CENTER FOR Science IN THE Public Interest
America's Food and Health Watchdog

September 2021

Soda on Display:

A Pilot Study of Sugary Drink Placement and Promotion in Grocery Stores in the Washington, DC Area

AUTHORS:
Darya Minovi, MPH
Jake Munch
Emily Snyder, RDN

Center for Science in the Public Interest
www.cspinet.org

Acknowledgments

The authors thank Serena Baldwin and Julie Uram for assisting with data collection, and Peter Lurie, Ashley Hickson, Julia McCarthy, Lindsay Moyer, and Margo Wootan for thoughtfully reviewing the study. This report was made possible by the generous support of the Johnson Family Foundation and other contributors.

Center for Science in the Public Interest

The Center for Science in the Public Interest (CSPI) is America's food and health watchdog. We are a rigorous driver of food system change to support healthy eating, safe food, and the public's health. We transform the built food environment through leading-edge policy innovations grounded in meticulous research and powerful advocacy at the national, state, and local level. We galvanize allies to drive system-wide changes and healthier norms, leveraging the greatest benefits for people facing the greatest risk. CSPI is fiercely independent; we accept no government or corporate grants. Our work is supported by the hundreds of thousands of subscribers to our award-winning Nutrition Action Healthletter (NAH) and from foundations and individual donors.

For more information, contact:

Center for Science in the Public Interest
policy@cspinet.org
202-777-8352

Soda on Display is available online, free of charge at
https://cspinet.org/resource/soda-on-display

September 2021

Cover Photo: Franki Chamaki/unsplash.com.

Table of Contents

Executive Summary

Most people in the United States consume more added sugar, saturated fat, and sodium than recommended by federal guidelines designed to optimize health and reduce diet-related diseases.[i] In the United States, we get more than 60 percent of our calories from food purchased at grocery stores.[ii] Food manufacturers with big marketing budgets spend large amounts each year to market their products—many of which are unhealthy—through strategic placements, discounted prices, and in-store promotions.[iii] In-store food and beverage marketing can influence shoppers' purchases.[iv] Research is needed to better understand the current retail food environment to lay the groundwork for identifying interventions and policies to attain a healthier retail environment.

This pilot study investigated the placement and promotion of sugary drinks, the top source for added sugars in the United States,[v] across 16 grocery stores in one metropolitan area. On average, sugar-sweetened beverages appeared in roughly 30 locations and had nine price promotions within each grocery store. Sugary drinks appeared most frequently on endcaps and center aisles, but were also commonly found at checkout and on other freestanding displays. Promotions were most often found on endcaps; more than half of endcaps with sugary drinks also had price promotions. In addition, the location and density of placements and promotions varied between stores. In our sample, small stores prioritized perimeter and center aisles, and mid-sized and large stores had a roughly equal distribution across endcaps, checkout, perimeter and center aisles. Overall, the number of sugary drink placements and promotions increased with store size. There were no significant differences in placements and promotions between stores in below-median and above-median income neighborhoods.

The ubiquity of sugary drinks in retail food outlets is a marketing tactic used to induce impulse purchases of unhealthy beverages. This undermines shoppers' best efforts to eat healthfully and feed their families well. Consumers should not be inundated from all sides when shopping for their families. Given the link between excessive added sugar intake and diet-related disease, the continued aggressive promotion of sugary drinks in grocery stores presents a potential risk to the public's health that can be remedied with new policies and in-store practices.

Recommendations:

- Retailers should limit the placement and promotion of sugary drinks by:
  - Replacing them with healthier alternatives, such as water and seltzer,
  - Limiting the placement of sugary drinks to a designated soda aisle,
  - Eliminating manufacturer coupons that enable price promotions for sugary drinks.
- Advocates should use the assessment tool created for this report to evaluate in-store marketing of sugar-sweetened beverages in their communities. They should use the findings of these assessments to push for state and local policies that limit the placement and promotion of sugary drinks.[a]
- Researchers should conduct similar assessments with larger sample sizes across a broader geographic region to better understand the scope of sugary drink marketing and the degree of variation across stores and store locations. Future research should also evaluate the prevalence of placements and promotions for other product categories, such as candy and sweetened baked goods.

