ANNUAL REVIEWS

Annual Review of Public Health

Sugar-Sweetened Beverage Reduction Policies: Progress and Promise

James Krieger,[1,2] Sara N. Bleich,[3] Stephanie Scarmo,[4] and Shu Wen Ng[5]

[1]Healthy Food America, Seattle, Washington 98122, USA

[2]Department of Health Services, School of Public Health, University of Washington, Seattle, Washington 98195, USA; email: jwkrieg@uw.edu

[3]Department of Health Policy and Management, Harvard T.H. Chan School of Public Health, Harvard University, Boston, Massachusetts 02115, USA; email: sbleich@hsph.harvard.edu

[4]American Heart Association, National Center, Dallas, Texas 75231, USA; email: stephanie.scarmo@heart.org

[5]Department of Nutrition, Gillings School of Global Public Health and Carolina Population Center, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina 27516, USA; email: shuwen@unc.edu

Annu. Rev. Public Health 2021. 42:439–61

First published as a Review in Advance on November 30, 2020

The *Annual Review of Public Health* is online at publhealth.annualreviews.org

https://doi.org/10.1146/annurev-publhealth-090419-103005

Keywords

sugar-sweetened beverages, SSB, sugary drinks, policies, health equity, impact, feasibility

Abstract

Evidence showing the effectiveness of policies to reduce the consumption of sugar-sweetened beverages (SSBs) is growing. SSBs are one of the largest sources of added sugar in the diet and are linked to multiple adverse health conditions. This review presents a framework illustrating the various types of policies that have been used to reduce SSB exposure and consumption; policies are organized into four categories (financial, information, defaults, and availability) and take into consideration crosscutting policy considerations (feasibility, impact, and equity). Next, for each category, we describe a specific example and provide evidence of impact. Finally, we discuss crosscutting policy considerations, the challenge of choosing among the various policy options, and important areas for future research. Notably, no single policy will reduce SSB consumption to healthy levels, so an integrated policy approach that adapts to changing market and consumption trends; evolving social, political, and public health needs; and emerging science is critical.

INTRODUCTION

SSB: sugar-sweetened beverage

Sugar-sweetened beverages (SSBs) are one of the largest sources of added sugars in the American diet (147) and include sodas; fruit, sports, and energy drinks; and sweetened coffees and teas. Consumption of these drinks is strongly associated with excess mortality (90), obesity (88), and multiple chronic diseases (27, 91). In 2012, approximately 50,000 heart disease and type 2 diabetes deaths among US adults were associated with the consumption of sugary drinks (96); these diseases are more likely to cluster among racial/ethnic minorities and low-income populations (10, 79). One study found that adults who drank two or more servings of sugary drinks per day had a 31% higher risk of death from heart disease, compared with people who drank less than one serving of sugary drinks per month (90). A second study found that increasing total sugary beverage intake (including both SSBs and 100% fruit juices) by >0.50 serving per day over a 4-year period was associated with a 16% higher type 2 diabetes risk among adults (43). Consumption of 1 sugary drink per day increases the risk of developing type 2 diabetes by 26% among adults (92). Soda consumption is associated with nearly twice the risk of dental caries in children (131).

Intake of SSBs increased dramatically during the last half of the twentieth century (46) and remains at historically high levels despite recent decreases. In 2014, SSBs were consumed at least once per day by 61% of children and 50% of adults, down from 80% and 62% in 2003, respectively (14). Although soda consumption has declined, consumption of other SSBs such as energy drinks has increased (148). SSB consumption is highest among racial and ethnic minorities such as Blacks and Hispanics (14, 65) and among people with low incomes and less wealth (65, 156).

Recent data suggest a possible plateauing of consumption. According to unpublished author analyses of national survey data from 2015 to 2016, the proportion of SSB drinkers has remained relatively constant since the prior wave of data collection in 2013–2014. This trend is consistent with evidence from industry analyses, which show modest, consistent declines in beverage calories per person per day from 2000 to 2013, a leveling off through 2017, and a small decline from 2017 to 2019 (78).

Policy makers, public health officials, and advocates have developed a variety of approaches to reduce exposure to and consumption of SSBs. This review provides a framework for the types of policies that have been used for SSB reduction (**Figure 1**) and organizes policies into four categories: financial, information, defaults, and availability. Financial policies increase the price of SSBs relative to healthier options and include taxes, restrictions on price or volume promotions (e.g., buy-one-get-one-free offers for soda), and incentives for purchase of unsweetened beverages (e.g., lowering the price of unsweetened beverages relative to sweetened ones). Information policies seek to reduce the public's exposure to marketing of SSBs or increase awareness of the health risks that SSBs pose. These policies include front-of-package and advertising warning labels and marketing restrictions (e.g., no advertising during children's television programming). Default policies, such as requiring a healthy drink in kids' restaurant meals, make the choice of a healthy beverage automatic. Availability policies decrease access to SSBs or reduce portion sizes. They include beverage procurement (e.g., purchase or placement of beverages within various settings) and healthy checkout aisle (e.g., lanes at the grocery store that display healthier options) policies. The policy examples provided in each category are illustrative; a wide variety of approaches within each could be used for SSB reduction.

For each policy category, we provide a specific example and evidence of impact. We then discuss three key crosscutting policy considerations—feasibility, impact, and equity—and the challenge of choosing among the various policy options. We conclude with consideration of important topics for future research. Evidence for this review was obtained from peer-reviewed scientific research, gray literature, white papers, websites of government agencies and nongovernmental

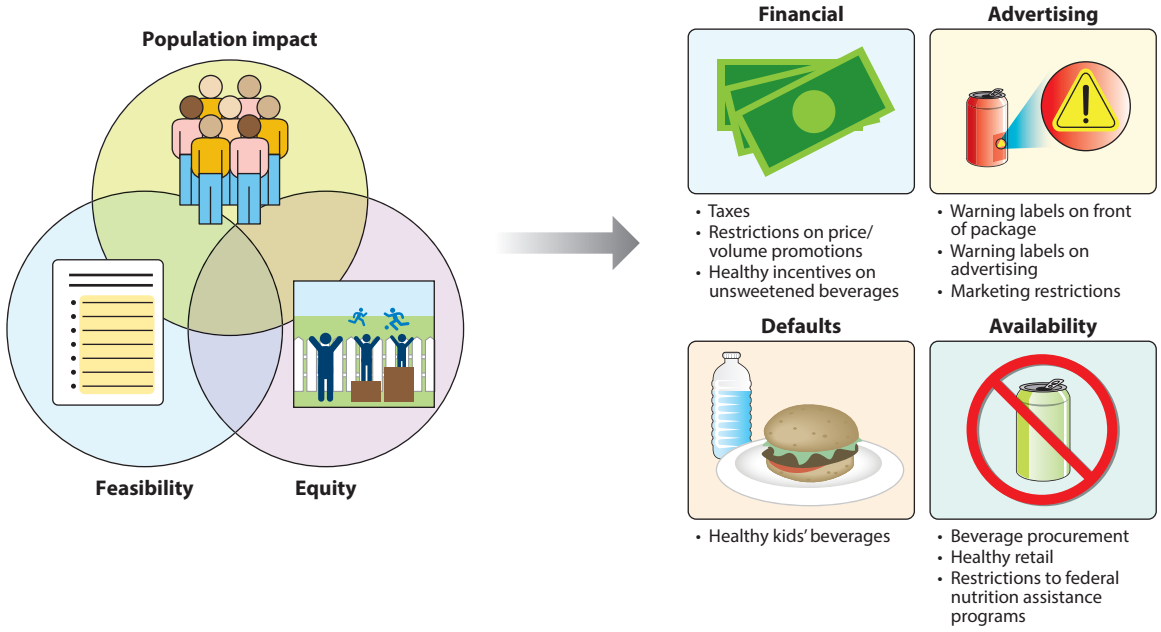

Figure 1

Policies to reduce sugar-sweetened beverage purchases and consumption.

organizations, and media coverage. Whenever possible, we used peer-reviewed, empirical studies. In the absence of real-world data, we included results from simulation studies.

POLICY AREAS

Financial: Sugar-Sweetened Beverage Taxes

SSB taxes are viewed as one of the most effective policies for SSB reduction (3, 100). They are attractive to policy makers because they both reduce sales of SSBs and raise revenue, although they face strong opposition from the beverage industry. As of August 2020, seven US cities and more than 40 nations across the globe have adopted SSB taxes (58). The design of SSB taxes varies by jurisdiction with respect to the tax basis (taxing sugar content versus volume), tax rate (as percentage of price), included beverages [e.g., whether beverages with nonnutritive sweeteners (NNS) are included], and whether the rate is indexed to inflation (25). In the United States, all seven of the taxes are volume-based excise taxes ranging from one to two cents per ounce. Globally, tax designs include tiered sugar-density volume taxes, which can include multiple tiers (e.g., the United Kingdom taxes beverages with 5–8 g of sugar per 100 ml at 18 pence per liter and those with a higher sugar content at 24 pence per liter) or linear rate beyond a first tier (e.g., South Africa taxes beverages at 0.021 rand for every 1 g sugar per 100 mL above 4 g).

Available evidence suggests that SSB taxes increase the price and reduce the sales of taxed beverages. In the United States, the proportion of the tax that is passed on to consumers in the form of increased prices ranges from 43% to 120% (19, 115, 117, 121, 130). The decrease in sales volume varies from 21% to 39% after accounting, when feasible, for tax avoidance from shopping in neighboring areas (20, 115, 116, 121). These ranges mask important differences across and within jurisdictions, suggesting that tax effects depend on factors such as tax rate, baseline SSB

Volume-based excise tax: an excise tax in which the tax rate is based solely on the volume of a product

Excise taxes: taxes collected directly from manufacturers or distributors; may or may not be passed through to prices paid by retailers and/or consumers

Tiered sugar-density volume tax: a volume-based excise tax in which the tax rate varies based on sugar content (g/volume) of the taxed beverage

consumption, store type, type of beverage taxed, and population demographics (20, 32, 50, 93, 130, 132). In Philadelphia, a 1.5-cent-per-ounce tax on beverages sweetened with sugar or NNS was associated with a 38% decline in the volume of taxed beverages sold by large retailers one year after implementation, after accounting for tax avoidance (121). Analyses of sales data in Berkeley, Seattle, and Cook County have also shown decreases, although of lesser magnitude (115, 116, 130). However, purchases in Oakland, as measured by an intercept survey among a smaller convenience sample, did not change significantly (18). In contrast with these consistent findings from studies using objective measures of SSB sales, studies examining the influence of SSB taxes on consumption are mixed (17, 18, 51, 83, 122, 130, 158). This variation may be due to the use of self-reported and imprecise consumption measures and insufficient sample sizes. Some of the variation in impact may also be due to differences in tax implementation across jurisdictions—some governments have provided minimal guidance to retailers (e.g., press releases from city offices), whereas others have provided more intensive assistance (e.g., on-site visits, well-developed websites, and communications campaigns) (28).

