

Added Sugar, Subtracted Science

*How Industry Obscures Science and Undermines
Public Health Policy on Sugar*



	% Daily Value
Total Fat 1g*	2%
Saturated Fat 0g	0%
Trans Fat 0g	
Polysaturated Fat 0g	
Monounsaturated Fat 0g	
Cholesterol 0mg	0%
Sodium 70mg	7%
Total Carbohydrate 24g	1%
Sugars 14g	9%
Other Carbohydrate 12g	
Protein 1g	
Vitamin A	0%
Vitamin C	10%

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This report is available online (in PDF format) at www.ucsusa.org/addedsugar.

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Scientific evidence suggests that the overconsumption of sugar—whether from sugar cane, sugar beets, or corn syrup—has detrimental health impacts. Yet, Americans continue to eat excessive amounts of sugar, often without even realizing it, while our current

food and health policies fail to address this growing public health risk. Why do Americans not know how much sugar they are consuming? Why is the public largely in the dark about the harmful effects of sugar? And why haven't we adapted nutritional standards and food policies in response to the scientific evidence?

This report explores how sugar interests—food and beverage manufacturers along with industry-supported organizations such as trade associations, front groups, and public relations (PR) firms—have actively sought to deceive the public and ensure that Americans continue to consume high amounts of sugar. Through the use of many of the same tactics employed by the tobacco industry, sugar interests from various sectors have intentionally worked to interfere with the science that links consumption of added sugars to adverse health effects by attacking the science and spreading misinformation. They have hired their own scientists and paid seemingly independent scientists to speak to the academic community and to the public on behalf of the industry and its products. And they have launched sophisticated PR campaigns to influence public opinion.

Sugar interests have attempted to influence policy in the direction of continued high consumption of sugar by Americans. Their lobbying dollars, political contributions to lawmakers, and influence on rule making at federal agencies have all contributed to a lack of effective federal and state policies that would address the public health concerns of sugar consumption. Decision makers seeking to enact such

policies have faced uphill battles, as sugar interests, through a combined force of these tactics, have swayed our public policies on food, nutrition, and health. But solutions are possible, and a number of initiatives are already being developed and implemented in many places across the country.

With the public's health as the paramount consideration, communities and decision makers need to adopt policies that stand up against political and corporate influence and are informed by the scientific evidence demonstrating the harmful health impacts of added sugar. Sugar interests should be held accountable by scientific and public health experts, investors, decision makers, the media, and the public for their current efforts to obscure the science on sugar and its detrimental health effects. Ultimately, communities should be empowered to make democratic decisions about their food systems and public health.

Sugar interests have attempted to influence policy in the direction of continued high sugar consumption by Americans.

Introduction

Sugar. We think of it as a sweet treat, but in reality it is ubiquitous in our food. It has migrated from being a condiment to being a staple of the Western diet, now the industrial global diet (Lustig 2013; Cordain et al. 2005). We find sugar everywhere, not only because we choose to sweeten some foods and beverages, but because sugar is often added before anything ever reaches our plates.

Scientific evidence has shown that the overconsumption of added sugar in our diets—not just calories but sugar in particular—has serious consequences for our health. Heart disease, obesity, diabetes, and hypertension have all been linked to high consumption of added sugar—whether from corn syrup, sugar cane, or sugar beets. And yet Americans continue to consume high amounts of hidden sugar every day,

Through the use of many of the same tactics employed by the tobacco industry, sugar interests from all sectors have intentionally worked to deceive the public.

Frequently, added sugars are present in foods one might never expect, and many Americans are unaware of the excessive amount of added sugars that they consume each day in everything from barbeque sauce to yogurt (Babey, Wolstein, and Goldstein 2013; Duffey and Popkin 2008). In addition to sugars added at the table or eaten separately, added sugars include ingredients in a wide-array of processed and prepared foods including breads, crackers, and other baked goods; cereals; frozen dinners; dressings and sauces; and sodas and juice drinks (Ervin and Ogden 2013). Most of these foods are sweetened by either sucrose (white, or table, sugar derived from sugar cane and sugar beets) or high fructose corn syrup (HFCS), which is derived from corn starch.

and our food policies do not reflect the scientific evidence on this health risk. As a consequence, our policies do little to work against this stealth sugar intake. Why do Americans not know how much sugar they are consuming? Why is the public still largely in the dark about the harmful effects of sugar? Why haven't we adapted nutritional standards and food policies to address the scientific evidence on added sugar's health risks?

In a previous Union of Concerned Scientists (UCS) report, *Sugar-coating Science: How the Food Industry Misleads Consumers on Sugar*, we examined how sugar interests effectively spread misinformation through advertising, marketing, and public relations. Their tactics trigger psychological, behavioral, social, and cultural responses



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Because there is no requirement for food companies to list added sugar on nutrition labels, it can be difficult for citizens to determine how much sugar has been added to foods. Food packaging often promotes sugary products as healthy choices by highlighting other nutritional features, such as whole grain, protein, or fiber content.

that distract and manipulate consumers and divert their attention away from science-based health and nutrition information. But there is more to this story than marketing. This report reveals how the sugar interests—food and beverage manufacturers along with industry-supported organizations such as trade associations, front groups, and PR firms—have actively sought to ensure that Americans’ consumption of high levels of sugar continues. Through the use of many of the same tactics employed by the tobacco industry, sugar interests from all sectors have intentionally worked to deceive the public by:

- Interfering with the science that links consumption of added sugars to adverse health effects

- Undermining policies and policy makers that seek to address this health concern

Nonetheless, solutions are possible. These efforts by sugar interests can be overcome by the adoption of policies by communities and decision makers at all levels. Such policies are already being developed and implemented in many places across the United States. This report features some of those efforts and recommends additional actions that can be taken to ensure that our food and health policies are informed by science and that the public’s health is protected from the impacts of excessive sugar consumption.

The Evidence on Added Sugar and Our Health

Consumption of added sugars in the American diet has increased dramatically over the past century, and evidence suggests that this increase is having detrimental effects on our health. From 1970 to 2000, parallel with the increase in production of HFCS and an increase in obesity rates, Americans expanded their sugar consumption by 25 percent, reaching an average daily intake level of almost three times the recommended limit (Figure 1). HFCS is a slightly sweeter sweetener than white sugar and mixes easily with foods. This fact, combined with government policies such as corn subsidies that drove down the price of HFCS and tariffs on imported sugar that propped up the price of domestic cane

Scientific research continues to show a link between sugar consumption and health impacts.

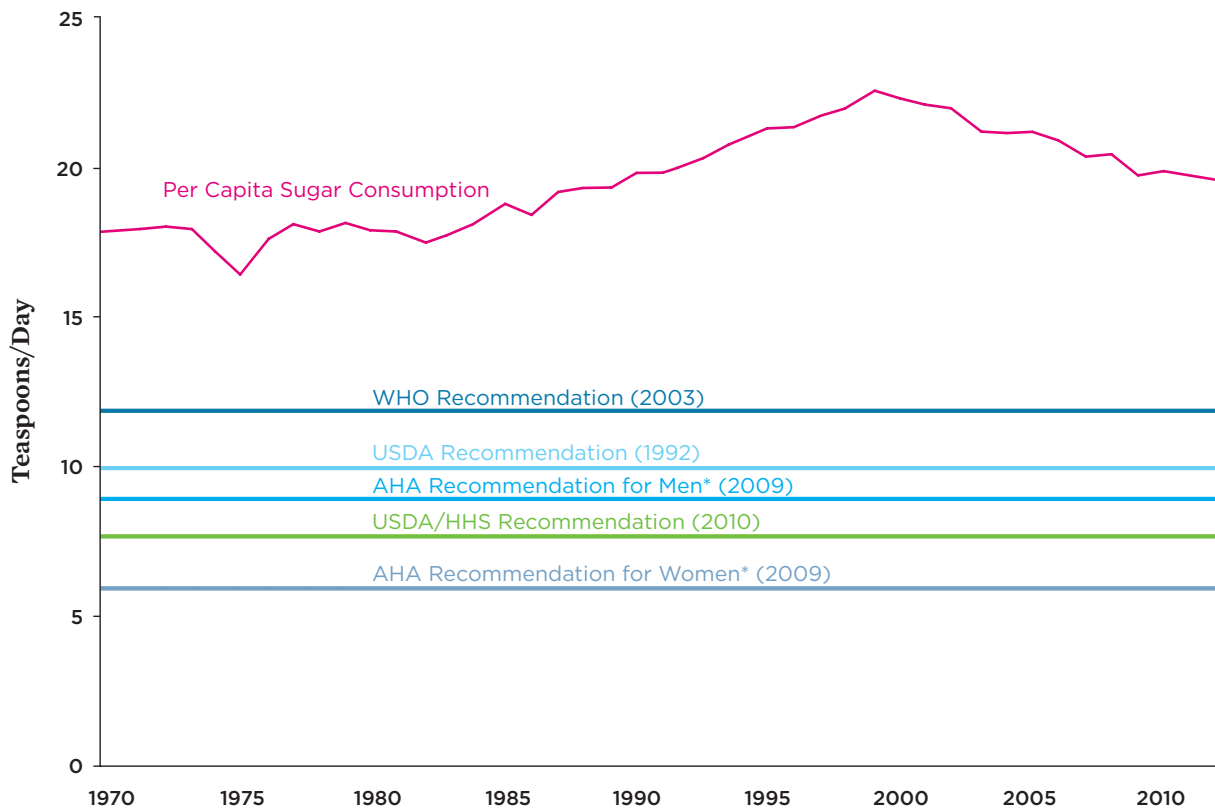
and beet sugar, made HFCS a cheaper alternative for use in processed foods, resulting in its growth over that 30-year period and its ubiquity in our diets today.