[a] In 2019, California legislators introduced Assembly Bill 764 that would "regulate promotion and marketing activities related to sugar-sweetened beverages" by prohibiting beverage companies from offering incentives or other financial support to compensate distributors or retailers for the cost of promotional offers. To counter this predatory practice, the bill noted imposing civil penalties on corporations in violation of this bill. However, the bill died on inactive file in February of 2020.

Background

People often think of the grocery store as a nutritionally neutral space, offering everything from bell peppers to pretzels. The reality is that grocery stores and supermarkets—which provide more than 60 percent of Americans' caloric intake—are the largest contributors of unhealthy foods and beverages to the average American's diet and are therefore an important environment to address when trying to improve diets.[1] Nearly a quarter of the calories consumed by Americans come from products high in saturated fat and added sugars, and we eat significantly fewer fruits, vegetables, and whole grains than recommended by the Dietary Guidelines for Americans.[2]

One reason Americans do not eat healthfully is because grocery stores are designed to induce impulse purchases, typically of nutritionally poor foods and beverages. Food and beverage manufacturers spend large amounts of money on trade fees each year to market their products, usually processed and packaged, in retail stores.[3] As a result, unhealthy food and beverages appear in prominent store locations like checkout aisles and endcaps, capturing shoppers' attention with flashy displays and two-for-one deals. The placement and promotion of food and beverages is a powerful form of marketing that can contribute to unhealthy eating habits and chronic disease.[4]

A buy-two-get-three-free soda promotion on an endcap at a Washington, DC Harris Teeter.

Sugar-sweetened beverages—the top source of added sugar in Americans' diets[5]—are frequently marketed in grocery stores. A RAND Corporation study focused on California and the Southern region of the United States found that sugary drinks appear, on average, in 25 different places in a single grocery store.[6] In a study of checkout aisles in the Washington, DC, metropolitan area, sugar-sweetened beverages made up 60 percent of beverages offerings.[7]

Children are especially vulnerable to aggressive marketing in grocery stores. In 2009, food manufacturers spent $113 million on in-store promotions aimed at children, counting on kids to pester

their parents to purchase sugar-laden foods and beverages.[8] On average, 63% of youth aged two to 19 years consume at least one sugary drink on a given day;[9] more than 70% of sugar drink calories consumed by children aged two to 18 years come from stores, including supermarkets, grocery stores, convenience stores, and other types of stores.[10] The remaining sugary drink calories consumed by children come from fast food vendors (10 percent), restaurants (7 percent), schools (1 percent), and other sources (10 percent).[11] Grocery stores are also the largest single source of sugar-sweetened beverages for adults.[12]

Sugar-sweetened beverages pose a threat to public health. Liquid calories do not decrease hunger in the same way solid foods do. That is, people do not fully compensate for calories consumed from sugary drinks by eating less of other foods.[13] Most health authorities—including the Centers for Disease Control and Prevention,[13] American Heart Association,[14] American Medical Association,[15] American Diabetes Association,[16] American Public Health Association,[17] National Academy of Sciences,[18] World Health Organization,[19] and the Dietary Guidelines for Americans[20]—recommend avoiding or limiting sugar-sweetened beverages.

Few studies have examined the marketing of sugar-sweetened beverages in grocery stores. The present study investigates the presence of sugar-sweetened beverage marketing in aisles, at checkout, and on other displays across a sample of grocery stores in one metropolitan area, using similar methods to the RAND Corporation study.[21]

Methods

In July 2019, CSPI conducted a pilot study of grocery stores in the Washington, DC metropolitan area. Of the top 50 retailers with the highest annual sales in the United States in 2019,[22] eight have banners in Washington, DC There are a total of 43 grocery stores that fit this inclusion criteria: Safeway (12 stores in DC), Giant Food (7), Whole Foods (6), Harris Teeter (5), Trader Joe's (5), Target (4), Walmart (3), and Aldi (1). For each retailer, we chose two locations with at least one store in each of the city's eight wards[b] to enhance geographic diversity. Wards 7 and 8 only had one grocery store (Safeway and Giant, respectively) and both were included in this study. Aldi had only one store in the city, so we included a second Aldi store in Hyattsville, Maryland, one mile from the DC border. In total, we surveyed 16 grocery stores in the Washington, DC metropolitan area (the 15 stores within Washington, DC represented 34.9% of the stores owned by major grocers in the city).