SSB taxes in the United States have raised substantial revenues: $135 million per year across the seven US cities (70). Each city has allocated revenues to meet its specific needs and has focused investments on low-income communities. Many tax-funded activities are health focused, such as increasing access to healthy food and water, educating about nutrition and healthy beverage choices, providing health services, and expanding opportunities for physical activity. Others address social determinants of health such as early childhood education or maintenance of libraries, parks, and recreation centers. The extent of community influence on tax revenue allocation decisions is limited in some jurisdictions, whereas community advisory boards have a primary role in awarding funds through grant making in others.

Outside of the United States, evaluation of the UK tiered sugar-density volume tax suggests that it has led to reformulation of beverages with lower sugar content (6, 124). It is likely that sugars are being replaced with NNS. Early evaluations of the South African tax found reductions in the amount of sugar from beverages purchased, likely due to reductions in the volume of taxed beverages purchased and sugar-reduction reformulations by industry (S.W. Ng, personal communication) (136; N. Stacey, I. Edoka, K. Hofman, R. Swart, B. Popkin, S.W. Ng, manuscript under review).

Assessing the health impact of beverage taxes will be difficult. The long lag between tax implementation and potential health effects and the multiple factors that contribute to health conditions associated with SSBs make attribution of observed changes in health outcomes to taxes problematic. Microsimulation models predict significant reductions in obesity and cardiometabolic diseases (85, 106, 123).

Opponents have argued that SSB taxes result in job losses, but the evidence to date does not support this claim (64, 82, 92a, 104). Opponents also argue that they impose a unfair tax burden on people with low incomes. While people with lower incomes likely do pay more taxes than people of greater economic means, emerging evidence suggests that beverage taxes may actually be progressive and advance health equity. Emerging empirical data and economic simulation models suggest that beverage taxes reduce SSB purchases more among people with lower incomes or lower educational attainment than among those with higher levels (2, 12). People with low incomes have higher SSB consumption rates (65) and a greater likelihood of being affected by adverse health conditions associated with SSB consumption (79). Consistent with this evidence, health outcome microsimulation models (84, 85, 106, 123) show greater tax-related health benefits among people with lower incomes. Finally, in the United States, nearly all cities with SSB taxes have invested

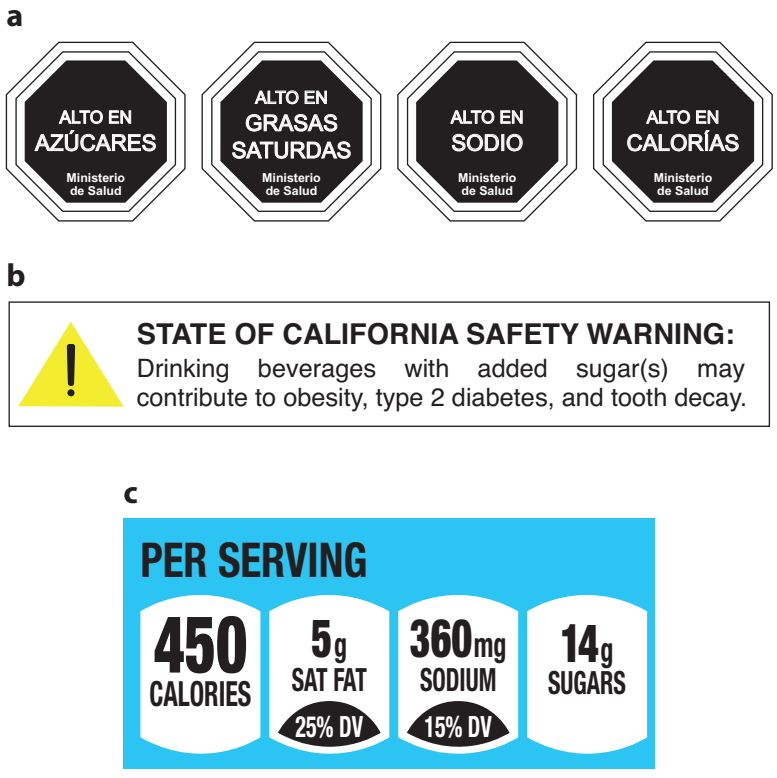

Figure 2

Examples of front-of-package labels. (*a*) Nutrient warning implemented in Chile calling out "high-in" nutrients of concern (sugar, saturated fats, sodium, and calories). (*b*) Health warning proposed (but not adopted) in California in 2019. (*c*) Industry-developed Guideline Daily Amounts (GDA, also referred to as Daily Intake Guide) in Australia, Clear on Calories in Canada, Facts Up Front in the United States, and "Checa y Elige" in Mexico.

tax revenues in programs that explicitly benefit low-income and other marginalized populations. Taking all these factors into account, the net effects of taxes appear to be progressive (2).

Information: Warning Labels

SSB warning labels on beverage containers or outdoor advertising provide consumers with easy-to-understand nutrition information to support healthy beverage choices and industry with an incentive to reformulate products. Two main types of warning labels are used: nutrient warnings (indicating a high amount of sugar) and health warnings (describing health harms of SSBs). See **Figure 2** for examples. The expectation is that warning labels (especially those implemented nationally) may have a larger impact on consumer purchasing behavior than the numeric nutrient information found in the Nutrition Facts Panel on the back or side of packages (37, 151). They may also counteract misleading nutrition claims on beverages (1, 135).

More than 40 countries have implemented voluntary or mandatory warning labels, which vary in appearance and application (155). In the United States, San Francisco passed an ordinance in 2015 requiring a health warning on outdoor SSB advertisements (111). The ordinance was ruled

unconstitutional by the US Court of Appeals in 2019 and the city council passed a revised bill in 2020, which is now the subject of litigation; the trial is not expected until 2021 (S. Adler, personal communication). Laws requiring health warnings on SSB advertising, containers, packaging, menus, or vending machines or at the point of sale of unsealed drinks have been proposed, but not adopted, in seven states and one additional city.

GDA: Guideline Daily Amounts

Simulation and empirical studies suggest that warning labels, compared with numeric nutrient information, are more likely to be noticed, cause stronger emotional reactions, elicit more thinking about the health effects of SSBs, and lead consumers to choose healthier products (76) while avoiding unhealthy ones (35, 61, 137). A simulation study of a US national mandatory SSB health warning policy found that it would reduce average SSB intake by 25.3 calories per day and total energy intake by 31.2 calories per day, reducing obesity prevalence by 3.1 percentage points over 5 years. The study found larger benefits for racial/ethnic minority and lower-income adults (62). Warning labels also encourage manufacturers to improve the nutritional quality of their products to avoid negative labels (128, 150).

Chile's adoption of its Food Labeling and Marketing law in 2012 presented the opportunity to evaluate a real-world warning label policy. The law mandates warnings for products high in sugar, saturated fats, sodium, or energy based on nutrient threshold values (35). Purchases of beverages with "high-in" labels fell by 23.7% after implementation, with similar reductions across all income groups (138). Subsequently, Peru, Mexico (in 2019), and Israel (in 2020) passed or implemented similar legislation, and other countries, such as Brazil and Uruguay, are actively considering following suit.

The food and beverage industry has aggressively opposed warning labels. It has often promoted voluntary Guideline Daily Amounts (GDA) labels (**Figure 2**) as an alternative. However, numerous independent studies have demonstrated poor GDA performance on a number of dimensions, including degree of consumer attention (24, 114), ease of understanding (39, 133), time needed to assess (11, 129), and intentions to consume unhealthy products (15, 44, 45, 74, 129, 139). Moreover, the GDAs are often combined with positive health or nutrient claims on the package, which further confuses consumers (1, 135, 140). In the United States, industry opposition to warning labels has focused on First Amendment challenges (110), claiming that warning labels infringe on commercial free speech. Legal experts suggest that it is possible "to enact food labeling laws within First Amendment parameters" (109, p. 1986), but "future case law is needed to answer outstanding legal questions, and future research is needed to ensure warnings are effective and not burdensome" (111, p. 5). Warnings on packages and at the point of sale may pose fewer First Amendment concerns than warnings on advertisements (111).

Defaults: Healthy Beverage Defaults in Restaurant Meals

SSBs are widely available in restaurant meals marketed to children. In 2019, 61% of the top 50 restaurant chains (ranked by revenue data) had SSBs on their children's menus (119). These menus bundle SSBs with meals or make them the default option, which normalizes and increases the likelihood of consuming SSBs when eating out (119). Defaults strongly motivate behaviors in many contexts (e.g., retirement plans, organ donation, as well as food choice) (154). In restaurants, customers are likely to select the default (41). An analysis of the nutritional quality of children's combination meals at large US chain restaurants found that substituting a lower-calorie beverage (e.g., water) for a sugary drink would reduce calories in a default meal by 100 calories and 20 g of sugar (47). Improving beverage offerings in children's restaurant meals may have larger impacts among children from lower-income households and children of color as compared with children from higher-income households or white children. On a typical day, just over one-third (36.3%) of children and adolescents eat in a fast-food restaurant (56). While higher-income families eat

out more often at fast-food restaurants, children from lower- and middle-income families consume more calories (118). Additionally, fast-food restaurants are more prevalent in lower-income communities (53).

Some restaurants have made voluntary pledges to offer healthier beverages (e.g., water, milk, 100% juice) as the default option in children's meals. While these voluntary efforts have yielded some improvements, they are inconsistently implemented. For example, restaurant personnel offered at least one healthier drink option with more than 80% of children's meal orders at McDonald's, Burger King, and Subway restaurants, but with only 56% of orders at Wendy's and KFC and 33% at Dairy Queen (67). Another evaluation found that 32% of parents who ordered a children's meal from large fast-food restaurant chains continued to receive a sugary drink, despite the restaurants' commitment to offer healthier beverages (68). The beverage calories available with children's meals at 45 chain restaurants did not differ between restaurants participating in the industry's voluntary Kids LiveWell Initiative (**https://restaurant.org/kidslivewell**) and nonparticipating restaurants. Sugary beverages accounted for 80% of children's beverages served in these restaurants, with flavored milks replacing regular soda (97).