Excess sugar consumption—whether from sugar cane, sugar beets, or corn—has been implicated in numerous health problems (Johnson et al. 2009). Sugar intake at the frequency and in the amounts seen in the U.S. population is known to cause tooth decay (Mobley et al. 2009; WHO 2003a), with the highest incidence reported in minority and economically disadvantaged populations (Touger-Decker

and van Loveren 2003). Scientific research continues to generate a body of evidence for a causal relationship between sugar consumption and weight gain, and between sugar consumption and the rise in the incidence of the major chronic metabolic diseases, i.e., diabetes, cardiovascular disease, high triglycerides, and hypertension (Basu et al. 2013; Te Morenga, Mallard, and Mann 2013; Lustig, Schmidt, and Brindis 2012; Tappy 2012; Yudkin 2012; Johnson et al. 2009; CSPI 2005; Bray, Nielsen, and Popkin 2004). This association between sugar and metabolic disease is found separate from sugar's effect on total caloric intake and exclusive of its effect on obesity. For instance, new evidence implicates high sugar consumption with an increased risk for cardiovascular mortality, independent of the link between sugar and obesity (Yang et al. 2014). Fructose, a simple sugar present in both white sugar and HFCS, has been shown to contribute to metabolic diseases. Fructose can cause hyperinsulinemia (excess insulin in the blood stream) and hyperuricemia (excess uric acid) (Johnson et al. 2009), and both of these are predictors of chronic metabolic disease. Fructose also contributes to non-alcoholic fatty liver disease (Lim et al. 2010), which is a primary risk factor for development of diabetes (Sung and Kim 2011). Hyperinsulinemia is also a predictor of obesity, which exacerbates risk for each of these diseases.

Studies have also shown that sugar consumption can activate parts of the brain associated with reward and craving and that high sugar consumption can trigger addiction-like behaviors (Lennerz et al. 2013). In addition, added sugars, particularly from sodas, are a source of harmful calories because they displace calories in other, more nutritious foods, and this effect is especially concerning at the level they are

FIGURE 1. Per Capita Sugar Consumption in the United States: Actual versus Recommended



The per capita consumption of sugar in the United States far exceeds the limits recommended by several scientific and governmental institutions including the WHO, the HHS, the USDA, and the AHA (CHPP 2010; AHA 2009; WHO 2003b; CHPP 1992). Starting in 2012, the USDA is using a new methodology for calculating per capita consumption, which is expected to lead to lower estimates (Strom 2012). Regardless of the decline in sugar consumption since 2000 (which is largely attributable to the replacement of regular sodas with their diet versions), the fact remains that Americans are consuming, on average, more than twice the recommended levels of sugar.

* AHA recommendations are based on a 2,200-calorie diet for men and an 1,800-calorie diet for women (AHA 2009). All other standards are based on a 2,000-calorie diet.

consumed by most Americans (O’Callaghan 2014; Hellmich 2012; Basiotis et al. 2006).

Despite these adverse health effects of sugar, most Americans consume much more added sugar than is recommended for a healthy diet (Figure 1). Several scientific and governmental bodies, including the World Health Organization (WHO), the American Heart Association (AHA), the U.S. Department of Health and Human Services (HHS), and the U.S. Department of Agriculture (USDA) have recommended sugar intake standards far below the typical American consumption levels (Van Horn et al. 2010). In fact, as recently as March 2014, the WHO proposed new draft guidelines that recommend, as the organization did in 2002, that sugar should constitute less than 10 percent of an individual’s total energy intake per day. But these latest draft guidelines go further by suggesting that a reduction of sugar

intake to below 5 percent of the total calorie intake per day (i.e., 25 grams/day) would have additional benefits, especially on the development of dental cavities, which are now globally prevalent (WHO 2014).

In order to mitigate the widespread health risks of sugar overconsumption, U.S. policy makers should recognize the scientific basis for the recommendations from these scientific organizations and take actions to reduce sugar consumption. However, a confluence of economic and political forces have maintained and heightened the sugar glut within the American diet. As detailed in the next chapter, sugar interests have deliberately obscured the science linking sugar consumption to adverse health outcomes and have subverted public policy in order to keep sugar flowing in our diets to the benefit of business interests and to the detriment of Americans’ health.

Industry Tactics to Obscure the Science

Although their role has become more apparent in recent years, sugar interests have, in fact, intentionally and actively worked for more than 40 years to suppress the scientific evidence linking sugar consumption to negative health consequences. Internal documents from the industry itself—from companies, trade associations, and PR firms—reveal the extent of these efforts (Freudenberg 2014; UCS 2012; Wiist 2010; Michaels 2006; Simon 2006; Nestle 2002) (see Appendix A). Documents from now-defunct sugar companies, discovered by a curious dentist in 2007, reveal unscrupulous strategies reminiscent of the tobacco and fossil fuel industries, including manufacturing doubt about the science and engaging in deliberate and elaborate misinformation campaigns (Dusenbery 2012; Oatman 2012; Taubes and Couzens 2012).

Sugar interests continue to obscure the science on the health effects of added sugar through a variety of tactics (Table 1). They have attempted to discredit or downplay scientific evidence and have intentionally spread misinformation. They have hired their own scientists and have paid seemingly independent scientists to speak on behalf of the industry and its products. They have launched sophisticated PR campaigns to influence public opinion, and they have worked to influence the academic community including at scientific meetings and through the scientific literature.

Often, information about such industry tactics remains elusive, their evidence protected within the confines of internal company records, but on occasion such details are brought to light and allow a window into industry activities. In February 2014, such an event occurred. Court battles between two trade groups with interests in sugar allowed for the public release of a large quantity of internal documents,

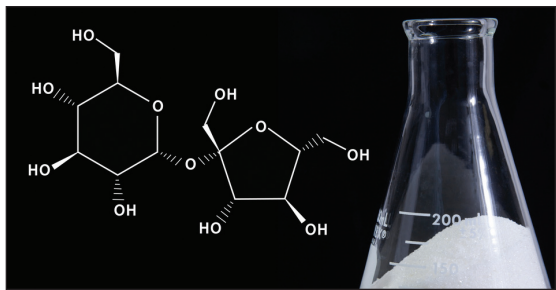
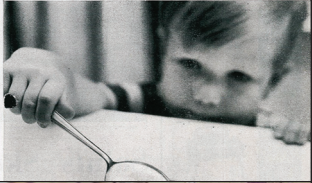


offering a glimpse of the industry’s thinking and actions (see Appendix D for documents). The Sugar Association, which represents sugar cane and sugar beet producers and refiners, filed a lawsuit against the Corn Refiners Association (CRA), which represents HFCS interests, over what the Sugar Association claims to be the CRA’s false advertising of HFCS as metabolically the same as cane or beet sugar. These court documents, along with other evidence detailed below, reveal sugar interests’ intent to obscure the science around sugar’s health impacts and keep the public in the dark.

Tactic 1: Attacking the Science

As scientific research has produced results that do not align with the goals of sugar interests, they have sought ways to discredit or otherwise downplay the scientific evidence.

In 2003, the Sugar Association threatened the WHO after it released a report recommending a 10 percent limit on calorie intake from added sugars. The report, produced by the WHO and the Food and Agriculture Organization (FAO) in consultation with 30 health experts, reviewed the scientific literature and concluded that added sugars “threaten the nutritional quality of diets” and that limiting sugar intake would be “likely to contribute to reducing the risk of unhealthy weight gain” (WHO 2003b). In a letter to the WHO, the president and chief executive officer (CEO) of the Sugar Association demanded that the report be removed from WHO websites, arguing that “taxpayer dollars should not be used to support misguided, non-science-based reports.” In addition, the letter threatened the suspension of U.S. funding to the WHO, warning, “We will exercise every

TABLE 1. How Food and Beverage Companies Obscure the Science and Undermine Public Health Policy on Sugar

	<p>Tactic 1: Attacking the science</p>	<ul style="list-style-type: none"> • Planning to “bury the data” if the science is inconvenient • Threatening to suspend funding to the World Health Organization • Seeking to discredit scientific findings by intimidating the study authors
<p>Why you were born with an instinctive liking for sugar</p> <p>You get only 4 messages from your sense of taste: sweet, salty, sour, and bitter</p> <p>The only one of these you liked from the day you were born was <i>sweet</i>—the flavor of sugar</p> <p>This is the way things should be according to what science</p> 	<p>Tactic 2: Spreading misinformation</p>	<ul style="list-style-type: none"> • Featuring misinformation on their websites • Promoting misinformation through their research institutes • Using trade associations, front groups, and PR firms to deceive the public
	<p>Tactic 3: Deploying industry scientists</p>	<ul style="list-style-type: none"> • Exploiting science communication and blogging communities • Failing to disclose scientists’ conflicts of interest • Hijacking scientific language for product promotion
	<p>Tactic 4: Influencing academia</p>	<ul style="list-style-type: none"> • Buying credibility through academic scientists • Funding research to support their preconceived positions • Paying academic scientists to persuade other scientists of sugar interests’ positions
	<p>Tactic 5: Undermining policy</p>	<ul style="list-style-type: none"> • Pouring lobbying dollars into sugar policy debates at the federal, state, and local levels • Supporting political candidates in influential positions • Influencing rule making at federal agencies

Food and beverage companies with financial interests in sugar have employed a variety of strategies to obscure the link between sugar consumption and adverse health impacts. By undermining the science and deceiving the public, sugar interests have been successful in defeating and delaying policies that seek to address this growing public health concern.