The purpose of the pilot study was to understand how many times shoppers can encounter sugary drink placements or promotions in a grocery store. Sugar-sweetened beverages were defined as drinks with added caloric sweeteners, such as soda, energy drinks, sports drinks, juice, coffee, milk, and tea. Liquid and powdered drinks were included. No-calorie alternatives, such as diet soda and seltzer water, were not counted as sugary drinks.

We visited each store during regular business hours, using a survey (Appendix A) to record the number of times sugary drinks were placed and promoted on displays in the store. A display is the discrete location where food, beverages, and other products are placed in a grocery store. A sugary drink **placement** was defined as a display containing at least one sugar-sweetened beverage. In each store, we assessed six display types: perimeter shelves; center aisles; endcaps; checkout aisles; other freestanding displays; and vending and cafés (Figure 1, Table 1). The survey was adapted from a tool created by Deborah Cohen and her colleagues at the RAND Corporation, published in *Preventive Medicine* in 2018.[23]

[b] The city of Washington, DC is divided into eight wards, or municipal zones, that are used for city planning and local elections. Each ward has an elected councilmember.

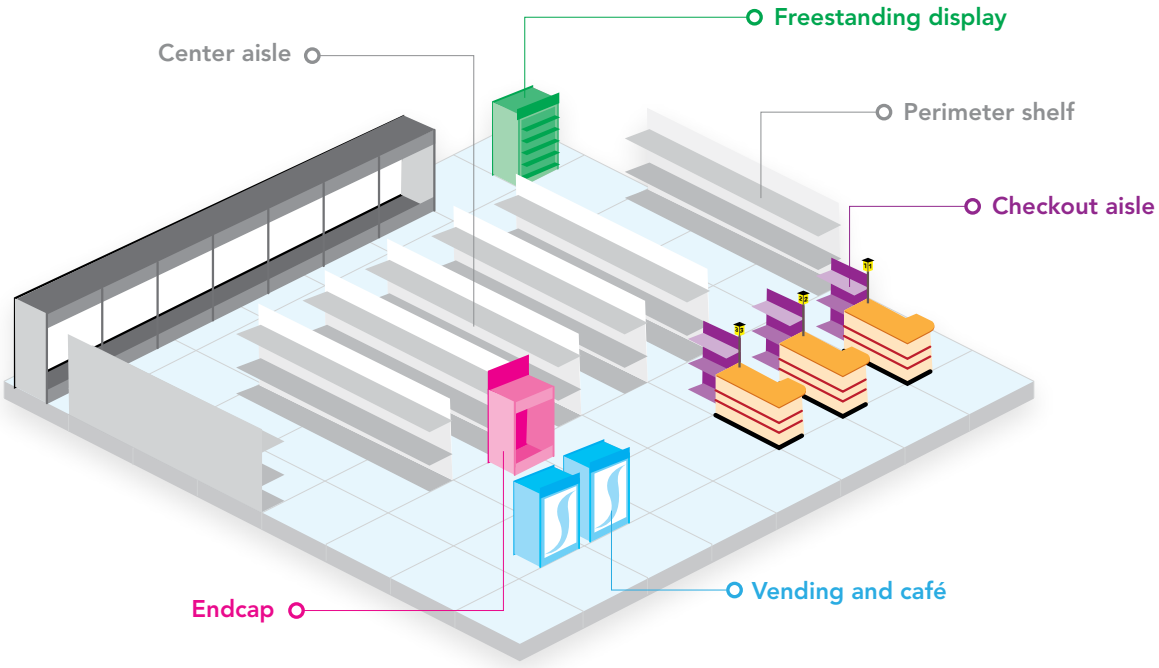


TABLE 1: DISPLAY TYPE DEFINITIONS

DISPLAY TYPE	DEFINITION
Perimeter shelf	Each segment of shelving, determined by the surveyors, along the perimeter walls of the store.
Center aisle	Each side of a passage between two long shelves in the center of the store.
Endcap	The set of shelves attached to one end of a center aisle. Typically, each center aisle has two endcaps.
Checkout aisle	The shelves attached to or within arm's reach of the register.
Other freestanding display	A discrete display of one or more types of products, disconnected from an aisle, typically on a wire rack, cardboard box, or individually stacked.
Vending and café	Vending machines, soda fountains, and in-store cafés.