State (e.g., California, Hawaii, and Delaware) and local (e.g., eight California jurisdictions, Baltimore, New York City, Philadelphia, and others) governments have passed laws to improve the healthfulness of beverages in children's meals (23). The impact of these children's meal policies is emerging. An early evaluation of California's policy found that more restaurants included a compliant beverage on menu boards, and fewer restaurants listed sweetened beverages after the policy was implemented (74a). However, the same study found no change in Wilmington, Delaware, suggesting additional efforts may be needed to support the implementation of policies after they are passed.

Availability: Healthy Beverage Policies and Guidelines

The policies that determine the availability of sugary drinks through federal nutrition programs affect millions of Americans. The United States Department of Agriculture (USDA) administers a suite of 15 nutrition assistance programs that together have a budget of nearly $100 billion (105). The vast majority of these funds is spent on five programs (described in the Supplemental Appendix): the Supplemental Nutrition Assistance Program (SNAP), which alone accounts for 68% of expenditures (105, 145); the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); the National School Lunch Program (NSLP); the School Breakfast Program (SBP); and the Child and Adult Care Food Program (CACFP).

Recent policy actions have limited access to SSBs (broadly defined to include flavored milk) in most of these programs by aligning them with the Dietary Guidelines for Americans (DGAs) (**Table 1**). For example, the Healthy Hunger-Free Kids Act (HHFKA) of 2010 required the USDA to align NSLP, SBP, and CACFP with the DGAs (40). SNAP was not affected, although households receiving benefits spend about 9% of food dollars on SSBs (compared with 7% among non-SNAP households) (57) and about half of SNAP households support restricting SSB purchases with SNAP benefits (55).

Data on the effectiveness of SNAP restrictions is limited. Evidence from the only randomized controlled trial (conducted among individuals eligible or nearly eligible for SNAP but not participating) found that pairing incentives for purchasing more fruits and vegetables with restrictions on the purchase of less nutritious foods (e.g., SSBs, candies) reduced daily energy intake and improved diet quality compared with no incentives or restrictions (66). Evidence from simulation studies indicates that restricting SSB purchases in SNAP could reduce consumption by an average of 24 calories per person per day, reduce the prevalence of obesity and diabetes, and be cost

USDA: United States Department of Agriculture

SNAP: Supplemental Nutrition Assistance Program

WIC: Special Supplemental Nutrition Program for Women, Infants, and Children

NSLP: National School Lunch Program

SBP: School Breakfast Program

CACFP: Child and Adult Care Food Program

DGA: Dietary Guidelines for Americans

HHFKA: Healthy Hunger-Free Kids Act of 2010

Supplemental Material >

Table 1 Summary of reimbursement and availability of sugary drinks in major federal nutrition assistance programs

Program	Beverage type			Notes
	Flavored milk	100% juice	Other sugar-sweetened drinks	
SNAP[a]	✓	✓	✓	Must be nonalcoholic
WIC[b]	✓	✓	✗	Milk fat level depends on age
NSLP/SBP[c]	✓	✓	✗	Flavored milk can be 0% or 1% fat; sugary and caffeinated drinks cannot be sold during school day
CACFP[d]	A	✓	A	SSBs can be served but not reimbursed; no juice for infants

Symbols and abbreviations: ✗, not allowed; ✓, reimbursable; A, available (but not reimbursable); CACFP, Child and Adult Care Food Program; NSLP, National School Lunch Program; SBP, School Breakfast Program; SNAP, Supplemental Nutrition Assistance Program; WIC, Special Supplemental Nutrition Program for Women, Infants, and Children.

[a]Last updated September 4, 2013 (143).

[b]Last updated November 27, 2013 (144).

[c]Last updated September 23, 2019 (146).

[d]Last updated July 16, 2013 (142).

saving (7, 8, 99). The reach of the five largest federal nutrition assistance programs suggests that expanded restrictions on SSBs would have a meaningful impact on population health, although it will be important to consider the potential impact of such a change on participation.

FSG: Food Service Guidelines

Federal policies establish the "floor" for SSB policy, as states and localities can make additional rules. For example, local educational agencies implementing wellness policies can include additional provisions regarding the availability of SSBs beyond federal policy mandates (40).

A second approach for reducing SSB availability is implementation of food service guidelines (FSGs). FSGs, both voluntary and mandatory, can decrease the public's exposure to SSBs while making healthier beverages more accessible, affordable, and appealing. FSGs create nutrition standards for allowable foods and beverages or behavioral nudges such as pricing, placement, and promotion (22). These guidelines can be applied in a variety of venues (e.g., schools, worksites, hospitals, parks) and locations within those venues (e.g., vending machines, cafeterias, concession stands, and meetings) (22). Comprehensive FSG policies that include most venues and programs within a jurisdiction have been enacted in a small number of US sites, including New York City (103) and Philadelphia (108), the counties of Los Angeles (86) and San Diego (36), and the states of Massachusetts (94) and Washington (152).

Research examining the impacts of FSGs on beverage availability and consumption is limited, but early evaluations are promising. Boston passed a healthy beverage policy in 2011, eliminating the sale of SSBs on city property and mandating nutrition standards for vending machines and city-managed food or beverage service programs (including cafeterias and cafes) (95). Two years after implementation, a single-arm evaluation found that average energy per beverage sold decreased by 48.6 calories and average sugar content decreased by 13.1 g (38). One study of a workplace SSB ban at a California hospital found that employees who were regular SSB drinkers reduced their daily intake by about half and had significant reductions in waist circumference (48). Other evaluations have been mixed. For example, two years after Philadelphia adopted a comprehensive FSG policy for its government agencies in 2014 (108), a single-arm evaluation found that sales of healthier beverages increased 33%, total beverage sales did not change, and less healthy beverage sales experienced a nonsignificant 10% decline. Revenues from sales of all beverages dropped by 21% (107).

CHOOSING A POLICY OPTION

There are many proven and promising policy approaches for reducing purchases or consumption of SSBs. Next, we discuss three key considerations—equity, impact, and feasibility—for determining which approach or combination of approaches to use.

Equity

Health equity means that "everyone has a fair and just opportunity to be as healthy as possible" (16, p. 2). Health inequities are differences in health that are not only avoidable but also unfair and unjust. They are rooted in the social conditions that increase the risk of poor health in marginalized communities.

Equity considerations are important throughout the policy process, including issue identification, policy design, agenda setting, adoption, implementation, and evaluation (80). Equity is more likely to be considered if policy makers and advocates share power with the community, beginning early in the policy process during the problem definition phase (101). Rigorous evaluation methods that draw on community-based participatory research approaches are important for understanding policy equity impacts (81, 101). These equity considerations are key for crafting just policies; those that are poorly designed and insufficiently evaluated can have the unintended consequence of exacerbating health inequities.

SSB reduction policies with broad reach among populations most affected by predatory industry marketing and the diseases associated with SSBs have the greatest potential to increase equity (81). For example, federal nutrition assistance programs reach about one in four Americans each year and help primarily lower-income individuals (105). Therefore, reducing availability of SSBs in these programs may help to reduce disparities in SSB consumption among a large population. SSB taxes, which affect everyone living in a jurisdiction, also reach large numbers of people. By increasing prices, taxes may counter industry marketing and pricing strategies that target people of color and lower-income communities (60, 87). Other fiscal policies with the potential for broad reach, such as restricting price promotions on SSBs, could also yield greater benefits for lower-income populations, who are often the targets of such promotions (60).

Policy impacts may differ across subpopulations in ways that promote equity. SSB taxes are a good example of a proequity policy (29). Evidence points to larger declines in sales among people with lower incomes and people of color, who are at higher risk for SSB consumption and associated health issues (26, 102). For example, in Philadelphia, the absolute declines in the volume of taxed beverage purchases among customers shopping in lower-income neighborhoods and among people with lower education levels were slightly larger (−6.78 ounces and −6.41 ounces, respectively) compared with the overall decline (−5.76 ounces), and consumers with lower education purchased significantly more untaxed beverages (e.g., water) (12). In Mexico, SSB purchases during the second year of tax implementation fell 14.3% among people of lower socioeconomic status while decreasing 5.6% among those of higher socioeconomic status (30, 31). In the United States, cities have invested tax revenues primarily in programs that serve these populations, adding to the proequity nature of SSB taxes. Investing revenues in lower-income communities also redistributes resources from wealthy to poor people (9, 127), thus mitigating concerns about fiscal regressivity (i.e., that the tax is a larger percentage of income for lower-income households).

Some policies may inadvertently exacerbate inequities. For example, text-based health warnings or front-of-package labels written in English may exclude non-English readers. Icon-based labels may be equally accessible regardless of language and offer a more proequity policy approach.

Impact

Dose of a policy: the amount and duration (and hence intensity) of a policy's implementation

Preemption: legislative or regulatory action by a higher level of government that eliminates or reduces the authority of a lower level of government over a specific issue

The impact of a policy is a function of both the number of people it reaches and its effect size (157). With respect to reach, some policies touch large numbers of people (e.g., taxes, warning labels, nutrition assistance programs) while others affect a smaller proportion of a population (e.g., healthy kids' meals and food service guidelines, given the smaller share of total SSB intake or purchases from these sources). Notably, the geographical boundaries of a policy can affect reach. For example, shoppers in some, but not all, jurisdictions may avoid a beverage tax by making purchases in a neighboring nontaxed jurisdiction, thus reducing reach (20). A tax policy implemented nationally will have the greatest reach but may not be as feasible politically as a local tax.

With respect to effect size, there is also considerable variation. For example, effect sizes on reducing sales volume of targeted beverages are large for warning labels (20–35%) implemented nationwide (61, 138) and for local SSB taxes (21–39%) in the United States (121, 136, 141). Effect sizes are unknown for children's meal defaults, FSGs, and healthy checkout aisles.

The "dose" of a policy also affects impact. For SSB taxes, an example of a higher-dose approach would be one that uses a higher tax rate (e.g., 2 cents per ounce rather than 1 cent) and/or includes a wider range of taxed beverages (e.g., beverages sweetened with NNS). For front-of-package labels, a higher-dose policy would use larger or more graphic warning labels. Therefore, assuring that a policy has an adequate dose should be an important consideration in the policy selection process.

Feasibility

Even the highest-impact policy will not reduce SSB consumption unless it is feasible to implement. Feasibility has several dimensions. Political feasibility includes the acceptability of a policy to decision makers and the public (i.e., political will) as well as the strength of the opposition. If the public and policy makers view SSBs and their marketing as unhealthy, unjust, and irresponsible, political will increases and policy change becomes more feasible (59, 73). Legal feasibility refers to whether a policy conforms to existing law. Most relevant to SSB policy is whether a jurisdiction has the authority to adopt the policy. Preemption of local authority by a higher level of government denies this authority (112). Feasibility of policy implementation refers to barriers to putting the policy into effect, such as implementation costs, burden to affected parties, challenges to enforcement, political opposition, and risk of repeal.