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High fructose corn syrup is produced from corn starch and used in many types of processed foods. HFCS interests have worked to prevent the public from questioning any health implications from its use.

avenue available to expose the dubious nature of [the report] including asking Congressional appropriators to challenge future funding” to the WHO (Briscoe 2003) (see Appendix B). Those familiar with WHO history have described the threat as “tantamount to blackmail and worse than any pressure exerted by the tobacco lobby” (Boseley 2003).

In addition to attacking the WHO directly, the Sugar Association, along with six other industry trade groups including the CRA and the Snack Food Association, wrote a letter to the secretary of HHS Tommy Thompson, asking for his “personal intervention” in removing the WHO/FAO report from the WHO website and challenging the report’s recommended sugar intake limit (CRA et al. 2003). Eight months later, the HHS director of global health affairs William R. Steiger wrote a letter to the WHO, detailing his concerns around the scientific basis for WHO’s guidelines on sugar (Mooney 2005).

This outcry from industry and government officials criticizing the WHO/FAO report’s recommendations on sugar intake was effective in limiting the report’s influence on health policy. The World Health Assembly—the WHO’s decision-making body and the world’s highest health-policy-setting entity—issued a global health strategy on diet and health the

following year, and the strategy contained no reference to the comprehensive WHO/FAO report (WHO 2004).

More recently, as revealed by the court case between corn syrup interests and sugar cane and beet interests, the CRA sought to discredit scientific evidence when a peer-reviewed scientific paper provided evidence that HFCS is metabolically different from table sugar (Bocarsly et al. 2010). A study done by Princeton University researchers found significantly more weight gain in rats consuming excessive HFCS than rats in a control group. In recently released internal documents, a PR

“If for any reason the results confirm [the study], we can just bury the data.”

consultant working for the CRA acknowledged the difficulty raised by the scientific evidence: “For obvious reasons [the study] undercuts . . . our abilities to argue that there is no conclusive evidence suggesting a metabolic difference.” He continued by noting that despite this inconvenient finding, the association could still find ways to undercut the

science, writing, “There are probably some options to trigger government oversight or a review” (SA v. CRA 2013).

In another instance, the CRA again explored the idea of attacking inconvenient science. A University of Southern California study found that the HFCS content in sweetened beverages varied significantly from the sugar content disclosed by companies on product labels. These findings suggested that often people are consuming more fructose than they realize when they drink sweetened beverages. Upon hearing of these findings, the CRA considered sponsoring its own counter research, and a consultant suggested that they would only publish the results of such a study if the findings aligned with their goal of disputing the inconvenient research findings (Ventura, Davis, and Goran 2011). He wrote, “If for any reason the results confirm [the University of Southern California study], we can just bury the data” (SA v. CRA 2013).

Tactic 2: Spreading Misinformation

Companies, trade associations, and industry-supported groups have misled the public through intentional misinformation campaigns in order to obscure the link between sugar consumption and health impacts. This misinformation includes (adapted from Brown 2012):

- Emphasizing unknowns while ignoring what is known
- Repeating untruthful claims
- Manufacturing bogus scientific claims
- Widely publishing claims that have not been subjected to scientific scrutiny

DIRECT COMPANY ACTIONS

Some companies have their own research institutes that attempt to use scientific experts and seemingly independent scientific studies to promote their sugary products. For example, Coca-Cola’s Beverage Institute for Health and Wellness features misleading content on its website. The site confuses the science around sugar consumption and ill-health by focusing on the role of sugar-sweetened beverages in “hydration” and “energy balance” while ignoring the negative impacts of sugar-sweetened beverages, including their role in obesity and metabolic diseases (CFS 2013; BIHW 2010). Similarly, the Nestlé Research Center has on its website a fact sheet that purports to communicate the science on sugar’s health effects. The fact sheet does acknowledge that “certain health authorities” warn that sugar intake should be limited because of its association with obesity; however, it contains a confusing discussion of sugar and health—including

overly technical discussions of glycemic index, sweet taste reception, and the psychology of addiction—and concludes that “messages to reduce sugar consumption to prevent body weight gain, although seemingly plausible, are therefore contrary to the evidence” (Nestlé 2008). Moreover, the fact sheet discourages parents from limiting their children’s sugar intake, claiming that such restrictions “may be counterproductive” because they may lead kids to overcompensate with high sugar consumption at a later time. Overall, the Nestlé fact sheet stresses what is unknown about sugar and its health effects, while downplaying the negative health effects for which health experts do have substantial evidence.

TRADE ASSOCIATIONS

In recent years, food companies have often used their trade associations to spread misinformation and distract the public and policy makers from current scientific understanding of the health effects of sugar consumption. These organizations have fought against public policies aimed at reducing sugar consumption. The World Sugar Research Organization, for example, claims to be a scientific research organization, although its mission, as stated on the organization’s website, appears to be the pre-determined conclusion of “encouraging a better appreciation of the direct and indirect contribution made by sugar” (WSRO 2014).

Another primary actor in providing disinformation to the public is the Sugar Association. In 2009, the group used the domain name doessugarcasediabetes.com (no longer in use)



Sugar cane (shown) and sugar beets are processed to produce the familiar white sugar added to foods, whether at the table or by food companies. Proponents of cane- and beet-derived sugar often promote products containing this type of sugar as “natural”; however, overconsumption of sugars from either these sources or corn syrup can have adverse health effects.

© USDA

and its now dormant Twitter handle @sugarsweettweet to dismiss health effects of sugar consumption (Internet Archive 2014a). The website had read, “No! Sugar in the diet does not cause diabetes.” Though the group has since taken down the site, it continues to spread misinformation through other means, and internal documents from the association provide a window into its strategy. In one internal memorandum, a staff member discusses a strategy of manufacturing doubt around the science. “Question the existing science,” she writes in regard to comparing health effects of glucose versus sucrose. For Halloween in 2010, the association distributed to its partner organizations a misleading fact sheet about sugar intake, including bullet points that read, “Sugar doesn’t cause obesity” and “Sugar adds to the quality of children’s diet” (SA v. CRA 2013). And the group has continued to host misleading information on its website. One fact sheet proclaims that “every major review of the scientific literature exonerates sugar as the cause of any disease, including obesity” (Sugar Association n.d.). This claim runs counter to a large body of research that implicates sugar consumption as a causative

Company to create deceptive TV and print ads promoting the “naturalness” of HFCS. Berman and Company, made famous for its role in fighting tobacco regulation, was founded by lobbyist Rick Berman, and it now represents several industries and runs several front groups and websites, including those that fight legislation on food safety, secondhand smoke, and drunk driving (CMD 2014a). One of those groups is the Center for Consumer Freedom (CCF). Founded and run by Berman, the CCF is ostensibly a nonprofit “devoted to promoting personal responsibility and protecting consumer choices,” but in reality it functions to promote the interests of corporate clients that seek out the PR services of Berman and Company and do not wish to be directly associated with certain messaging campaigns (Strom 2010).

Utilizing this strategy, the CRA funded Berman and Company to run a PR campaign that would be carried out by CCF and thus appear to the public as an independent statement about sugar consumption as a consumer choice, without disclosing that sugar interests were

For Halloween, the Sugar Association distributed materials that read, “Sugar doesn’t cause obesity” and “Sugar adds to the quality of children’s diet.”

factor in the incidence of chronic metabolic diseases, including diabetes, cardiovascular disease, high triglycerides, and hypertension (Basu et al. 2013; Te Morenga, Mallard, and Mann 2013; Lustig, Schmidt, and Brindis 2012; Tappy 2012; Yudkin 2012; Johnson et al. 2009; CSPI 2005; Bray, Nielsen, and Popkin 2004).

FRONT GROUPS AND PR FIRMS

Sugar interests have also taken a covert approach by hiring high-powered PR firms and working with front groups, sometimes with no obvious industry ties. Unlike trade associations, which make clear that they represent industry and whose member companies are often publicly listed, front groups are less transparent about their industry affiliations, even though industry may be the primary—or only—funder of such groups.