In each store, we counted the total number of each type of display and the number of those displays that included at least one sugar-sweetened beverage placement. We did not count the total number other freestanding displays in each store because there are many of these in grocery stores and counting them would have significantly increased the time required to complete each survey. Thus, the total number of other freestanding displays in the store is not captured in this study. Any placement that was not on a perimeter shelf, center aisle, endcap, checkout aisle, or vending/cafe was categorized as an "other freestanding display" placement.

We also determined whether there were **price promotions**, defined as a sale, bundled deal (two-for-one, 10 for $10, etc.), or loyalty cardholder discount offered on at least one sugar-sweetened beverage on a single display with a sugary drink placement. Because price promotions were only counted for sugary drinks on display, price promotions cannot occur without a placement. We did not count price promotions for perimeter shelves, center aisles, or vending machines and cafés because these areas are easier for shoppers to avoid than endcaps, checkout aisles, and freestanding displays. As a result, our findings on price promotions are likely conservative.

To complete the survey, two assessors walked through each store together, counting the number of placements and promotions independently and then confirming the number with one another and resolving differences.[c] Each assessment took between 60 and 90 minutes.

In addition to basic descriptive statistics, data were further analyzed by store size and median household income by ward. Data on store size for 14 stores were publicly available on the Washington, DC Economic Partnership website, and the sizes of the remaining two stores were found in an online newspaper article and construction permit.[24,25,26] Store sizes ranged from approximately 15,000 to 106,000 square feet. Prior to analysis, the stores were divided into three groups: small stores, defined as 20,000 square feet or less; mid-sized stores, defined as 20,001-49,999 square feet; and large stores, defined as 50,000 square feet or greater. The groups were determined by natural breaks in the data and to ensure that at least two retailers fell within each category.

To categorize stores by whether they were in lower- or higher-income wards, a cutoff based on DC's overall median household income of $82,372 in 2017 was used (Appendix B).[27] By this definition, Wards 5, 7, and 8 (4 stores) were considered lower income and Wards 1, 2, 3, 4, and 6 (12 stores) were considered higher income.

[c] Except for one display in one store, there was 100 percent agreement on counts between the assessors. The display with the discrepancy was off by one count, therefore the average of the two numbers was used.

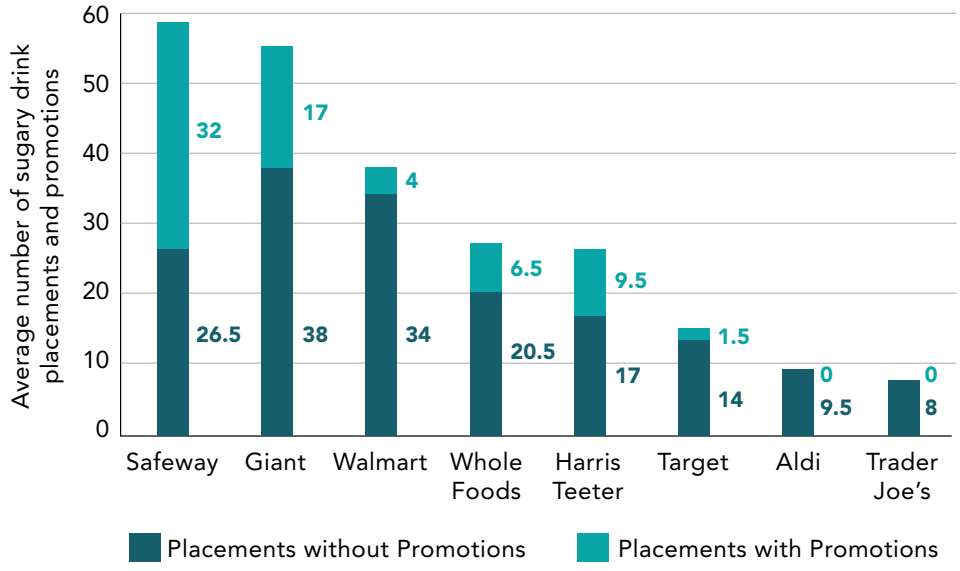
Results

Across all 16 stores, sugar-sweetened beverages were placed in 475 locations (mean: 29.7; median: 26.8) and had price promotions in 141 locations (mean 8.8; median: 5.0).

