion, respectively, and in 2020, they reported revenues of $33.01 billion and $25.83 billion, respectively.[8] Both have more than doubled their net worth since 2009.[8] Both companies produce a wide range of beverage products varying in colors, flavors, and sugar levels. Both rely on low-cost municipal water supplies to procure a key product ingredient.

The SSB industry is a member of notable business groups and trade associations, including the American Beverage Association, the International Chamber of Commerce, and the International Council of Beverage Associations. These organizations represent the interests of member companies during policy discussions, trade negotiations, and the development of dietary guidelines and other government regulations. They often act on behalf of the companies—seen most prominently in their efforts opposing SSB tax initiatives.[9]

14.3 SSB INDUSTRY MARKETING

From 2014 to 2020, Coca-Cola and PepsiCo spent on average a combined $4 billion annually on advertising their products worldwide.[10] In 2019, Coca-Cola and PepsiCo spent $283 million and $224 million respectively on advertising their products in the United States.[10] Even so, per capita consumption of SSBs (primarily sodas) in the United States began declining in 2000 but then leveled off (2010–2013), except for a small uptick during the COVID-19 pandemic.[11] Increased sales of energy and sports drinks and other non-soda beverages have compensated for some of these losses.[12]

The SSB industry has aggressively advertised, promoted, and sponsored its products globally and used discriminatory, racialized marketing tactics to drive sales among disproportionally affected populations, including youth, people of color, and low-income communities and countries.[13,14] This industry historically has advertised on traditional media such as television, radio, and print. However, given the expense of advertising on these medium and their limited reach, the SSB industry has increasingly turned to the internet and social media. SSB companies have recruited popular celebrities to endorse their products in all media; these include sports athletes (e.g., Lebron James and Cristiano Renaldo), musicians (e.g., Michael Jackson, Taylor Swift, and Beyoncé), and movie stars (e.g., Penelope Cruz and Courtney Cox). The industry also employs promotional giveaways, discounts, and buy-one-get-one-free promotions. It sponsors sports events, musical concerts, and festivals in many countries to promote its image and products. These companies sponsor global sporting events such as the Olympics or the World Cup, watched by millions of viewers.[15]

14.4 SSB INDUSTRY STRATEGIES TO BLOCK, WEAKEN, AND DELAY GOVERNMENT REGULATIONS

Similar to the tactics of the tobacco and alcohol industries, the SSB industry has developed structural, discursive, and instrumental strategies to promote sales and prevent product regulation.[16] The SSB industry seeks to shape global trade agreements and conventions to block adoption of national policies it opposes. For example, the SSB industry has lobbied trade negotiators to remove barriers (e.g., tariffs and capital controls), thereby allowing global market entry and expansion, and permitting global advertising.[17] In many low- and middle-income countries, such trade agreements have resulted in a dietary transition away from traditional diets and toward those containing a larger proportion of ultra-processed foods and drinks.[18] It has lobbied and helped draft investment protections such as intellectual property rights (e.g., trademarks) and dispute settlement mechanisms in trade agreements,

effectively altering trade rules to constrain policymakers seeking to implement public health policies.[19,20] Even when trade rules do not apply, the SSB industry still exaggerates the interpretation and application of these rules and threatens governments in an attempt to block, weaken, and delay public health proposals.[21,22] Although these actions may target a particular country, often the intent is to create a "chilling effect" by preventing the diffusion of best public health practices regionally and globally.[21,23]

Other forms of global preemption (limiting national and subnational authority) include lobbying governments during ongoing Codex Alimentarius negotiations,[24] which establish international standards and guidelines relating to food production and food safety. Although Codex is not a trade agreement, this collection of international standards is recognized by trade agreements and is referenced by governments during trade disputes at the World Trade Organization. Thus, the SSB industry's attempts to alter Codex standards are a key pillar in its strategy to obtain favorable trade agreements that preempt national public health policies.[24]

In addition to global preemption, the SSB industry has used subnational state preemption in the United States to prevent localities from enacting municipal SSB taxes. This has had a chilling effect on other localities seeking to enact similar taxes, diminishing discussion and policy actions.[9,25] Once preemption policies are in place, they are extremely difficult to repeal.[26]

The SSB industry also uses discursive, or argument-based, strategies that have helped drive NCD epidemics. Similar to the tobacco and alcohol industry, the SSB industry has attempted to frame rising rates of NCDs as a personal or parental responsibility, thereby shifting the blame to individuals (downstream) and away from the unhealthy products they produce (upstream). Coca-Cola, for example, sponsored a global campaign called the Global Energy Balance Network, which recruited nutrition and physical activity scholars to argue that the solution to the obesity crisis lies in individuals balancing diet with physical activity, with a stronger emphasis on the latter.[27] The SSB industry has also sponsored research to spread misinformation and create doubt about the harmfulness of its products. The industry takes the position that SSB taxes are regressive in that they disproportionally affect low-income populations, drive the loss of jobs in beverage-related businesses, and increase costs to consumers with no improvement in public health.[28] These arguments, however, have largely been refuted by research (see the next section).