As we discussed in our previous report *Sugar-coating Science: How the Food Industry Misleads Consumers on Sugar*, in 2009, the CRA paid the PR firm Berman and

behind the campaign. The CRA’s then-president Audrae Erickson wanted the public to know that the CRA supported the campaign’s messaging but not that the trade association was responsible for it. Erickson stated in the trade group’s internal emails that “our sponsorship of this campaign is confidential. We are funding Berman & Co. directly, not the Center for Consumer Freedom, which is running the ads. If asked, please feel free to state the following: ‘The Corn Refiners Association is not funding the Center for Consumer Freedom. It is not surprising, however, that the food and beverage industry would want to defend this highly versatile ingredient’” (SA v. CRA 2013). In the end, the ads sought to undermine consumers’ trust in the actual facts provided by scientific and public health experts and instead accept misinformation, presented as fact, from corn syrup interests (UCS 2014).

Sugar interests have also funded health groups to help give them a grassroots appearance and spread misinformation. In 2011, the Sugar Association paid \$350,000

to Citizens for Health for their campaign to mobilize the public in opposition to the CRA's push to change the name of HFCS to corn sugar (SA v. CRA 2013). Citizens for Health, which self-identifies as the “consumer voice of the natural health community,” has been accused by some of being a front group for the sugar industry. Whether or not it is, the Sugar Association did provide more than half of the organization's funding in 2012 (Wingfield and Bjerga 2012). Such activities use arguments about different types of sugar to confuse and distract the public from the more fundamental issue of detrimental health effects of all added sugars.

The International Food Information Council Foundation is another front group funded by the food and beverage industry and provides significant misinformation in its materials regarding the adverse health effects of sugar (CMD 2014b; CFS 2013). The organization's “Sugar and Health Resource” webpage claims that “to date, there is no conclusive evidence of a causative effect of sugars on chronic diseases” (IFICF 2012). The organization also has several fact sheets on sugar that downplay its health effects. One fact sheet reads, “Although more research is needed in some areas, in general, the available data show no direct link between moderate consumption of sugars and serious diseases or obesity,” but fails to define “moderate” or note that many Americans are not consuming just moderate amounts of sugar, thanks in part to the added sugar in processed foods (Figure 1) (Schorin et al. 2012). Such industry-supported groups have played a large role in perpetuating misinformation around sugar in the public sphere.



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In 2010, PepsiCo sponsored a blog on ScienceBlogs.com, a popular network of science writers. The company planned to feature PepsiCo scientists or PepsiCo-approved external scientists to discuss nutritional information about its products. Outrage from the community eventually led the site to take down the PepsiCo blog, but the incident had revealed the company's plan to promote its product on the blogosphere through scientists with conflicts of interest.

Tactic 3: Deploying Industry Scientists

Another tactic of sugar interests is to deploy their own scientists to repeat industry talking points, sometimes without the scientists' disclosing their affiliations. In 2010, PepsiCo sponsored a blog on ScienceBlogs.com, a popular website for blogging on scientific topics. The PepsiCo-sponsored blog, Food Frontiers, planned to feature PepsiCo scientists or other PepsiCo-approved external scientists to discuss nutrition. An announcement from the ScienceBlogs editor explained the new blog's intention: “As part of this partnership [with PepsiCo], we'll hear from a wide range of experts on how the company is developing products rooted in rigorous, science-based nutrition standards to offer consumers more wholesome and enjoyable foods and beverages” (Brainard 2010). When Food Frontiers launched on ScienceBlogs, a network otherwise composed largely of independent science writers, it did not disclose that PepsiCo was its sponsor and controlled its content (Carmichael 2010). The ScienceBlogs community reacted angrily, claiming that PepsiCo was “buying credibility” built by the site's other writers (Brainard 2010; McKenna 2010). Although public outrage caused ScienceBlogs to take down the blog shortly after its debut, the incident—dubbed “PepsiGate”—revealed Pepsi's plan to promote its product on the blogosphere through scientists with conflicts of interest.

The Sugar Association has long employed a public-facing chief science officer, Dr. Charles Baker, who uses purportedly scientific information to promote sugar consumption and dispel any concern over its health impacts (Baker 2013). As internal Sugar Association documents reveal, sometimes the association took positions that even its own scientist believed to be unsubstantiated. In one email to CEO Andy Briscoe, Dr. Baker asked that the group take a public position more in line with the science in response to what appeared to be an attempt by the leadership to cherry-pick scientific data. The discussion concerned a study on potential nutritional differences between soft drinks made with sucrose and those made with fructose. Sugar Association leadership planned to publish a subset of data from this study on the group's website in order to claim that cane/beet sugar was nutritionally preferable to HFCS, although the study's overall results did not reach this conclusion. Dr. Baker warned against the posting of these data to their website, noting that “arguing dogmatically” about such a nutritional difference between cane/beet sugar and HFCS is “not only unsound but inaccurate.” He further cautioned that if the organization moved forward with this, “it is totally conceivable that the Association will be charged with misleading the public by ‘knowingly concealing an essential element of the evidence’” (SA v. CRA 2013).

Tactic 4: Influencing Academia

Sugar interests also have exerted influence in academic spaces, for example through supporting seemingly independent scientists and through participation in scientific meetings (Bes-Rastrollo et al. 2013). Some food companies and industry groups have funded academic scientists to produce the data that industry is looking for in support of its claims. In an internal document from 2003, the Sugar Association stated that its objective was “to enhance [the] science base of the Sugar Association positions” in order to support its policy and PR activities (SA v. CRA 2013). The document outlines a plan for achieving this objective, including identifying “scientific spokespersons” and seeking out academic institutions that would “best achieve the identified research” (SA v. CRA 2013).

Internal documents from the CRA suggest that corn syrup interests also used external scientists to push their agenda. Two scientists in particular—Dr. John White and Dr. James Rippe—were paid by the trade group to promote the idea that corn syrup is metabolically the same as table sugar. Among their assignments from the association between 2009 and 2012 were: contacting other scientists who had spoken out about health concerns around HFCS and attempting to

Two scientists were paid by the trade group to promote the idea that corn syrup is metabolically the same as table sugar.

influence them, submitting letters in response to publications that demonstrated health concerns related to HFCS, and pursuing media quotes (SA v. CRA 2013). Drs. White and Rippe were also paid to produce and publish their own research that aligned with the CRA’s position on HFCS and health effects (Hamburger 2014). In one email exchange White is referred to as “CSA’s hired gun” (SA v. CRA 2013).

Sugar interests also fund academic research whose results downplay the negative health effects of sugar consumption or draw attention away from added sugar as a health concern. “The funding effect” describes the correlation between the study’s funder’s desired results and the reported results (Krimsky 2005). One study of the funding effect examined eight articles on conflict of interest

in medical journals and found that study sponsorship was more likely to be associated with conclusions favorable to the financial interests of the sponsoring agency (Krimsky 2005). Another study found that food and beverage industry-funded studies were four to eight times more likely to show a finding favorable to the financial interests of the sponsoring company than were independently funded studies (Lesser et al. 2007). Although industry funding does not necessarily lead to biased results in a given study, industry-funded studies are as a group biased toward results favorable to industry and, as such, do raise serious concerns about impact of industry funding on the objectivity of scientific literature (Katan 2007). This funding effect could produce systematic biases in nutrition research, including studies on sugar, and ultimately affect public health. Thus, it is essential that all researchers fully disclose any real or perceived conflicts of interest with their work.