In our sample, Safeway and Giant had the most placements, with sugary drinks appearing on an average of 58.5 and 55.0 displays in the stores, respectively. Aldi and Trader Joe's had the fewest, with sugary drinks appearing on an average of 9.5 and 8.0 displays, respectively.

Safeway and Giant also had the most sugary drink price promotions, which appeared on an average of 32.0 and 17.0 displays in the stores, respectively. We did not observe any price promotions for sugary drinks in Aldi and Trader Joe's (Figure 2).

FIGURE 2: AVERAGE NUMBER OF SUGARY DRINK PLACEMENTS AND PROMOTIONS* BY RETAILER



*Promotions were only counted for endcaps, checkout aisles, and other freestanding displays.

Safeway also had the greatest percentage of sugary drink placements with promotions. Considering only sugar-sweetened beverage displays on endcaps, checkout aisles, and other freestanding displays, 77.0 percent had price promotions at Safeway, followed by Harris Teeter (54.3 percent). Giant followed closely with

49.3 percent and Whole Foods with 41.9 percent. The proportion of endcaps, checkout aisles, and other freestanding placements with promotions at both Target and Walmart was roughly 15 percent. As noted, neither Aldi nor Trader Joe's had price promotions.

Placements and Promotions by Display Type

A soda display with steep discounts on an endcap at Giant.

Sugary drinks most often appeared on endcaps (27.6 percent of sugary drink placements), followed by center aisles (24.0 percent), checkout aisles (19.4 percent), and other freestanding displays (17.5 percent), together accounting for 88.5 percent of sugary drink displays. Sugary drinks appeared least frequently in store vending machines and cafés.

In our sample, this pattern was generally followed at Safeway, Giant, and Walmart. However, Harris Teeter placed significant emphasis on endcaps (43.4 percent of sugary drink displays). Whole Foods tended to deemphasize other freestanding displays and focus more on checkout aisles. The overall number of placements in Target, Aldi, and Trader Joe's is small, and therefore trends are not clear (Table 2).

TABLE 2: AVERAGE SUGARY DRINK PLACEMENTS* BY RETAILER AND DISPLAY TYPE (PERCENT OF TOTAL SUGARY DRINK DISPLAYS FOR THAT STORE)†

DISPLAY TYPE	ALDI	GIANT	HARRIS TEETER	SAFEWAY	TARGET	TRADER JOE'S	WALMART	WHOLE FOODS	TOTAL
Perimeter shelf	2.0 (21.1%)	3.5 (6.4%)	2.5 (9.4%)	4.0 (6.8%)	2.0 (13.3%)	2.5 (31.3%)	2.5 (6.6%)	2.0 (7.4%)	**21.0 (8.8%)**
Center aisle	3.0 (31.6%)	15.0 (27.3%)	6.5 (24.5%)	11.5 (19.7%)	3.0 (20.0%)	3.0 (37.5%)	7.0 (18.4%)	8.0 (29.6%)	**57.0 (24.0%)**
Endcap	3.0 (31.6%)	12.5 (22.7%)	11.5 (43.4%)	15.5 (26.5%)	5.5 (36.7%)	2.0 (25.0%)	9.0 (23.7%)	6.5 (24.1%)	**65.5 (27.6%)**
Checkout aisle	0.5 (5.3%)	10.5 (19.1%)	2.5 (9.4%)	12.0 (20.5%)	3.0 (20.0%)	0.5 (6.3%)	9.5 (25.0%)	7.5 (27.8%)	**46.0 (19.4%)**
Other freestanding display	1.0 (10.5%)	11.5 (20.9%)	3.5 (13.2%)	14.0 (23.9%)	1.5 (10.0%)	0 (0.0%)	8.5 (22.4%)	1.5 (5.6%)	**41.5 (17.5%)**
Vending and café	0 (0.0%)	2.0 (3.6%)	0 (0.0%)	1.5 (2.6%)	0 (0.0%)	0 (0.0%)	1.5 (3.9%)	1.5 (5.6%)	**6.5 (2.7%)**
Total	**9.5**	**55.0**	**26.0**	**58.5**	**15.0**	**8.0**	**38.0**	**27.0**	**237.5**

*The number of placements by display type is averaged for each retailer.

†All percentages are column percentages.