Taxing SSBs is an example of a high-impact policy that may not be feasible in all jurisdictions. Opposition from the public, elected officials, and the beverage industry or competition from policies higher on decision makers' and advocates' agendas may reduce political feasibility. Legal feasibility may be jeopardized by state preemption of local taxation (112) or industry lawsuits. In Philadelphia, a beverage industry suit that attempted to block tax implementation, on the grounds that it was an unconstitutional local tax duplicating a state tax, was unsuccessful (153).

Warning-label policies may have high impact but face legal challenges. The First Amendment's protection of commercial speech, and against compelled speech, has hindered adoption of warning labels on outdoor advertising (111). While certain high-impact front-of-package warnings may suffer from similar legal feasibility issues, factually accurate warnings may be feasible at the federal level (111). State- and local-level labeling policies are limited by the Nutrition Labeling and Education Act of 1990, which preempts states from requiring nutrient content labels that are not identical to federal requirements (109). However, safety warnings are not similarly preempted. In countries that have adopted front-of-package labels, implementation challenges have included identification of covered products, trade considerations, and the time needed by industry to update packaging and reformulate products (35).

Excluding SSBs from SNAP purchases is another example of a potentially high-impact policy. However, this topic is hotly debated with regard to concerns about stigma, fairness, feasibility, and effectiveness of restricting benefits (125). The USDA requires a state wavier to implement this policy as a pilot project; to date, all state waiver requests (e.g., Minnesota, New York, Maine) have been denied and, in some cases, multiple times (13).

In contrast, FSGs, which are often adopted by administrative orders, tend to face fewer feasibility barriers, but their impact is uncertain. They can be politically more feasible because they do not require a vote by a legislative body and are not usually opposed by industry. Special interests and customers of vending machines and cafeterias affected by the guidelines may oppose them, but these parties have less influence than a well-funded industry campaign. However, implementation may present challenges because enforcement can be difficult, customers may resist changes to menu and vending offerings, and vendors may not offer desired healthy products (72).

Requiring healthy default beverages in children's meals is another example of a feasible yet potentially lower-impact policy, given the relatively small proportion of children's SSB consumption that occurs in restaurants. Together, quick service restaurants and full-service restaurants account for 25% of SSBs consumed by children; most (60%) of the SSBs consumed by children are purchased from stores (42). Moreover, fruit drinks are the primary type of SSBs consumed by young children (5), and these are not usually included in kids' meals (soda is the typical SSB included with a kids' meal).

Industry efforts to shape public policy can reduce the feasibility of adoption. Evidence is emerging of the sugar and beverage industries' attempts to influence policies they consider harmful to their interests through mischaracterizing scientific evidence, launching public relations campaigns, operating through front organizations, lobbying, shifting the blame away from their products, and highlighting corporate positive actions (33, 54, 75).

Feasibility can be increased. As the number of SSB reduction policy efforts has grown, lessons about factors associated with success have emerged. Successful campaigns have increased public awareness of the health and equity issues associated with SSBs, built strong multisector coalitions, included leaders from communities of color and economically marginalized communities in leadership roles, fielded effective grassroots organizing efforts, launched effective communications strategies to control the framing of the policy debate early on, articulated clearly the purpose of the policy and who will benefit, secured the support of elected officials, and arranged adequate funding. They have allowed sufficient time to develop the groundwork for the campaign, beginning many months or years prior to launching it (28). Resources that describe considerations for fielding successful SSB reduction policy campaigns are available (69, 71, 149).

Another approach that can increase legal feasibility is opposing or repealing state preemption of local policies because policy innovation is often easier at the local level. Engaging stakeholders affected by policy implementation in the policy design and administration can reduce barriers to implementation (49).

DISCUSSION

Many proven and promising policy options for reducing SSB consumption are available to policy makers and advocates. The decision regarding which approach or combination of approaches to use should consider equity, impact, and feasibility. Will the policy advance equity? Is there sufficient evidence for impact? Is the policy politically feasible, legal, and practical to implement? Is it best to implement the policy at the local, state, or national level? The answers to these questions will differ across policies and contexts. Beverage taxes may be feasible in one jurisdiction but not another, may advance equity more in a jurisdiction with a larger lower-income population, and may produce greater declines in beverage sales in places with higher baseline consumption and

less opportunity for cross-border shopping. Therefore, determining the best policy options for SSB reduction requires sophisticated consideration of a jurisdiction's specific social and political context; a one-size-fits-all approach will not suffice.

Rigorous policy evaluation can support the passage of effective policies, discourage adoption of ineffective policies, and point out policies with unintended consequences (e.g., increasing inequities). In some cases, the latter may be mitigated through thoughtful policy design and implementation. In other cases, trade-offs between unavoidable negative outcomes need to be balanced with likely benefits.

No single policy will reduce SSB consumption to healthy levels. Therefore, multiple policies at different levels (organizational, local, state, or national), along with communications campaigns and other types of interventions, should be integrated to leverage synergies, reinforce healthy norms, and maximize impact (134). Carefully crafted countermarketing campaigns, which have reduced SSB sales in the United States and Australia (52, 98), could complement any SSB policy. Together, these interventions would send a clear and coherent message to the public and industry and address SSB exposure in the many places people live, work, learn, and play.

Emerging evidence suggests adopting a suite of policies rather than relying on any single policy. Chile's Food Labeling and Marketing Law provides an excellent example of policy integration (35). The law is the first national policy to jointly mandate front-of-package warning labels, restrict child-directed marketing, and ban sales in schools of foods and beverages high in added sugars, sodium, or saturated fats. Implementation of these policies was accompanied by guidance to industry, schools, and early-childhood centers, as well as mass media campaigns on using the warning labels (35). In the United States, the Howard County Unsweetened campaign, which combined a public awareness campaign with organizational and public policy changes, was associated with significant decreases in sales of soda and fruit drinks (126).

We note variation in the level of government adopting SSB policies. The United States is distinct from most other countries in that it currently has only local and state SSB policies. It is not uncommon for innovative food policies to be incubated at the state or local level first before being implemented nationally. Political feasibility is often greater at the local or state level, where agreement on policy adoption may be more attainable and political will is greater. While implementing national SSB policies may be possible in the United States, checks and balances (e.g., bicameral legislature, presidential veto power) and powerful interest groups present significant obstacles.

Ideally, policies to reduce SSB consumption should be dynamic, adapting to changing market and consumption trends as well as emerging science. For example, industry is increasingly adding NNS to packaged beverages (113). The impact of such potential reformulation on health is currently unknown (see the sidebar titled Nonnutritive Sweeteners and Health; 43, 89). If negative health consequences were to occur, they might blunt the positive effects of taxes or warning labels, and policies that discourage reformulation might be needed. Evidence continues to emerge about the health effects of beverages other than SSBs. Some studies have raised concerns about an association between 100% fruit juice and type 2 diabetes, although findings are currently mixed and inconclusive (4, 34, 63). Should evidence of harm from 100% juice become more compelling, allowing juice to count as a fruit serving in US food assistance programs or excluding it from SSB taxes may merit reconsideration.

Policies must also respond to broader public health trends. The coronavirus disease 2019 (COVID-19) pandemic has changed the context for SSB policies. Local and state governments facing serious budget shortfalls are seeking revenues. This need for revenue may create an opportunity for accelerating adoption of SSB taxes, perhaps even a national beverage tax, but it could also lead these governments to deposit revenues into general funds rather than dedicating their use to addressing SSB-related health issues and health inequities. If school closures persist, food from

NONNUTRITIVE SWEETENERS AND HEALTH

The number and types of nonnutritive sweeteners (NNS) used in packaged beverages and foods are increasing, in part as a response to sugar reduction initiatives. NNS are also referred to as low-calorie or nonsugar sweeteners. They provide sweetness to products while adding few if any calories. Examples include aspartame, saccharin, rebaudioside-A (found predominantly in Stevia), and sucralose. Current evidence regarding the associations of long-term exposure to NNS with health outcomes such as obesity, diabetes, and cardiovascular disease is inconclusive (43, 89). Whether the mixed findings are due to problems with reverse causality, inadequate assessment of exposure, or failure to distinguish potential varying effects across types of NNS is unclear. For example, the health effects of each type of NNS could differ because each has its own unique chemical structure and therefore sensory properties (e.g., sweetener intensities, mouth feel) and physiological effects. More studies assessing the health effects of each type of NNS and their interactions with each other, as well as with the rest of our diets, are needed. Exposure to NNS varies across demographic groups, and further research is needed to quantify this variation and its impacts on population health.

schools will comprise a smaller portion of children's diet, suggesting the need for more emphasis on policies in other settings. Thus, school closures may increase obesity risk. A recent study suggests that, for children living in poverty, obesity risk would have been 47% higher in 2018 had not the HHFKA been implemented (77), which established policies to improve the nutritional quality of foods and beverages served to US children (e.g., more whole grains, fruits, and vegetables).

Evaluation of proven (e.g., beverage taxes, front-of-package warning labels) and promising (e.g., healthy beverage defaults in kids' meals, healthy retail, FSGs, and outdoor advertising warning labels) SSB reduction policies, individually and in combination, is essential. Policy design varies substantially across jurisdictions, which supports the value of context-specific evaluation data informed by community perspectives to deepen understanding of equity, feasibility, and impact. Future evaluation (see also the Future Issues box below) should address known issues in evaluating SSB policies (e.g., collecting baseline data in the limited time between policy adoption and implementation, securing a valid comparison site, fully accounting for temporal trends and confounding factors, and reducing bias from self-reported beverage consumption). Although an end goal for SSB reduction policies is the prevention of adverse health outcomes, it may be difficult to demonstrate this effect, given the long lag between change in exposure to SSBs and disease incidence as well as the influence of many other disease risk factors in addition to SSBs. Evaluations should therefore focus on intermediate outcomes such as changes in consumer and industry behavior, particularly for short-term studies.

SSB policy adoption faces considerable opposition, and advocates typically have fewer financial, lobbying, and other resources that they can bring to bear. However, partnerships among advocates, communities, and policy makers can help to counterbalance the financial weight of industry opposition during policy adoption campaigns (21, 120). Evaluators can contribute to policy adoption by disseminating findings about policy impacts and lessons learned regarding policy design. They can also codesign evaluations with policy makers and advocates. Advocates and policy makers, in turn, can keep evaluators informed about emerging opportunities for evaluation as policies are considered for adoption.