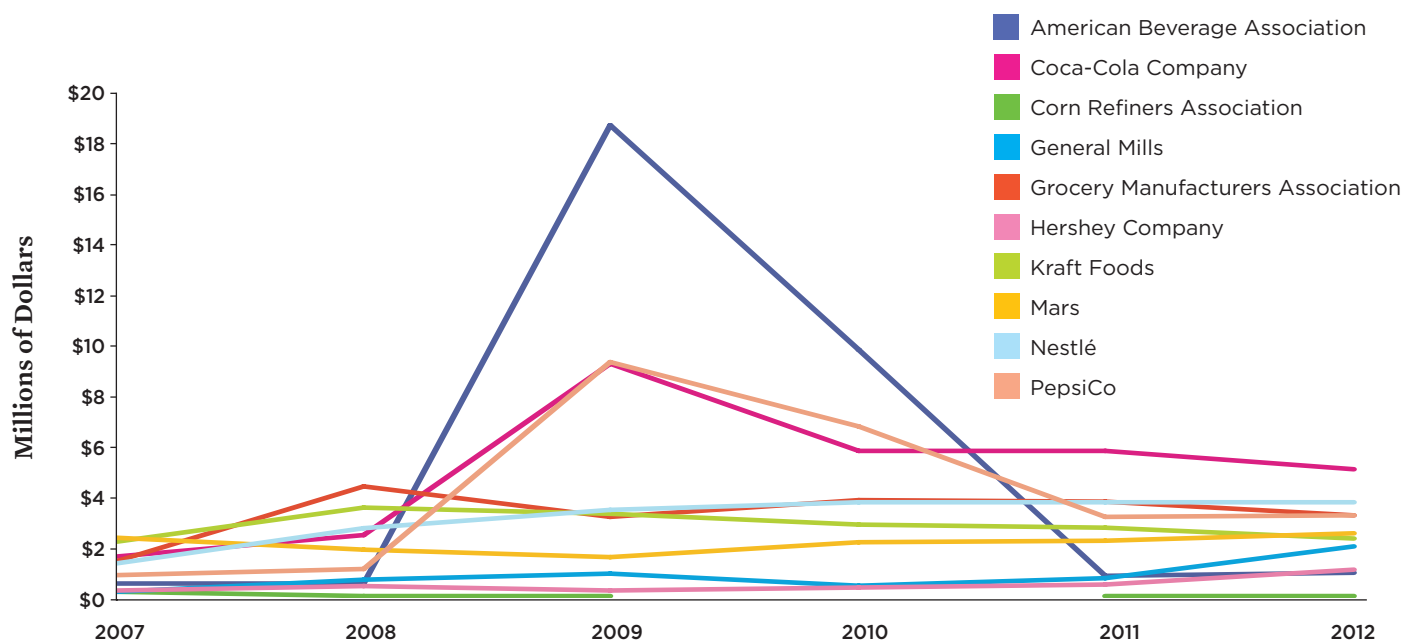
Tactic 5: Undermining Policy

As outlined above, the overconsumption of added sugar in our diets is having detrimental effects on public health in the United States. Yet, national policies dealing with diet and nutrition do not reflect what the science tells us. Policy solutions targeted to reduce our national overconsumption of sugar are needed to mitigate these health risks (De Vogli, Kouvononb, and Gimeno 2014; APHA 2007), but policy makers face a tough battle with sugar interests, which have undermined or defeated government action by pouring tremendous sums of money into political activities including:

- Lobbying Congress
- Making political contributions
- Influencing the rule-making process at federal agencies

A closer look at specific food and beverage companies and trade associations can help illuminate ways in which industry has worked to influence food policy proposals that sought to limit sugar consumption (Table 2, p. 14). To identify a subset of important actors, we examined the activities of companies with a significant interest in sugar that lobbied on the Healthy, Hunger-Free Kids Act of 2010 (HHFKA), a recent piece of legislation that directly addressed sugar consumption (see Appendix C for full data analysis), and we scrutinized the activities of trade associations heavily engaged in science and policy around sugar. Together, the influence of these industry actors throughout the policy process—from the introduction of a bill to its enactment as a rule—becomes apparent.

FIGURE 2. Total Lobbying Expenditures for Select Food and Beverage Industry Companies and Trade Associations



Many food and beverage companies lobby on sugar-related policy proposals. The mere discussion of a federal tax on sugary beverages in 2009 coincided with the soda industry’s dramatic increase in lobbying spending even though no bill to create a soda tax was officially introduced. We also analyzed lobbying data for Campbell Soup Company, Del Monte, Mondelēz International, the Snack Food Association, and the National Confectioners Association but omitted them from this graph due to low lobbying numbers. The CRA reported no lobbying in 2010. Data for all companies analyzed can be found in Appendix C.

LOBBYING CONGRESS: SODA-TAX PROPOSALS






At the federal, state, and local levels, sugar interests can use their organizing power and lobbying dollars to influence legislation around sugar, even before a bill is formally proposed. For example, in 2009, a discussion gained traction regarding a possible federal excise tax on sugar-sweetened beverages as one way to help offset costs of a national health-care overhaul (Adamy 2009; CBO 2008). In the same year, there was a dramatic increase in lobbying spending by soda interests, in particular Coca-Cola Company, PepsiCo, and the American Beverage Association, the latter a trade association of soda interests (Figure 2). All three actors reported lobbying on a sugar-sweetened beverage excise tax, with the American Beverage Association specifically noting lobbying to “oppose [a] proposed tax of sugary beverages” (CRP 2009). This huge spike in spending by these three actors—that occurred before a soda tax was even introduced—added up to more than \$37 million, or more than an eight-fold increase over the actors’ 2008 spending (CRP 2014). The American Beverage

Association alone spent more than \$18 million in 2009, or 28 times its 2008 total. Despite the enthusiastic public support and interest generated by the idea of a soda tax policy, the soda interests and their paid advocates were successful in helping to prevent the introduction of such a policy (Hamburger and Geiger 2010).

MAKING POLITICAL CONTRIBUTIONS: THE HEALTHY, HUNGER-FREE KIDS ACT

In addition to lobbying spending, many industry actors with vested interests in sugar consumption contribute to the political campaigns of lawmakers with jurisdiction over their issues. For example, sugar interests lobbied heavily on the HHFKA and made political contributions to members of Congress on the committee developing the HHFKA. They also remained engaged on the issue as the act moved from Congress into an agency rule-making process, as discussed in the next section.

TABLE 2. Statements and Actions of General Mills to Obscure Science and Influence Policy on Sugar

				
<p>Total lobbying (2007-2013): \$7,389,300</p> <p>Total political contributions to Senate Agriculture Committee in 2010: \$62,850</p>	<p>On the USDA's 2013 proposed rule for school nutrition standards, General Mills wrote, "Sugar intake has not been shown to be directly associated with obesity or any chronic disease or health condition except dental caries."</p>	<p>General Mills is a member of the International Food Information Council and Grocery Manufacturers Association, two industry groups that have been active in sugar policy discussions and have opposed efforts to address sugar overconsumption.</p>	<p>General Mills is part of the food industry's Healthy Weight Commitment Foundation, which works to address obesity issues through emphasis on exercise rather than food intake.</p>	<p>General Mills' Fruit Roll-Ups are mostly sugar but were advertised as healthy, nutritious, and made from real fruit. Pressure from a lawsuit has caused the company to agree to more accurate labeling on the product.</p>

Companies can influence policies and public opinion through a variety of ways. General Mills, a Fortune 500 company primarily focused on processed foods, has been very engaged in the public discussion around sugar through its advertising, industry group membership, and political activities. The company, which includes brands such as Lucky Charms, Pillsbury, and Yoplait, has been accused of misleading advertising around the sugar in its products and has sought to influence school nutrition standards on sugar intake (General Mills 2013; CSPI 2011).

The HHFKA authorized the first major updates to the National School Lunch Program and the National School Breakfast Program to make school meals healthier in more than 15 years (FRAC 2010). Established in 1946 and 1966, respectively, to provide nutritionally balanced and low-cost or free meals to school children, the National School Lunch Program and the National School Breakfast Program (now part of the Child Nutrition Act) set nutrition standards for most schools in the United States (FNS 2013). School nutrition standards are especially important for students from low-income households who qualify for low-cost or free breakfast and lunch at school. For many of these students, the meals they eat during school may be the predominant nutrition and calories they receive in the day. As a result, school nutrition standards have a disproportionate impact on children from low-income households. The HHFKA overhauled nutrition standards by charging the USDA with developing the science-based standards that would limit the amount of sugar, salt, and fat in foods available to children at school (U.S. Congress 2010).

These efforts have met resistance along the way. Recent court-released documents show that the Sugar Association planned to interfere with school lunch reauthorization efforts. A document outlining the association's 2003 management objectives lists as a priority "preventing federal control" of the School Lunch Program by "reinforc[ing] lack of science supporting the removal of sugar-containing foods." The group planned to do this by attending hearings, providing written testimony, and joining industry coalitions to "organize Congressional support" against sugar limits (SA v. CRA 2013).

Several food and beverage companies and trade associations with significant interest in sugar made substantial political contributions to members of the U.S. Senate Committee on Agriculture, Nutrition, and Forestry, the committee with jurisdiction over the HHFKA (CRP 2014). Many sugar interests reported lobbying in support of the bill as it could potentially make it easier for companies to align their products with a uniform national standard instead of multiple, differing state-level standards (CRP 2010). In

Influencing Democratic Decision Making at the Local Level: Curbing Soda Consumption

Sugar interests do not confine their policy engagement to the federal arena but have also been active in state and local policy debates.

The high volume of sugar-sweetened beverages, in particular sodas, that Americans consume has been singled out by health professionals as a heavy contributor to the current obesity epidemic (CSPI 2005). The high levels of sugar in soda, as well as soda's negligible nutritional content, has led many health professionals to deem these "empty calories" and has made soda a focus for policy makers aiming to promote public health (APHA 2012). Many states and localities have begun to consider taxes on sugar-sweetened beverages as a strategy to limit sugar consumption and thereby reduce rates of obesity and metabolic disease (Bridging the Gap 2009).

Industry and industry-funded groups with sugar interests have been major players in these local policy discussions, supporting community opposition to defeat the proposed taxes (BMSG 2014; Harless 2012). The flood of money from outside industry groups into local debates often overwhelms community efforts, which cannot compete. For example, taxes on sugary beverages proposed in two California towns, Richmond and El Monte, in November 2012 drew campaigning money and effort from the beverage industry that helped to resoundingly defeat both measures. With this help from outside sugar interests, including the American Beverage Association, opposition groups spent a combined \$3.5 million in the two towns (Allen

2012). A study by the Berkeley Media Studies Group, a nonprofit that researches how the media characterize public health issues, found that industry hid much of its involvement in the debate, hiring community spokespersons without disclosing these affiliations and playing on existing class and racial tensions in the communities in order to make the defeat of the proposals seem organic and community-driven (BMSG 2014).