As shown in Table 3, excluding perimeter shelves, center aisles, and vending and café, where promotions were not counted, endcaps were the most common site of promotions, accounting for over half of promotions (55.3 percent), followed by other freestanding

displays (29.8 percent). Safeway and Giant followed this general pattern. At Harris Teeter, nearly all sugary drink promotions were on endcaps, where a large share of their placements were also located. The overall number of promotions at the remaining stores was insufficient to examine this question.

TABLE 3: AVERAGE SUGARY DRINK PROMOTIONS* BY RETAILER AND DISPLAY TYPE (PERCENT OF TOTAL SUGARY DRINK PLACEMENTS)†

	ALDI	GIANT	HARRIS TEETER	SAFEWAY	TARGET	TRADER JOE'S	WALMART	WHOLE FOODS	TOTAL
Endcap	0 (0.0%)	9.5 (55.9%)	8 (84.2%)	13 (40.6%)	1.5 (100.0%)	0 (0.0%)	2 (50.0%)	5 (76.9%)	**39 (55.3%)**
Checkout aisle	0 (0.0%)	2 (11.8%)	0 (0.0%)	7.5 (23.4%)	0 (0.0%)	0 (0.0%)	0.5 (12.5%)	0.5 (7.7%)	**10.5 (14.9%)**
Other freestanding display	0 (0.0%)	5.5 (32.4%)	1.5 (15.8%)	11.5 (35.9%)	0 (0.0%)	0 (0.0%)	1.5 (37.5%)	1 (15.4%)	**21 (29.8%)**
Total	**0**	**17**	**9.5**	**32**	**1.5**	**0**	**4**	**6.5**	**70.5**

*The number of promotions by display type is averaged for each retailer.

†All percentages are column percentages. We did not count price promotions for perimeter shelves, center aisles, or vending machines and cafés because these areas are easier for shoppers to avoid than endcaps, checkout aisles, and freestanding displays.

Placement and Promotions by Store Size

Store sizes ranged from 15,000 to 106,000 square feet. For all retailers, both stores included in the study fell within the same size category. Aldi and Trader Joe's locations were categorized as small stores; Harris Teeter, Target, and Whole Foods as mid-sized stores; and Giant, Safeway, and Walmart as large stores.

Overall, the larger the store, the greater the number of both placements and promotions (Table 4). Large stores had more than five times as many placements as small stores and twice as many placements as mid-sized stores. In addition, a larger proportion of sugary drink placements were accompanied by promotions in large stores (35.3 percent) than in mid-sized stores (26.1 percent). None of the small stores had sugary drink promotions.

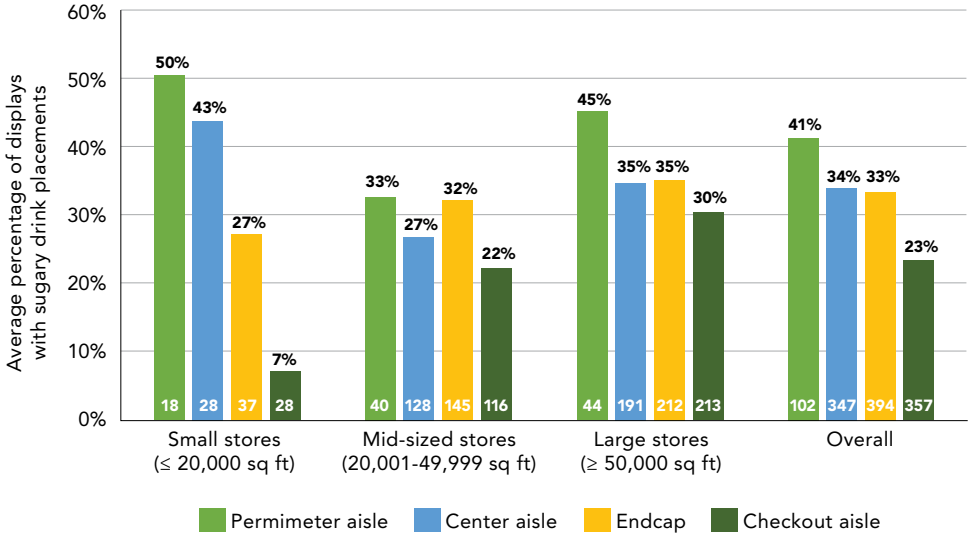
TABLE 4: AVERAGE SUGARY DRINK PLACEMENTS AND PROMOTIONS BY STORE SIZE*

	SMALL STORES (≤ 20,000 SQ FT)	MID-SIZED STORES (20,001-49,999 SQ FT)	LARGE STORES (≥ 50,000 SQ FT)
Placements	9	23	51
Promotions	0	6	18
Percent of placements with promotions	0%	26.1%	35.3%