In conclusion, existing SSB policies are a proven policy approach for reducing the sales (and, in some subpopulations, consumption) of SSBs, and many promising policies are emerging. Continued progress in this area will require scaling and integrating effective policies and testing innovative ones with the goal of maximizing equity, impact, and feasibility. Opposition may slow progress,

but coordinated efforts by policy makers, advocates, communities, and independent evaluators to advance policy action, design, and science will allow SSB policies to realize their full potential for improving health and health equity.

SUMMARY POINTS

1. The rates of sales and consumption of sugar-sweetened beverages (SSBs), which are associated with poor health outcomes, have declined since 2000. However, they remain unacceptably high and may have leveled off more recently.
2. Evidence for the effectiveness of four categories of policies to reduce exposure to and consumption of SSBs is growing: financial, information, defaults, and availability. Within these categories, some evidence is strong (e.g., beverage excise taxes) and some evidence is emerging (e.g., healthy beverage defaults).
3. As policy makers choose among approaches for reducing SSB consumption, policy equity, impact, and feasibility should be critical considerations.
4. Because policies to reduce SSB consumption often face strong opposition, ground-softening activities (e.g., grassroots organizing and SSB public awareness campaigns) can help to increase political feasibility.
5. No single policy will reduce SSB consumption to healthy levels. Current and future policies should be dynamic, adapting to changing market and consumption trends as well as to emerging science.
6. Scaling SSB policies with demonstrated effectiveness, testing innovative approaches, and implementing multiple policies concurrently will help to maximize impact.

FUTURE ISSUES

1. More information is needed to inform an evidence-based approach for the adoption of SSB reduction policies, including evidence on impact (e.g., differential effects by race/ethnicity or income, comparative cost-effectiveness of policy alternatives, the combined impact of multiple SSB reduction policies), unintended consequences (e.g., possible substitution by NNS or other sweetened products), shifting norms (e.g., changes in population norms about SSB consumption), industry opposition (e.g., tactics to defeat taxes, influence on the policy-making process), other benefits beyond reducing SSB consumption (e.g., improved education outcomes attributable to revenue investments), and health effects of beverages not currently considered SSBs (e.g., association of 100% fruit juice intake with potential adverse health outcomes).
2. Future research should be informed by community perspectives to deepen understanding of policy equity, feasibility, and impact.
3. For SSB reduction policies that raise revenue (i.e., SSB taxes), it will be important to document any additional economic (e.g., job creation from revenue investments) or health impacts. This is especially important in light of COVID-19, as resource gaps may raise policy makers' interest in SSB taxes.

DISCLOSURE STATEMENT

J.K. is employed by Healthy Food America, which has organizational policy positions and advocates for some of the policies included in this article. He has received grant support for the evaluation of sugary drink taxes and of a sugary drink countermarketing project from Healthy Eating Research, a program of the Robert Wood Johnson Foundation. He has received funding from Voices for Healthy Kids/American Heart Association to develop recommendations for the design of equitable sugary drink tax policy and from the Panta Rhea Foundation to provide technical support for adoption and implementation of sugary drink taxes. S.N.B. has received research grant funding from Bloomberg Philanthropies, which has funded advocacy and mass communication campaigns supporting SSB taxes. S.S. is employed by the American Heart Association, which has organizational policy positions and advocates for some of the policies included in this articles. Her views are independent and are not intended to represent those of the American Heart Association. S.W.N. has received research grant funding from Bloomberg Philanthropies and Arnold Ventures, both of which have funded advocacy and mass communication campaigns supporting SSB taxes.

ACKNOWLEDGMENTS

J.K. acknowledges partial support for the preparation of this review from the Panta Rhea Foundation. The authors thank Jennifer Pomeranz, JD, MPH, Assistant Professor at the School of Global Public Health at New York University, for her helpful review of legal issues related to warning labels.

LITERATURE CITED

1. Abrams KM, Evans C, Duff BRL. 2015. Ignorance is bliss. How parents of preschool children make sense of front-of-package visuals and claims on food. *Appetite* 87:20–29
2. Allcott H, Lockwood BB, Taubinsky D. 2019. Should we tax sugar-sweetened beverages? An overview of theory and evidence. *J. Econ. Perspect.* 33:202–27
3. Andreyeva T, Chaloupka FJ, Brownell KD. 2011. Estimating the potential of taxes on sugar-sweetened beverages to reduce consumption and generate revenue. *Prev. Med.* 52:413–16
4. Auerbach BJ, Dibey S, Vallila-Buchman P, Kratz M, Krieger J. 2018. Review of 100% fruit juice and chronic health conditions: implications for sugar-sweetened beverage policy. *Adv. Nutr.* 9:78–85
5. Bailey RL, Fulgoni VL III, Cowan AE, Gaine PC. 2018. Sources of added sugars in young children, adolescents, and adults with low and high intakes of added sugars. *Nutrients* 10:102
6. Bandy LK, Scarborough P, Harrington RA, Rayner M, Jebb SA. 2020. Reductions in sugar sales from soft drinks in the UK from 2015 to 2018. *BMC Med.* 18:20
7. Basu S, Seligman H, Bhattacharya J. 2013. Nutritional policy changes in the Supplemental Nutrition Assistance Program: a microsimulation and cost-effectiveness analysis. *Med. Decis. Making* 33:937–48
8. Basu S, Seligman HK, Gardner C, Bhattacharya J. 2014. Ending SNAP subsidies for sugar-sweetened beverages could reduce obesity and type 2 diabetes. *Health Aff.* 33:1032–39
9. Bennet S, Draper N, Farnsworth I, McBride F. 2019. *The Bay Area sugar-sweetened beverage taxes: an evaluation of community investments*. Rep., Praxis Proj., Berkeley Food Inst., Berkeley, CA. **https://food.berkeley.edu/wp-content/uploads/2019/05/GSPP-Soda-Tax-Evaluation-Final-Draft_withdate.pdf**
10. Bhupathiraju SN, Hu FB. 2016. Epidemiology of obesity and diabetes and their cardiovascular complications. *Circ. Res.* 118:1723–35
11. Bialkova S, Grunert KG, Juhl HJ, Wasowicz-Kirylo G, Stysko-Kunkowska M, van Trijp HCM. 2014. Attention mediates the effect of nutrition label information on consumers' choice. Evidence from a choice experiment involving eye-tracking. *Appetite* 76:66–75

12. Bleich SN, Lawman HG, LeVasseur MT, Yan J, Mitra N, et al. 2020. The association of a sweetened beverage tax with changes in beverage prices and purchases at independent stores. *Health Aff.* 39:1130–39
13. Bleich SN, Moran AJ, Vercammen KA, Frelier JM, Dunn C, et al. 2020. Strengthening the public health impacts of the Supplemental Nutrition Assistance Program through policy. *Annu. Rev. Public Health* 41:453–80
14. Bleich SN, Vercammen KA, Koma JW, Li Z. 2018. Trends in beverage consumption among children and adults, 2003–2014. *Obesity* 26:432–41
15. Boztuğ Y, Juhl HJ, Elshiewy O, Jensen MB. 2015. Consumer response to monochrome Guideline Daily Amount nutrition labels. *Food Policy* 53:1–8
16. Braveman P, Arkin E, Orleans T, Proctor D, Plough A. 2017. *What is health equity? And what difference does a definition make?* Rep., Robert Wood Johnson Found., Princeton, NJ. **https://www.rwjf.org/en/library/research/2017/05/what-is-health-equity-.html**
17. Cawley J, Frisvold D, Hill A, Jones D. 2019. The impact of the Philadelphia beverage tax on purchases and consumption by adults and children. *J. Health Econ.* 67:102225
18. Cawley J, Frisvold D, Hill A, Jones D. 2020. Oakland's sugar-sweetened beverage tax: impacts on prices, purchases and consumption by adults and children. *Econ. Hum. Biol.* 37:100865
19. Cawley J, Frisvold DE. 2017. The pass-through of taxes on sugar-sweetened beverages to retail prices: the case of Berkeley, California. *J. Policy Anal. Manag.* 36:303–26
20. Cawley J, Thow AM, Wen K, Frisvold D. 2019. The economics of taxes on sugar-sweetened beverages: a review of the effects on prices, sales, cross-border shopping, and consumption. *Annu. Rev. Nutr.* 39:317–38
21. Cent. Sci. Public Interest. 2017. *Big Soda versus public health: 2017 edition*. Fact Sheet, Cent. Sci. Public Interest, Washington, DC. **https://cspinet.org/sites/default/files/attachment/big-soda-2017.pdf**
22. Cent. Sci. Public Interest. 2019. *A roadmap for comprehensive Food Service Guidelines*. Rep., Cent. Sci. Public Interest, Washington, DC. **https://cspinet.org/sites/default/files/attachment/Roadmap_for_Comprehensive_FSG_11-22-19.pdf**
23. Cent. Sci. Public Interest. 2019. *State and local restaurant kids' meal policies*. Chart, Cent. Sci. Public Interest. Washington, DC. **https://cspinet.org/sites/default/files/attachment/CSPI_chart_of_local_km_policies_October_2019_0.pdf**
24. Centurión M, Machín L, Ares G. 2019. Relative impact of nutritional warnings and other label features on cereal bar healthfulness evaluations. *J. Nutr. Educ. Behav.* 51:850–56
25. Chaloupka FJ, Powell LM, Warner KE. 2019. The use of excise taxes to reduce tobacco, alcohol, and sugary beverage consumption. *Annu. Rev. Public Health* 40:187–201
26. Cheng YJ, Kanaya AM, Araneta MRG, Saydah SH, Kahn HS, et al. 2019. Prevalence of diabetes by race and ethnicity in the United States, 2011–2016. *JAMA* 322:2389–98
27. Chi DL, Scott JM. 2019. Added sugar and dental caries in children: a scientific update and future steps. *Dent. Clin. North Am.* 63:17–33
28. Chriqui JF, Sansone CN, Powell LM. 2020. The sweetened beverage tax in Cook County, Illinois: lessons from a failed effort. *Am. J. Public Health* 110:1009–16
29. Colchero MA, Molina M, Guerrero-López CM. 2017. After Mexico implemented a tax, purchases of sugar-sweetened beverages decreased and of water increased: difference by place of residence, household composition, and income level. *J. Nutr.* 147:1552–57
30. Colchero MA, Popkin BM, Rivera JA, Ng SW. 2016. Beverage purchases from stores in Mexico under the excise tax on sugar sweetened beverages: observational study. *BMJ* 352:h6704
31. Colchero MA, Rivera-Dommarco J, Popkin BM, Ng S. 2017. In Mexico, evidence of sustained consumer response two years after implementing a sugar-sweetened beverage tax. *Health Aff.* 36:564–71
32. Colchero MA, Salgado JC, Unar-Munguía M, Molina M, Ng S, Rivera-Dommarco JA. 2015. Changes in prices after an excise tax to sweetened sugar beverages was implemented in Mexico: evidence from urban areas. *PLOS ONE* 10:e0144408
33. Collin J, Hill S. 2019. *Structure and tactic of the tobacco, alcohol, and sugary beverage industries*. Backgr. Pap., Task Force on Fiscal Policy for Health, New York