In another local soda-tax debate, the Colorado Beverage Association added its resources to the opposition campaign for a 2013 ballot measure in the small town of Telluride, CO. The ballot proposal would have imposed a one-cent-per-ounce tax on sodas, sports and energy drinks, and sweetened coffees and tea beverages; however, this proposal also failed (Adams 2013; Coffman 2013). As one author of the Berkeley study explained, these cases of failed local tax proposals show "that soda companies have an alarming amount of power over setting public policy" (BMSG 2014).

There are many policy options that could serve to curb sugar consumption, as the science indicates is needed. A soda tax may or may not be the right policy for a given community; however, communities need to be able to have a democratic policy debate without the interference of outside private interests with tremendous resources or undisclosed financial ties. Such industry interference serves to drown out the true voices and interests of a community, in favor of the industry bottom line.



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To address the growing public health concerns of sugar overconsumption, many communities have proposed a tax on sugar-sweetened beverages, a primary source of added sugars in many people's diets. In response to such proposals, sugar interests have worked to prevent enactment of such policies by spreading misinformation, funneling money into local debates, and otherwise seeking to influence local decision makers and voters.



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The Healthy, Hunger-Free Kids Act of 2010 is the first overhaul of school nutrition standards in 15 years. Starting in July 2014, new rules will be implemented that limit the amount of sugar, salt, and fat in school breakfast, lunch, and à la carte foods.

addition, a company’s public image could be tarnished if it was seen as publicly opposing an effort aimed at improving children’s nutrition. As shown in Figure 3, Senator Blanche Lincoln, chairman of this committee in 2010 and the primary sponsor of the HHFKA, received donations from these sugar interests in 2010 that were more than 10 times higher than these actors’ average donations during election cycles over the entire preceding decade (CRP 2014). Although 2010 was a reelection year for Senator Lincoln, which often itself results in greater political contributions, her 2010 contributions from sugar interests were still more than four times those from her previous election year of 2004.

The HHFKA was signed into law in December 2010 (U.S. Congress 2010). But lobbying and political contributions were not the industry’s only opportunities to influence this regulation. The HHFKA did not itself set nutrition standards; rather, the law directed the secretary of agriculture to establish science-based nutrition standards for all foods sold on school campus at any time during the school day (U.S.

Congress 2010). Importantly, after the bill passed, industry support of the HHFKA did not necessarily translate into support for strong standards from the USDA.

INFLUENCING RULE MAKING AT FEDERAL AGENCIES: SCHOOL NUTRITION STANDARDS

Often once a law is passed, the federal agency involved begins a rule-making process to set specific standards or requirements as directed by the law. This process is not as visible to the public as congressional lawmaking, but industry is very active at this critically important stage. Companies and industry groups have greater resources with which to generate public comments, and their efforts can easily crowd out the comments of less-well-funded individuals and groups of citizens and independent scientists (UCS 2012).

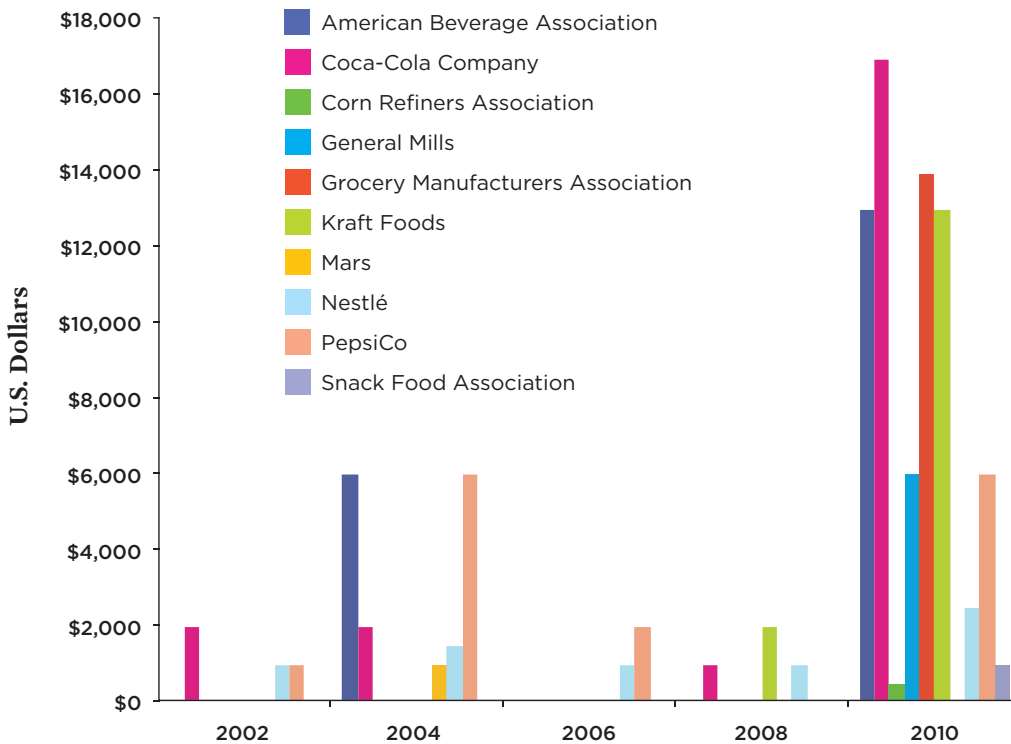
Following passage of the HHFKA, sugar interests worked to influence the development of school nutrition standards. When the scientific evidence suggested that limiting sugar in schools would have public health benefits, some sugar interests submitted public comments on the draft nutrition standards and worked through Congress to influence the agency rule-making process.

SUBMITTING PUBLIC COMMENTS ON AGENCY RULES THAT MISREPRESENT THE SCIENCE

Following congressional passage of the HHFKA, the USDA issued the proposed rule to set school nutrition standards for salt, sugar, and fat (U.S. Congress 2010). The rule proposed limits on the amount of sugar allowed in foods sold in schools, a move that marked the first time a comprehensive school sugar standard has been proposed nationally. To limit sugar, the proposed rule offered two options: to limit the amount of sugar in any food to 35 percent of calories from total sugars (caloric limit) or to limit total sugars to 35 percent by weight (sugar-by-weight limit) (Federal Register 2013a). Of these two options, many health professionals considered limiting total sugar as a percentage of total calories to be the stricter guideline, especially for foods with higher water content (CSPI 2013). To put the standards in context, a typical strawberry frozen fruit snack contains 55 calories and 11 grams of sugar, and weighs 57 grams (Del Monte 2014). This product is 19 percent sugar by weight, but 80 percent of its calories come from sugar. This one snack contains nearly three teaspoons of sugar—one-half the AHA’s 2009 recommended daily allowance of added sugars for an adult woman (Figure 1) (AHA 2009).

In the public comment period on the proposed rule, many experts agreed that limiting sugar as a percentage of total calories was a more appropriate policy response to the scientific evidence on sugar’s health risks. Among the public

FIGURE 3. Political Contributions to Blanche Lincoln, Chairman of the Senate Committee on Agriculture, Nutrition, and Forestry



Senator Blanche Lincoln, chairman of the 2010 Senate Committee on Agriculture, Nutrition, and Forestry and primary sponsor of the HHFKA of 2010, received donations from sugar interests in 2010 that were more than four times these actors’ donations to her in 2004, her previous election year. Data for all political contributions analyzed can be found in Appendix C, including donations to other members of Congress on the 2010 Senate Committee on Agriculture, Nutrition, and Forestry as well as the House Committee on Education and Labor (the Committee on Education and the Workforce as of January 2011).

comments the USDA received in support of the caloric limit in the proposed rule, many reasoned that this more restrictive option better aligned with the recommendations from the American Cancer Society, American Heart Association, and Institute of Medicine, and that it was more consistent with the official *Dietary Guidelines for Americans* developed by the USDA and HHS (FNS 2013). According to the USDA Food and Nutrition Service, these 70 commenters included advocacy organizations and nutrition professionals. The sugar-by-weight option received support from many commenters who reasoned that it was consistent with the measurement methods currently relied upon and would be easier to implement, allowing the sale of more products. The Food and Nutrition Service reported that the 1,165 comments in favor of limiting sugar by weight included trade associations and food manufacturers (FNS 2013).

Many industry actors commented on the rule, and some included in their comments misinformation about sugar

consumption’s health impacts. General Mills wrote that “sugar intake has not been shown to be directly associated with obesity or any chronic disease or health condition except dental caries” (General Mills 2013). The Sugar Association wrote that “experts continue to conclude that sugar intake is not a causative factor in any disease, including obesity” (Sugar Association 2013).

In June 2013, after the public comment period had concluded, the USDA issued an interim final rule to be implemented in July 2014 (FNS 2013; USDA 2013). The sugar standard chosen in the interim final rule was the sugar-by-weight limit (with exceptions made for fruits and nuts with no added sweeteners), a much weaker standard than many experts recommended (Federal Register 2013b; CSPI 2013).