The SSB industry has also used a wide range of instrumental, or action-based, strategies to pursue its interests. These include more traditional strategies such as lobbying and providing political donations to policymakers and positioning industry executives in government regulatory agencies (a practice known as the "revolving door") that allow SSB companies to participate in—and weaken—policy negotiations.[29] Companies create corporate social responsibility initiatives to position themselves as good corporate

citizens, protect the industry's image and credibility, and avoid government regulations. Companies also consult with experts in public think tanks, and recruit academics and professional associations, to create the illusion of "independent" research and obtain favorable reports.[30] Much of the research funded by SSB companies is aimed at demonstrating that SSBs are harmless, discrediting research to the contrary, and staving off unfavorable regulation.[31]

The industry actively engages in public–private partnerships that give companies a seat at the governmental policymaking table, enhance their legitimacy, and make them appear to be part of the solution—rather than the cause—of health problems.[32] To further carry out these strategies, the industry uses front groups, such as the International Life Sciences Institute, to work with governments throughout the world to focus anti-obesity efforts on increased physical activity rather than dietary changes.[31]

14.5 BEST PRACTICES FOR MINIMIZING COMMERCIAL VECTOR INFLUENCE AND REGULATING SSBS

Reducing SSB consumption and its associated NCD burden requires minimizing commercial vector influence by exposing industry deception and its funding of research and political campaigns and by requiring full disclosure of conflicts of interest and political activities. Countering commercial vector influence also requires communication campaigns to debunk common industry arguments. These approaches can be supported with published research from previously secret internal food industry documents, which have recently revealed the SSB industry's relationships with the tobacco industry,[33] its targeted marketing of ethnic groups,[34] and its efforts to control and privatize public water supplies in countries that face water scarcity.[35]

Legislative and regulatory policies are a powerful tool for modifying corporate behaviors. Current public health policies that affect SSB companies include licensing requirements, sales bans in public schools, marketing restrictions, labeling, and, more recently, taxation. A growing body of research demonstrates that SSB taxes are effective in reducing sales of taxed products,[36] in increasing awareness about health effects, and in helping low-income communities by investing revenues to build health equity in these communities, without causing job losses (in some cases, jobs in the food sector actually increase following SSB taxes).[37] SSB tax revenues in U.S. cities are supporting healthy eating initiatives, including subsidies for purchases of fruits and vegetables; education and early childhood programs; improvements to parks, recreation centers, and libraries; and efforts to improve health equity through health promotion, general wellness programs, and chronic disease prevention.[38] Such investments make SSB taxes an economically progressive policy, transferring revenues collected from people with higher incomes to programs

that benefit less-affluent people. The dollar amount of tax revenues funding programs targeted towards people with lower incomes is greater than the amount they pay in taxes.[39] SSB taxes are spreading globally, and as of January 2021, 44 countries and seven localities and the Navajo Nation in the United States have adopted some form of SSB taxes.[40]

Governments have also introduced different forms of front-of-package nutrition labeling (FOPNL), which provide simplified nutrition information on the front of packaged foods and beverages. Nutrient-specific interpretive FOPNL systems, which provide nutrition information for one or more nutrients, all include sugars as a target using traffic light labels (red, yellow, and green), warning labels, or "high in" symbols. These promote nutritional awareness of a product's contents,[41] help consumers make healthier choices, provide incentives for reformulating processed food and drink products,[41] and increase consumption of healthier food and beverage options.[42] Recent studies have shown that FOPNL warning label systems outperform traffic light, Health Star, and nutrition grade (e.g., NutriScore) labels in capturing consumers' attention, improving their ability to identify products high in concerned nutrients, and increasing their intention to buy a relatively healthier option.[43] Countries in Latin America are especially active in adopting warning labels; SSB purchases declined by 23.7% following Chile's implementation of warning labels.[43] Some countries in the region have also begun to restrict marketing of ultra-processed foods, including SSBs, to children (e.g., Mexico).[21,44]

Addressing the health consequences of the SSB industry will require a suite of integrated policies and actions.[45] New strategies that build on the foundation of current activities are emerging. Limiting sales and promotion of SSBs in retail settings, such as restrictions on product promotion and placement targeting the largest source of SSB purchases, is beginning in the United States, United Kingdom, and Australia.[46] There is growing interest in disallowing use of funds from public nutrition programs such as the SNAP program for SSB purchases in the United States. The World Health Organization's Tobacco Control Framework Section 5.3 exclusion of industry from public health policy processes could be applied to the SSB industry. Countermarketing campaigns and further restrictions on SSB marketing could blunt the effects of industry promotional activities.

14.6 CONCLUSION

Recognizing the SSB industry as a vector of disease under the commercial determinants of health framework is important for understanding the industry's impact in driving the growing global NCD epidemic. Current efforts, many of which focus on proximal determinants of health, have been unsuccessful in reversing the rise of NCDs. Future policy, advocacy, and scholarship

should focus upstream on the distal determinants of health, including the SSB industry's structural, discursive, and instrumental strategies that undermine efforts to address the NCD epidemic. Current effective strategies such as taxation and labeling policies and limiting SSB marketing should be scaled up and implemented as an integrated set of interventions. Development and evaluation of new strategies such as frameworks to exclude industry from public health policy processes are also needed. Public health advocates will succeed in reducing the health burden of SSBs and reversing the NCD epidemics only if they pursue such a comprehensive approach.

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