34. Collin LJ, Judd S, Safford M, Vaccarino V, Welsh JA. 2019. Association of sugary beverage consumption with mortality risk in US adults: a secondary analysis of data from the REGARDS study. *JAMA Netw. Open* 2:e193121
35. Corvalán C, Reyes M, Garmendia ML, Uauy R. 2019. Structural responses to the obesity and non-communicable diseases epidemic: update on the Chilean law of food labelling and advertising. *Obes. Rev.* 20:367–74
36. County of San Diego. 2016. *Eat well practices*. Rep., County of San Diego, San Diego, CA. **https://www.livewellsd.org/content/dam/livewell/topics/Eat-Well-Practices/PDFs_EatWell/Eat%20Well%20Practices.pdf**
37. Cowburn G, Stockley L. 2005. Consumer understanding and use of nutrition labelling: a systematic review. *Public Health Nutr*. 8:21–28
38. Cradock AL, Kenney EL, McHugh A, Conley L, Mozaffarian RS, et al. 2015. Evaluating the impact of the Healthy Beverage Executive Order for city agencies in Boston, Massachusetts, 2011–2013. *Prev. Chronic Dis.* 12:140549
39. De la Cruz-Góngora V, Torres P, Contreras-Manzano A, Jáuregui de la Mota A, Mundo-Rosas V, et al. 2017. Understanding and acceptability by Hispanic consumers of four front-of-pack food labels. *Int. J. Behav. Nutr. Phys. Activity* 14:28
40. Di Cesare M, Khang Y-H, Asaria P, Blakely T, Cowan MJ, et al. 2013. Inequalities in non-communicable diseases and effective responses. *Lancet* 381:585–97
41. Downs JS, Loewenstein G, Wisdom J. 2009. Strategies for promoting healthier food choices. *Am. Econ. Rev.* 99:159–64
42. Drewnowski A, Rehm CD. 2014. Consumption of added sugars among US children and adults by food purchase location and food source. *Am. J. Clin. Nutr.* 100:901–7
43. Drouin-Chartier J-P, Zheng Y, Li Y, Malik V, Pan A, et al. 2019. Changes in consumption of sugary beverages and artificially sweetened beverages and subsequent risk of type 2 diabetes: results from three large prospective U.S. cohorts of women and men. *Diabetes Care* 42:2181–89
44. Ducrot P, Julia C, Méjean C, Kesse-Guyot E, Touvier M, et al. 2016. Impact of different front-of-pack nutrition labels on consumer purchasing intentions: a randomized controlled trial. *Am. J. Prev. Med.* 50:627–36
45. Ducrot P, Méjean C, Julia C, Kesse-Guyot E, Touvier M, et al. 2015. Effectiveness of front-of-pack nutrition labels in French adults: results from the NutriNet-Santé Cohort Study. *PLOS ONE* 10:e0140898
46. Duffey KJ, Popkin BM. 2007. Shifts in patterns and consumption of beverages between 1965 and 2002. *Obesity* 15:2739–47
47. Dunn C, Vercammen KA, Frelier J, Moran AJ, Bleich SN. 2020. Nutrition composition of children's meals in 26 large U.S. chain restaurants. *Public Health Nutr*. 23:2245–52
48. Epel ES, Hartman A, Jacobs LM, Leung C, Cohn MA, et al. 2020. Association of a workplace sales ban on sugar-sweetened beverages with employee consumption of sugar-sweetened beverages and health. *JAMA Intern. Med.* 180:9–16
49. Falbe J, Grummon AH, Rojas N, Ryan-Ibarra S, Silver LD, Madsen KA. 2020. Implementation of the first US sugar-sweetened beverage tax in Berkeley, CA, 2015–2019. *Am. J. Public Health* 110:1429–37
50. Falbe J, Rojas N, Grummon AH, Madsen KA. 2015. Higher retail prices of sugar-sweetened beverages 3 months after implementation of an excise tax in Berkeley, California. *Am. J. Public Health* 105:2194–201
51. Falbe J, Thompson HR, Becker CM, Rojas N, McCulloch CE, Madsen KA. 2016. Impact of the Berkeley excise tax on sugar-sweetened beverage consumption. *Am. J. Public Health* 106:1865–71
52. Farley TA, Halper HS, Carlin AM, Emmerson KM, Foster KN, Fertig AR. 2017. Mass media campaign to reduce consumption of sugar-sweetened beverages in a rural area of the United States. *Am. J. Public Health* 107:989–95
53. Fleischhacker SE, Evenson KR, Rodriguez DA, Ammerman AS. 2011. A systematic review of fast food access studies. *Obes. Rev.* 12:e460–71
54. Fooks GJ, Williams S, Box G, Sacks G. 2019. Corporations' use and misuse of evidence to influence health policy: a case study of sugar-sweetened beverage taxation. *Glob. Health* 15:56

55. Franckle RL, Polacsek M, Bleich SN, Thorndike AN, Findling MTG, et al. 2019. Support for Supplemental Nutrition Assistance Program (SNAP) policy alternatives among US adults, 2018. *Am. J. Public Health* 109:993–95
56. Fryar CD, Carroll MD, Ahluwalia N, Ogden CL. 2020. *Fast food intake among children and adolescents in the United States, 2015–2018*. NCHS Data Brief 375, Natl. Cent. Health Stat., Hyattsville, MD. **https://www.cdc.gov/nchs/products/databriefs/db375.htm**
57. Garasky S, Mbwana K, Romualdo A, Tenaglio A, Roy M. 2016. *Foods typically purchased by Supplemental Nutrition Assistance Program (SNAP) households*. Rep., US Dep. Agric., Food Nutr. Serv. **https://foodpolitics.com/wp-content/uploads/SNAPFoodsTypicallyPurchased_16.pdf**
58. Glob. Food Res. Progr., Univ. N. C. 2020. *Sugary drink taxes around the world*. Maps, Glob. Food Res. Progr., Univ. N. C., Chapel Hill, NC. **https://www.dropbox.com/s/bqbj501wgocor24/UNCGFRP_SSB_tax_maps.pdf?dl=0**
59. Gollust SE, Barry CL, Niederdeppe J. 2014. Americans' opinions about policies to reduce consumption of sugar-sweetened beverages. *Prev. Med.* 63:52–57
60. Grier SA, Kumanyika SK. 2008. The context for choice: health implications of targeted food and beverage marketing to African Americans. *Am. J. Public Health* 98:1616–29
61. Grummon A, Hall MG. 2020. Sugary drink warnings: a meta-analysis of experimental studies. *PLOS Med.* 17(5):e1003120
62. Grummon AH, Smith NR, Golden SD, Frerichs L, Taillie LS, Brewer NT. 2019. Health warnings on sugar-sweetened beverages: simulation of impacts on diet and obesity among U.S. adults. *Am. J. Prev. Med.* 57:765–74
63. Guasch-Ferré M, Hu FB. 2019. Are fruit juices just as unhealthy as sugar-sweetened beverages? *JAMA Netw. Open* 2:e193109
64. Guerrero-López CM, Molina M, Colchero MA. 2017. Employment changes associated with the introduction of taxes on sugar-sweetened beverages and nonessential energy-dense food in Mexico. *Prev. Med.* 105S:S43–49
65. Han E, Powell LM. 2013. Consumption patterns of sugar-sweetened beverages in the United States. *J. Acad. Nutr. Diet.* 113:43–53
66. Harnack L, Oakes JM, Elbel B, Beatty T, Rydell S, French S. 2016. Effects of subsidies and prohibitions on nutrition in a food benefit program: a randomized clinical trial. *JAMA Intern. Med.* 176:1610–18
67. Harris J, Hyary M, Seymour N, Choi Y-Y. 2017. *Are fast-food restaurants keeping their promises to offer healthier kids' meals?* Rudd Rep., UConn Rudd Cent. Food Policy Obesity, Hartford, CT. **http://www.uconnruddcenter.org/files/Pdfs/272-9%20_%20Rudd_Healthier%20Kids%20Meals%20Report_Final%20Round_Web-150dpi_080117.pdf**
68. Harris J, Hyary M, Seymour N, Choi Y-Y. 2018. *Parents' reports of fast-food purchases for their children: Have they improved?* Rudd Rep., UConn Rudd Cent. Food Policy Obesity, Hartford, CT. **http://uconnruddcenter.org/files/272-10%20%20Healthier%20Kids%20Meals%20Parent%20Survey%20Report_Release_8_31_18.pdf**
69. Healthy Food America. 2016. *A roadmap for successful sugary drink tax campaigns*. Rep., Healthy Food America, Seattle, WA. **http://www.healthyfoodamerica.org/a_roadmap_for_successful_sugary_drink_tax_campaigns**
70. Healthy Food America. 2020. Map and chart the movement. *Healthy Food America*. **http://www.healthyfoodamerica.org/map**
71. Healthy Food America, ChangeLab Solutions. 2018. *A legal and practical guide for designing sugary drink taxes*. Rep., Healthy Food America, Seattle, WA. **http://www.healthyfoodamerica.org/a_legal_and_practical_guide_for_designing_sugary_drink_taxes**
72. Jilcott Pitts SB, Graham J, Mojica A, Stewart L, Walter M, et al. 2016. Implementing healthier foodservice guidelines in hospital and federal worksite cafeterias: barriers, facilitators and keys to success. *J. Hum. Nutr. Diet.* 29:677–86
73. Jou J, Niederdeppe J, Barry CL, Gollust SE. 2014. Strategic messaging to promote taxation of sugar-sweetened beverages: lessons from recent political campaigns. *Am. J. Public Health* 104:847–53

74. Julia C, Péneau S, Buscail C, Gonzalez R, Touvier M, et al. 2017. Perception of different formats of front-of-pack nutrition labels according to sociodemographic, lifestyle and dietary factors in a French population: cross-sectional study among the NutriNet-Santé cohort participants. *BMJ Open* 7:e016108