INFLUENCING RULE MAKING THROUGH CONGRESS

Industry influence on the implementation of a bill goes beyond direct public comments on a rule. Lobbying spending

can also be used to influence the implementation of a bill long after its passage, and companies' spending can weaken implementation of a law. In this case, companies that cultivated relationships with members of Congress during the passage of the HHSFKA continued to engage with them during the rule-making process to help urge the USDA to craft the rule to be more favorable to industry interests (Roberts 2012). Members of Congress can write letters to agencies, urging them to align the rule with the interests of their constituents and allies. Furthermore, many government officials have industry affiliations from former professional ties or the possibility of future employment that can make them sympathetic to industry perspectives. A revolving-door culture has been well documented at the USDA, for example, where staff working on developing rules may be influenced by their close ties to industry interests (Swanson 2013; Philpott 2011).

Members of Congress have already introduced new legislation to weaken the implementation of the HHSFKA. A bill was introduced in the House of Representatives in 2012 and again in 2013 that would have repealed the nutrition standards of the HHSFKA by nullifying the USDA rule entirely (U.S. Congress 2012). Another bill introduced in the House of Representatives in December 2013 would prevent the secretary of agriculture from "implementing, administering, or enforcing" the rule (U.S. Congress 2013). Whether one of these attempts will be successful in weakening the USDA rule through legislation remains to be seen.

These efforts suggest that while many sugar interests publicly supported updated school nutrition standards, they may not be in support of strong standards that are based on the scientific link between sugar consumption and health.



The USDA's interim final rule updating school nutrition standards will be implemented in July 2014. Yet, some members of Congress continue to make attempts to weaken the standards, through communications with the USDA and introduction of new legislation in Congress.

Overcoming the Odds: Implementing Science-Informed Nutrition Policies

Despite efforts by sugar interests to obscure the science and limit the enactment of policies that would address our unhealthy levels of sugar consumption, some local and state-level policies and corporate, entrepreneurial, and community actions have begun to challenge the status quo. These policies and actions are informed by the biological, public health, and social sciences data linking sugar consumption with obesity and metabolic disease.

Despite efforts by sugar interests to obscure the science, some local and state-level policies and corporate, community, and entrepreneurial actions have begun to challenge the status quo.

Examples range from statewide efforts such as Connecticut's Healthy Food Certification to citywide programs such as New York City's anti-sugar public service announcement (PSA) campaign (CSDOE 2014, NYC 2008). Los Angeles, California, and St. Paul, Minnesota, have established food standards for city agencies and school district food policies (Burnette 2010; Sanchez-Vaznaugh et al. 2010). Other actions include those by companies to voluntarily restrict or even eliminate food advertising to

children or limit kids' menu choices to foods that meet federal nutritional guidelines (PHA 2014; Barnes 2012). Individual citizens have also played a role, for example, creating applications for mobile devices to help consumers make sense of the nutritional value of food items (Fooducate 2014). Although no single one of these efforts will solve our current sugar glut crisis by itself, together they can move the nation in the right direction and encourage bigger actions by decision makers, companies, and citizens.

Here we highlight a few stories that exemplify the diversity and impact of such science-informed actions and institutions that are making positive change:

- **Researchers refusing funding from conflicting interests**
The amount of industry funding available for academic research around sugar and health has been attractive to academic scientists looking for additional support of their work. But some researchers have taken a stand to oppose real or perceived conflicts of interest with their funding sources. Several health scientists have pledged not to accept funding from sources with financial interests in their areas of study (Harvard University 2014; UCSF 2014). In 2009, the American Academy of Family Physicians (AAFP) announced a major partnership with Coca-Cola to develop consumer education content (AAFP 2009). In response to the news, 22 public health experts publicly resigned from the organization and cosigned a letter, organized by the Center for Science in the Public Interest, requesting that the AAFP president reject the arrangement with Coca-Cola (CSPI 2009; O'Reilly 2009). Despite this outcry, the AAFP has maintained its corporate partnerships with companies whose financial interests



© Food Politics/Marton Nestle

In 2009, 22 public health experts publicly left the American Academy of Family Physicians in protest to the professional society's partnership with Coca-Cola. The doctors and other public health officials felt that the partnership compromised the group's public health mission.

do not align with the organization's public health mission, arguing that such support allows for scientific, educational, and humanitarian initiatives the group could not otherwise afford (AAFP 2014). These are just two of the many examples of researchers taking a stand against inappropriate corporate sponsorship of scientific work around sugar. When scientific research is free of real or perceived conflicts of interest, the public, policy makers, and the media can be more confident that the science is independent and credible.

- **Soda tax in Mexico**

In November 2013, Mexico, a country with the highest per capita consumption of soda in the world, made history by passing an excise tax on soda that went into effect in January 2014. In passing the soda tax, the Mexican government faced the usual industry attacks, warning the state against the negative impact of the soda tax on jobs in the soda manufacturing and sugar-producing industries. But corporate players had an uphill battle against Mexico's dire health statistics; almost a third of its citizens are obese, and the proportion of diabetics hovers close to 15 percent (Boseley 2014). The new soda tax in Mexico is also designed to address another public

health conundrum in developing countries that fuels the consumption of soda: lack of access to clean water. The government intends to earmark the revenue from the tax to provide drinking water fountains in schools. Several countries, including the United States, will be watching to see how this experiment unfolds (Boseley 2014).

- **Nutrition and physical activity programs in Massachusetts**

Massachusetts recently reported a drop in childhood obesity following a policy intervention in which schools implemented healthier and better-quality school lunches, including removing sugary drinks, and promoted more physical activity (Lazar 2013). Although researchers at the Massachusetts Department of Public Health and the University of Massachusetts Medical School are still poring over data collected from almost 1 million students statewide to identify which of the several school- and community-based interventions were most effective, they confirmed a significant drop (3.7 percent) over a five-year period in the percentage of students that are obese or overweight (Lazar 2013). These are encouraging signs for other states and school districts trying to reduce obesity rates among their students.

- **Anti-sugar commercials in New York City**
New York City, already at the front lines of addressing the epidemic of obesity under the leadership of former Mayor Michael Bloomberg through initiatives such as food standards for city agencies, launched an anti-sugar PSA campaign beginning in 2009 (NYC 2009).

“You’d never eat 16 packs of sugar, so why would you drink 16 packs of sugar?”

The campaign included one particularly powerful commercial that featured a man eating sugar packets with the message, “You’d never eat 16 packs of sugar, so why would you drink 16 packs of sugar?” while an image of a soda bottle appears. The commercial was originally intended for YouTube and a local audience, but was later used by the Centers for Disease Control and Prevention for a nationwide public health campaign to deter sugar

consumption (Moore 2012). PSAs on a wide range of issues have a long history of positive public health outcomes, and New York City’s case may be paving the way for sugar to be PSAs’ next success story (Ad Council 2004).

- **Empowering individuals with nutrition information**
Fooducate is a mobile application that brings the power of information to the shopper’s hand. The app was inspired by the developer’s own struggle to make sense of food labels in order to make the most-informed and healthy choices for his family. The app helps consumers glean the *quality* of calories from a product’s barcode by analyzing the product’s nutrition label and ingredient list to provide information to the consumer on trans fats, food additives, artificial sweeteners, and sugars including high fructose corn syrup (Fooducate 2014). Although larger systemic changes in our food environment are necessary to address public health concerns around sugar, apps such as this can be effective tools for empowering citizens with knowledge about the healthiness of their food choices.

Tienes que caminar las **3 MILLAS** desde Union Square hasta Brooklyn

para quemar las calorías de **UNA SODA** de 20oz.

¿ESTÁS TOMANDO LAS LIBRAS?

REVISALATABLE para averiguar que distancia

ARE YOU POURING ON THE POUNDS?

GET HEALTHY ALTERNATIVES!

Go to nyc.gov and search for Eating Healthy or call 311

¡OBTÉN ALTERNATIVAS SALUDABLES!

Visita nyc.gov y busca Eating Healthy o llama al 311

NYC Health

Made possible by funding from the Department of Health and Human Services.

You have to walk the **3 MILES** from Union Square to Brooklyn

to burn off the calories from **ONE 20oz. SODA**

ARE YOU POURING ON THE POUNDS?

SEE INSIDE to find out how far you have to walk to burn off the calories from your average drink.

© New York City Department of Health and Mental Hygiene

Starting in 2009, New York City launched a series of anti-sugar advertisements to curb sugar intake, particularly from sugar-sweetened beverages. Public service announcements have proven effective for past public health issues, such as tobacco, and may be an effective tool for addressing the adverse public health effects of sugar consumption.

Conclusion

Sugar interests have actively worked to undermine science and deceive the public on the adverse health effects of added sugars in our diets. They have used paid industry and ostensibly independent scientists to deliver their talking points. They have funded trade groups, front groups, and PR firms to intentionally obscure the science and keep the public in the dark. And they have worked to influence democratic processes in order to fight the public policies that would address the rising health concerns of added sugar consumption. Because of the resulting public confusion and intense pressure on policy makers not to act, decision makers have been limited in their ability to curb consumption of added sugars through policy initiatives at the federal, state, and local levels.

Our food policy decisions should prioritize public health over business.