74a. Karpyn A, Ritchie L, Harpainter P, Lessard L, Tsai M, et al. 2020. *Assessing the implementation of kids' meals healthy default beverage policies in the State of California and City of Wilmington, Del.* Res. Brief CAS059, Healthy Eat. Res., Durham, NC. **https://healthyeatingresearch.org/research/assessing-the-implementation-of-kids-meals-healthy-default-beverage-policies-in-the-state-of-california-and-city-of-wilmington-del/**

75. Kearns CE, Schmidt LA, Glantz SA. 2016. Sugar industry and coronary heart disease research: a historical analysis of internal industry documents. *JAMA Intern. Med.* 176:1680–85

76. Kelly B, Jewell J. 2018. *What is the evidence on the policy specifications, development processes and effectiveness of existing front-of-pack food labelling policies in the WHO European Region?* Health Evid. Netw. Synth. Rep. 61, World Health Organ. Reg. Off. Eur., Copenhagen. **https://www.euro.who.int/__data/assets/pdf_file/0007/384460/Web-WHO-HEN-Report-61-on-FOPL.pdf**

77. Kenney EL, Barrett JL, Bleich SN, Ward ZJ, Craddock AL, Gortmaker SL. 2020. Impact of the Healthy Hunger-Free Kids Act on obesity trends. *Health Aff.* 39(7):1122–29

78. Keybridge Public Policy Economics. 2020. *2025 Beverage Calories Initiative: report on 2019 progress toward the National Calorie Goal.* Rep., Keybridge, Washington, DC. **https://www.healthiergeneration.org/sites/default/files/documents/20200925/bb4718c7/BCI%202019%20National%20Progress%20Report%20%2809%2025%202020%29%20FINAL%20AHG.pdf**

79. Krueger PM, Reither EN. 2015. Mind the gap: race/ethnic and socioeconomic disparities in obesity. *Curr. Diabetes Rep.* 15:95

80. Kumanyika SK. 2016. Health equity is the issue we have been waiting for. *J. Public Health Manag. Pract.* 22:S8–10

81. Kumanyika SK. 2019. A framework for increasing equity impact in obesity prevention. *Am. J. Public Health* 109:1350–57

82. Lawman HG, Bleich SN, Yan J, LeVasseur MT, Mitra N, Roberto CA. 2019. Unemployment claims in Philadelphia one year after implementation of the sweetened beverage tax. *PLOS ONE* 14:e0213218

83. Lee MM, Falbe J, Schillinger D, Basu S, McCulloch CE, Madsen KA. 2019. Sugar-sweetened beverage consumption 3 years after the Berkeley, California, sugar-sweetened beverage tax. *Am. J. Public Health* 109:637–39

84. Lee Y, Mozaffarian D, Sy S, Huang Y, Liu J, et al. 2019. Cost-effectiveness of financial incentives for improving diet and health through Medicare and Medicaid: a microsimulation study. *PLOS Med.* 16:e1002761

85. Long MW, Gortmaker SL, Ward ZJ, Resch SC, Moodie ML, et al. 2015. Cost effectiveness of a sugar-sweetened beverage excise tax in the U.S. *Am. J. Prev. Med.* 49:112–23

86. Los Angeles County Board Superv. 2011. *Healthy food promotion in LA County food services contracts.* Motion, March 8, Los Angel. County Board Superv., Los Angel., CA. **http://www.centertrt.org/content/docs/Intervention_Documents/Intervention_Materials/LA_County/County_of_LA_Food_Procurement_Motion.pdf**

87. Lucan SC, Maroko AR, Sanon OC, Schechter CB. 2017. Unhealthful food-and-beverage advertising in subway stations: targeted marketing, vulnerable groups, dietary intake, and poor health. *J. Urban Health* 94:220–32

88. Luger M, Lafontan M, Bes-Rastrollo M, Winzer E, Yumuk V, Farpour-Lambert N. 2017. Sugar-sweetened beverages and weight gain in children and adults: a systematic review from 2013 to 2015 and a comparison with previous studies. *Obes. Facts* 10:674–93

89. Malik VS. 2019. Non-sugar sweeteners and health. *BMJ* 364:k5005

90. Malik VS, Li Y, Pan A, De Koning L, Schernhammer E, et al. 2019. Long-term consumption of sugar-sweetened and artificially sweetened beverages and risk of mortality in US adults. *Circulation* 139:2113–25

91. Malik VS, Popkin BM, Bray GA, Després JP, Hu FB. 2010. Sugar-sweetened beverages, obesity, Type 2 diabetes mellitus, and cardiovascular disease risk. *Circulation* 121:1356–64

92. Malik VS, Popkin BM, Bray GA, Després JP, Willett WC, Hu FB. 2010. Sugar-sweetened beverages and risk of metabolic syndrome and type 2 diabetes: a meta-analysis. *Diabetes Care* 33:2477–83
92a. Marinello S, Leider J, Pugach O, Powell LM. 2021. The impact of the Philadelphia beverage tax on employment: a synthetic control analysis. *Econ. Hum. Biol*. 40:100939
93. Marinello S, Pipito AA, Leider J, Pugach O, Powell LM. 2020. The impact of the Oakland sugar-sweetened beverage tax on bottled soda and fountain drink prices in fast-food restaurants. *Prev. Med. Rep.* 17:101034
94. Mass. Dep. Public Health. 2012. *Massachusetts State Agency Food Standards*. Mass in Motion Doc., Mass. Dep. Public Health, Boston. **https://www.mass.gov/files/documents/2016/09/ng/eo509-state-agency-food-standards.pdf**
95. Menino TM. 2011. *An order relative to healthy beverage options*. Exec. Order Mayor TM Menino, City of Boston. **https://www.cityofboston.gov/news/uploads/5742_40_7_25.pdf**
96. Micha R, Peñalvo JL, Cudhea F, Imamura F, Rehm CD, Mozaffarian D. 2017. Association between dietary factors and mortality from heart disease, stroke, and type 2 diabetes in the United States. *JAMA* 317:912–24
97. Moran AJ, Block JP, Goshev SG, Bleich SN, Roberto CA. 2017. Trends in nutrient content of children's menu items in U.S. chain restaurants. *Am. J. Prev. Med.* 52:284–91
98. Morley BC, Niven PH, Dixon HG, Swanson MG, McAleese AB, Wakefield MA. 2018. Controlled cohort evaluation of the *LiveLighter* mass media campaign's impact on adults' reported consumption of sugar-sweetened beverages. *BMJ Open* 8:e019574
99. Mozaffarian D, Liu J, Sy S, Huang Y, Rehm C, et al. 2018. Cost-effectiveness of financial incentives and disincentives for improving food purchases and health through the US Supplemental Nutrition Assistance Program: a microsimulation study. *PLOS Med*. 15:e1002661
100. Muth ND, Dietz WH, Magge SN, Johnson RK. 2019. Public policies to reduce sugary drink consumption in children and adolescents. *Pediatrics* 143:e20190282
101. Natl. Acad. Sci. Eng. Med. 2016. *Framing the Dialogue on Race and Ethnicity to Advance Health Equity: Proceedings of a Workshop*. Washington, DC: Natl. Acad. Press. **https://doi.org/10.17226/23576**
102. Ng SW, Rivera JA, Popkin BM, Colchero MA. 2018. Did high sugar-sweetened beverage purchasers respond differently to the excise tax on sugar-sweetened beverages in Mexico? *Public Health Nutr*. 22:750–56
103. N. Y. City Dep. Health. 2020. Nutrition: at work and in city facilities. *NYC Health*. **https://www1.nyc.gov/site/doh/health/health-topics/healthy-workplaces.page**
104. Off. Mayor, Dep. Revenue. 2018. *Data released demonstrating strong employment in sectors affected by Philadelphia Beverage Tax*. News Release, April 11, City Phila., Phila. PA. **https://www.phila.gov/2018-04-11-data-released-demonstrating-strong-employment-in-sectors-affected-by-pbt/**
105. Oliveira V. 2019. *The food assistance landscape: FY 2018 annual report*. Rep. EIB-207, Econ. Res. Serv. (ERS), Washington, DC. **https://www.ers.usda.gov/webdocs/publications/92896/eib-207.pdf?v=2120.1**
106. Peñalvo JL, Cudhea F, Micha R, Rehm CD, Afshin A, et al. 2017. The potential impact of food taxes and subsidies on cardiovascular disease and diabetes burden and disparities in the United States. *BMC Med*. 15:208
107. Pharis ML, Colby L, Wagner A, Mallya G. 2018. Sales of healthy snacks and beverages following the implementation of healthy vending standards in City of Philadelphia vending machines. *Public Health Nutr*. 21:339–45
108. Phila. Dep. Public Health. 2016. Philadelphia nutrition standards: why nutrition standards? *Get Healthy Philly*. **https://www.phila.gov/media/20181009160845/Philadelphia_Nutrition_Standards.pdf**
109. Pomeranz JL. 2015. Outstanding questions in First Amendment law related to food labeling disclosure requirements for health. *Health Aff*. 34:1986–92
110. Pomeranz JL, Mozaffarian D, Micha R. 2018. Can the government require health warnings on sugar-sweetened beverage advertisements? *JAMA* 319:227–28
111. Pomeranz JL, Mozaffarian D, Micha R. 2020. Sugar-sweetened beverage warning policies in the broader legal context: health and safety warning laws and the First Amendment. *Am. J. Prev. Med.* 58:783–88
112. Pomeranz JL, Zellers L, Bare M, Pertschuk M. 2019. State preemption of food and nutrition policies and litigation: undermining government's role in public health. *Am. J. Prev. Med.* 56:47–57