Some cities and states have defied this pressure and taken positive steps through better nutrition policies, curtailing added sugar consumption, and encouraging healthy lifestyles. But much more can be done to use the current scientific evidence on the adverse health effects of sugar to promote better public health outcomes. Citizens can be empowered by knowing the amount of added sugar in their foods. Schools, universities, hospitals, and other public institutions can require limitations on added sugar in the foods they make available to the populations they serve. And decision makers

at federal, state, and local agencies can engage in transparent and science-informed decision-making processes to develop regulations that limit added sugars and promote our health and welfare. Ultimately, our food policy decisions should prioritize public health over business interests.

Recommendations

Sugar interests should be held accountable by experts, investors, decision makers, the media, and the public for their current efforts to obscure the science on sugar and its detrimental health effects.

- **The media** should publicly call out sugar interests' misstatements.
- **Scientific experts** should disclose all real or perceived conflicts of interest.
- **Investors and citizens** should pressure companies to align their public messaging with science, and to cease funding trade and front groups that spread misinformation about the link between sugar and adverse health effects.
- **Congress and federal agencies** should enact policies to enhance transparency around corporate political activities so that members of the public may know who is influencing policies that affect their health.

To challenge and overcome sugar interests' efforts to undermine the science and policy around sugar's adverse health impacts, several actors can play a role in ensuring that science-based health and nutrition policies are enacted and



Many solutions are available to help ensure the United States has more science-based health and nutrition policies. Better school nutrition programs across the country are being implemented to provide children with healthier options and less sugar, salt, and fat in school foods.

the public receives reliable information about health risks from overconsumption of sugar.

- **The U.S. surgeon general** should conduct a comprehensive report on the health effects of added sugar, and issue a Call to Action to encourage health policies that curb added sugar consumption (see CSPI et al. 2012).
- **The National Prevention Council**, an interagency council chaired by the surgeon general, should give serious weight to the evidence already found by the scientific community on the ill-effects of sugar as it implements the National Prevention Strategy and works to make all Americans healthier.
- **The Food and Drug Administration** should implement a strong rule requiring the inclusion of added sugar in nutrition labels, as it has indicated it intends to. This will better inform the public about the quantity of sugar added to processed foods.
- **The 2015 Dietary Guidelines for Americans**, issued by the USDA and the HHS, should utilize the science on sugar's

health impacts and include strong language encouraging Americans to limit added sugars in their diets.

- **The U.S. Department of Agriculture** should prioritize scientific evidence and public health over commercial interests in its consideration of school nutrition standards. The agency should include a strong added-sugar restriction in rules that set nutrition standards and should ensure compliance in every school.
- **State and local jurisdictions and institutions (including school districts, hospitals, other public institutions)**, in the absence of federal science-based standards restricting added sugar consumption, should use the best-available science on sugar's health impacts to develop robust nutrition policies.
- **Federal, state, and local health agencies** should develop aggressive public information campaigns to counter misinformation from sugar interests and emphasize the scientific evidence demonstrating the connection between excess consumption of added sugar and adverse health effects.

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A List of Companies, Trade Associations, and Front Groups Referenced in the Report

- The **American Beverage Association** is a trade association that represents the beverage industry, including soda, bottled waters, and other non-alcoholic drinks. Its 172 listed members are beverage bottlers and producers and include Coca-Cola and Pepsi-Cola bottling companies, Dr. Pepper Snapple Group, and Nestlé Waters North America.
- **Berman and Company** is a public relations firm run by lobbyist Rick Berman. The PR firm represents several industries and runs several front groups and websites, including those that fight legislation on food safety, secondhand smoke, and drunk driving.
- The **Campbell Soup Company** produces canned soups and other processed foods. In addition to its signature Campbell's Soup brand, the company owns other brands including Bolthouse Farms, Pepperidge Farm, and V8.
- The **Center for Consumer Freedom (CCF)** is a front group run by Rick Berman that describes itself as a nonprofit “devoted to promoting personal responsibility and protecting consumer choices.” In reality the group functions to promote the interests of corporate clients that seek out the public relations services of Berman and Company and do not wish to be directly associated with certain messaging campaigns.
- **The Coca-Cola Company** is a multinational beverage corporation. In addition to its signature Coca-Cola soft drinks, the company produces many other beverage varieties with brands including Dasani, Minute Maid, and Powerade.
- The **Corn Refiners Association (CRA)** is a trade association that represents the corn refining industry, which produces high fructose corn syrup, corn starch, and corn oil. Its six listed members include large agribusiness brands Archer Daniels Midland and Cargill.
- **Del Monte Corporation** is a producer, marketer, and distributor of branded consumer and pet foods. Its brands include Contadina, Del Monte, and Kibbles 'n Bits.
- **General Mills** is a Fortune 500 company primarily focused on processed foods. Its many brands include Betty Crocker, Lucky Charms, Pillsbury, Trix, and Yoplait.
- The **Grocery Manufacturers Association** is a trade association that represents the food, beverage, and consumer products industries. It reports representing more than 300 companies, and its membership includes most of the companies in this appendix. In 2012 its board leadership included ConAgra Foods, General Mills, and Sunny Delight Beverages (Internet Archive 2014b).
- The **Hershey Company** is the largest chocolate manufacturer in North America. In addition to its signature chocolate bar, the company produces many other chocolate, candy, and gum products including Bubble Yum, Good Humor ice cream, Reese's Peanut Butter Cups, and Cadbury products (the latter in the United States only).
- **Kraft Foods Group** is a grocery manufacturing and processing conglomerate. Its brands include Capri Sun, Jell-O, Kool-Aid, Kraft Singles, Oscar Meyer, and Philadelphia.
- **Mars** is a global manufacturer of confectionary products, pet food, and other processed foods. Its brands include M&M's, Snickers, Pedigree, and Trident.
- **Mondelēz International** is a multinational snack food and confectionary producer formed in 2012 by a demerger of Kraft Foods. It produces cookie and cracker brands including Chips Ahoy!, Oreos, Club Social, and Triscuits.
- The **National Confectioners Association** is a trade association that represents the confectionary industry, including candy, chocolate, and gum manufacturers. It claims 700 members that include Hershey, Mars, Mondelēz International, and Nestlé USA.
- **Nestlé** is a multinational food and beverage company. Its many products include bottled water, breakfast cereals, confectionary foods, ice cream, and snacks; its brands include Kit Kat, Nesquik, and Stouffer's.
- **PepsiCo** is a multinational food and beverage company that produces snack foods, beverages, and other products. In addition to its signature soda, its brands include Doritos, Gatorade, Lays, Lipton Teas, and Tropicana.
- The **Snack Food Association** is a trade association that represents snack food producers and suppliers. It claims 300 members worldwide.
- The **Sugar Association** is a trade association that represents sugar producers and refiners. Its 29 listed members include sugar cane and sugar beet growers.

[APPENDIX B]

Letter from Corn Refiners Association et al. to the World Health Organization

Appendix B is available online at www.ucsusa.org/addedsugar.

[APPENDIX C]

Lobbying and Political Contribution Analysis

Appendix C is available online at www.ucsusa.org/addedsugar.

[APPENDIX D]

Internal Documents from the *Sugar Association v. Corn Refiners Association* Case

Appendix D is available online at www.ucsusa.org/addedsugar.

Added Sugar, Subtracted Science

*How Industry Obscures Science and Undermines
Public Health Policy on Sugar*

Sugar interests have actively worked to undermine science and deceive the public on the adverse health effects of added sugars in our diets.

Sugar. We think of it as a sweet treat, but in reality it is ubiquitous in our diets. Hiding in everything from barbeque sauce to yogurt to salad dressing, sugar is often added to foods before anything ever reaches our plates. And why is this a problem? Scientific evidence has shown that the overconsumption of added sugar in our diet—not just calories but sugar in particular—has serious consequences for our health. Heart disease, obesity, diabetes, and hypertension have all been linked to high consumption of added sugar—whether from corn syrup, sugar cane, or sugar beets. And yet Americans continue to consume high amounts of hidden sugar every day, and our food policies do not reflect the scientific evidence on this health risk. As a consequence, our policies do little to work against this stealth sugar intake. Why do Americans not know how much sugar they are consuming? Why haven't we adapted nutritional standards and food policies to address the scientific evidence on added sugar's health risks?

A major factor that has kept us in the dark about sugar's detrimental impacts is the role that industry has played in keeping it that way. Sugar interests—food and beverage manufacturers along with industry-supported organizations such as trade associations, front groups, and public relations firms—have actively sought to ensure Americans' consumption of high levels of sugar continues. Through the use of many of the same tactics employed by the tobacco industry, sugar interests from all sectors have intentionally worked to deceive the public. Decision makers seeking to enact such policies have faced uphill battles, as sugar interests, through a combined force of these tactics, have swayed our public policies on food, nutrition, and health. But solutions are possible, and a number of initiatives are already being developed and implemented in many places across the country.

**Union of
Concerned Scientists**

FIND THIS DOCUMENT ONLINE: www.ucsusa.org/added-sugar

The Union of Concerned Scientists puts rigorous, independent science to work to solve our planet's most pressing problems. Joining with citizens across the country, we combine technical analysis and effective advocacy to create innovative, practical solutions for a healthy, safe, and sustainable future.

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