113. Popkin BM, Hawkes C. 2016. Sweetening of the global diet, particularly beverages: patterns, trends, and policy responses. *Lancet Diabetes Endocrinol*. 4:174–86
114. Popova L, Nonnemaker J, Taylor N, Bradfield B, Kim A. 2019. Warning labels on sugar-sweetened beverages: an eye tracking approach. *Am. J. Health Behav.* 43:406–19
115. Powell LM, Leider J. 2020. The impact of Seattle's Sweetened Beverage Tax on beverage prices and volume sold. *Econ. Hum. Biol.* 37:100856
116. Powell LM, Leider J, Léger PT. 2020. The impact of a sweetened beverage tax on beverage volume sold in Cook County, Illinois, and its border area. *Ann. Intern. Med.* 172:390–97
117. Powell LM, Leider J, Léger PT. 2020. The impact of the Cook County, IL, Sweetened Beverage Tax on beverage prices. *Econ. Hum. Biol.* 37:100855
118. Powell LM, Nguyen BT. 2013. Fast-food and full-service restaurant consumption among children and adolescents: effect on energy, beverage, and nutrient intake. *JAMA Pediatr*. 167:14–20
119. Ribakove S, Wootan M. 2019. *Soda* still *on the menu: progress, but more to do to get soda off restaurant children's menus*. Rep., Cent. Sci. Public Interest, Washington, DC. **https://cspinet.org/sites/default/files/attachment/Soda%20Still%20on%20the%20Menu%202019.pdf**
120. Roache SA, Platkin C, Gostin LO, Kaplan C. 2018. Big food and soda versus public health: industry litigation against local government regulations to promote healthy diets. *Fordham Urb. L. J.* 45:1051–89
121. Roberto CA, Lawman HG, LeVasseur MT, Mitra N, Peterhans A, et al. 2019. Association of a beverage tax on sugar-sweetened and artificially sweetened beverages with changes in beverage prices and sales at chain retailers in a large urban setting. *JAMA* 321:1799–810
122. Sánchez-Romero LM, Canto-Osorio F, González-Morales R, Colchero MA, Ng S-W, et al. 2020. Association between tax on sugar sweetened beverages and soft drink consumption in adults in Mexico: open cohort longitudinal analysis of Health Workers Cohort Study. *BMJ* 369:m1311
123. Sánchez-Romero LM, Penko J, Coxson PG, Fernández A, Mason A, et al. 2016. Projected impact of Mexico's sugar-sweetened beverage tax policy on diabetes and cardiovascular disease: a modeling study. *PLOS Med*. 13:e1002158
124. Scarborough P, Adhikari V, Harrington RA, Elhussein A, Briggs A, et al. 2020. Impact of the announcement and implementation of the UK Soft Drinks Industry Levy on sugar content, price, product size and number of available soft drinks in the UK, 2015–19: a controlled interrupted time series analysis. *PLOS Med*. 17:e1003025
125. Schwartz MB. 2017. Moving beyond the debate over restricting sugary drinks in the Supplemental Nutrition Assistance Program. *Am. J. Prev. Med.* 52:S199–205
126. Schwartz MB, Schneider GE, Choi Y-Y, Li X, Harris J, et al. 2017. Association of a community campaign for better beverage choices with beverage purchases from supermarkets. *JAMA Intern. Med.* 177:666–74
127. Scruggs G. 2020. Seattle turns soda tax revenue into emergency grocery vouchers during pandemic. *Next City*, March 30. **https://nextcity.org/daily/entry/seattle-turns-soda-tax-revenue-into-emergency-grocery-vouchers-pandemic**
128. Shangguan S, Afshin A, Shulkin M, Ma W, Marsden D, et al. 2019. A meta-analysis of food labeling effects on consumer diet behaviors and industry practices. *Am. J. Prev. Med.* 56:300–14
129. Siegrist M, Leins-Hess R, Keller C. 2015. Which front-of-pack nutrition label is the most efficient one? The results of an eye-tracker study. *Food Qual. Prefer.* 39:183–90
130. Silver LD, Ng SW, Ryan-Ibarra S, Taillie LS, Induni M, et al. 2017. Changes in prices, sales, consumer spending, and beverage consumption one year after a tax on sugar-sweetened beverages in Berkeley, California, US: a before-and-after study. *PLOS Med*. 14:e1002283
131. Sohn W, Burt B, Sowers M. 2006. Carbonated soft drinks and dental caries in the primary dentition. *Br. Dent. J.* 200:669–69
132. Stacey N, Mudara C, Ng SW, van Walbeek C, Hofman K, Edoka I. 2019. Sugar-based beverage taxes and beverage prices: evidence from South Africa's Health Promotion Levy. *Soc. Sci. Med.* 238:112465
133. Stern D, Tolentino L, Barquera S. 2011. *Revisión del etiquetado frontal: análisis de las Guías Diarias de Alimentación (GDA) y su comprensión por estudiantes de nutrición de México*. Rep., Int. Nac. Salud Pública, Cuernavaca, México

134. Story MT, Duffy E. 2020. Supporting healthy eating: synergistic effects of nutrition education paired with policy, systems, and environmental changes. *Nestlé Nutr. Inst. Workshop Ser.* 92:69–82
135. Sundar A, Kardes FR. 2015. The role of perceived variability and the health halo effect in nutritional inference and consumption. *Psychol. Mark.* 32:512–21
136. Swart R. 2020. *Taxed and untaxed beverage consumption by young adults in Langa, South Africa before and one year after a national sugar-sweetened beverage tax*. Presented at the Non-Communicable Disease (NCD) Research Symposium, Somerset West, S. Afr., March 4
137. Taillie LS, Hall MG, Popkin BM, Ng SW, Murukutla N. 2020. Experimental studies of front-of-package nutrient warning labels on sugar-sweetened beverages and ultra-processed foods: a scoping review. *Nutrients* 12:569
138. Taillie LS, Reyes M, Colchero MA, Popkin B, Corvalán C. 2020. An evaluation of Chile's Law of Food Labeling and Advertising on sugar-sweetened beverage purchases from 2015 to 2017: a before-and-after study. *PLOS Med.* 17:e1003015
139. Talati Z, Pettigrew S, Ball K, Hughes C, Kelly B, et al. 2017. The relative ability of different front-of-pack labels to assist consumers discriminate between healthy, moderately healthy, and unhealthy foods. *Food Qual. Prefer.* 59:109–13
140. Talati Z, Pettigrew S, Hughes C, Dixon H, Kelly B, et al. 2016. The combined effect of front-of-pack nutrition labels and health claims on consumers' evaluation of food products. *Food Qual. Prefer.* 53:57–65
141. Teng AM, Jones AC, Mizdrak A, Signal L, Genç M, Wilson N. 2019. Impact of sugar-sweetened beverage taxes on purchases and dietary intake: systematic review and meta-analysis. *Obes. Rev.* 20:1187–204
142. USDA (US Dep. Agric.). 2013. Nutrition standards for CACFP meals and snacks. *Food and Nutrition Service, Child and Adult Care Food Program*. **https://www.fns.usda.gov/cacfp/meals-and-snacks**
143. USDA (US Dep. Agric.). 2013. What can SNAP buy? *Food and Nutrition Service, Supplemental Nutrition Assistance Program (SNAP)*. **https://www.fns.usda.gov/snap/eligible-food-items**
144. USDA (US Dep. Agric.). 2013. WIC food packages—regulatory requirements for WIC-eligible foods. *Food and Nutrition Service, Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)*. **https://www.fns.usda.gov/wic/wic-food-packages-regulatory-requirements-wic-eligible-foods**
145. USDA (US Dep. Agric.). 2019. Expenditures for the USDA's food assistance programs in fall 2018. *Economic Research Service, Food Security and Nutrition Assistance*. **https://www.ers.usda.gov/data-products/ag-and-food-statistics-charting-the-essentials/food-security-and-nutrition-assistance/?topicId=14832**
146. USDA (US Dep. Agric.). 2019. Nutrition standards for school meals. *Food and Nutrition Service, Child Nutrition Programs*. **https://www.fns.usda.gov/school-meals/nutrition-standards-school-meals**
147. US DHHS (Dep. Health Hum. Serv.), USDA (US Dep. Agric.). 2015. *Scientific Report of the 2015 Dietary Guidelines Advisory Committee*. Rep., Off. Dis. Prev., Health Promot., Washington, DC. **https://health.gov/sites/default/files/2019-09/Scientific-Report-of-the-2015-Dietary-Guidelines-Advisory-Committee.pdf**
148. Vercammen KA, Koma JW, Bleich SN. 2019. Trends in energy drink consumption among U.S. adolescents and adults, 2003–2016. *Am. J. Prev. Med.* 56:827–33
149. Voices for Healthy Kids. 2021. Stop sugary drinks from hooking our kids. *Voices for Healthy Kids*. **https://sugarydrinks.voicesforhealthykids.org/**
150. Vyth EL, Steenhuis I, Roodenburg AJ, Brug J, Seidell JC. 2010. Front-of-pack nutrition label stimulates healthier product development: a quantitative analysis. *Int. J. Behav. Nutr. Phys. Act.* 7:65
151. Wartella EA, Lichtenstein AH, Boon CS, eds. 2010. *Front-of-Package Nutrition Rating Systems and Symbols: Phase 1 Report*. Washington DC: Natl. Acad. Press
152. Wash. State Dep. Health. 2014. *Healthy nutrition guidelines for institutions*. DOH 340–224, Wash. State Dep. Health, Seattle. **https://www.doh.wa.gov/Portals/1/Documents/Pubs/340-224-InstitutionsImplementationGuide.pdf**
153. *Williams v. City of Pennsylvania*, J-31A-2018 (Pa. Jul. 18, 2018)
154. Wootan MG. 2012. Children's meals in restaurants: families need more help to make healthy choices. *Child. Obes.* 8:31–33

155. World Cancer Res. Fund Int. 2020. N: Nutrition label standards and regulations on the use of claims and implied claims on food. *NOURISHING Framework*. **https://www.wcrf.org/int/policy/policy-databases/nourishing-framework**
156. Zagorsky JL, Smith PK. 2020. Who drinks soda pop? Economic status and adult consumption of sugar-sweetened beverages. *Econ. Hum. Biol.* 38:100888
157. Zatzick DF, Koepsell T, Rivara FP. 2009. Using target population specification, effect size, and reach to estimate and compare the population impact of two PTSD preventive interventions. *Psychiatry* 72:346–59
158. Zhong Y, Auchincloss HA, Lee KB, McKenna MR, Langellier AB. 2020. Sugar-sweetened and diet beverage consumption in Philadelphia one year after the beverage tax. *Int. J. Environ. Res. Public Health* 17:1336

RELATED RESOURCES

Center for Science in the Public Interest. **https://cspinet.org/library**
Harvard CHOICES project. **https://choicesproject.org/**
Harvard Nutrition Source. **https://www.hsph.harvard.edu/nutritionsource/**
Healthy Food America. **http://www.healthyfoodamerica.org/resources/**
Tufts University Food-PRICE Initiative (Food Policy Review and Intervention Cost-Effectiveness). **https://www.food-price.org/**
University of California San Francisco Sugar Science. **https://sugarscience.ucsf.edu/**
University of Connecticut Rudd Center for Food Policy and Obesity. **https://www.sugarydrinkfacts.org/default.aspx**
University of North Carolina Global Food Research Program. **http://globalfoodresearchprogram.web.unc.edu/resources/**
Voices for Healthy Kids. **https://voicesforhealthykids.org/**
World Cancer Research Foundation Nourishing Database. **https://www.wcrf.org/int/policy/nourishing-database/**