*Small stores: Aldi and Trader Joe's; Mid-sized stores: Harris Teeter, Target, and Whole Foods; Large stores: Giant, Safeway, and Walmart.

In regard to display type, the proportion of endcaps and checkout aisles with sugary drink placements increased with store size (Figure 3). While there were a smaller number of perimeter aisles overall compared to center, endcap, and checkout aisles (102 vs. 347, 394, and 357, respectively), a larger proportion of them had sugary drink displays (41.0 percent). Small stores had a larger proportion of sugary drink displays in the perimeter and center aisles (50.0 and 43.0 percent, respectively). In mid-sized and large stores, sugary drink placements appear to be somewhat equally distributed between perimeter, center, and checkout aisles, and endcaps.

FIGURE 3: AVERAGE PERCENTAGE OF DISPLAYS BY TYPE* AND STORE SIZE THAT HAD SUGARY DRINK PLACEMENTS†



*Other freestanding displays are not shown because we did not count the total number of these in each store. This is because there are many of these in the store and counting them would have significantly increased the time required to complete each survey. Vending and cafés are not shown because the total number of these was very small and promotions are typically not offered on vending machines.

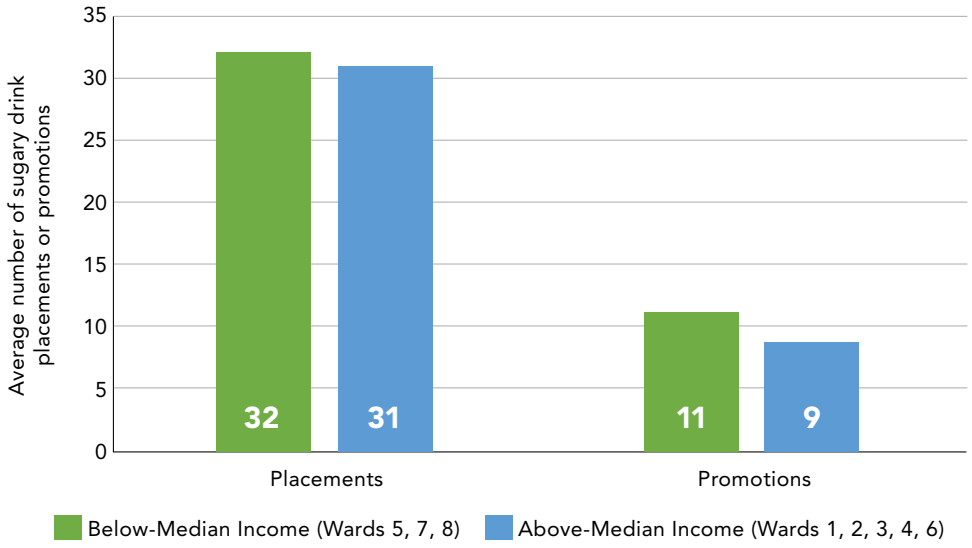
† The total number of displays by store size are shown in white on each bar.

The proportion of center aisle and endcap displays with sugary drink promotions varied by store size.[d] In mid-sized stores, 2.2 percent of checkout aisle and 57.9 percent of endcap sugary drink displays had promotions. In large stores, 28.9 percent of checkout aisle and 60.7 percent of endcap had sugary drink display promotions. Small stores had no sugary drink promotions.

Placements and Promotions by Ward[e]

As shown in Figure 4, there were no differences between stores in lower- and higher-income wards with respect to either the numbers of placements (32 in below-median income ward stores vs. 31 in above-median income ward stores) or promotions (11 in below-median income ward stores vs. 9 in above-median income ward stores). For endcaps, checkout aisles, and other freestanding displays, where promotions were counted, 52.9 percent of sugary drink displays had promotions in below-median income stores, and 44.2 percent in above-median income stores.

FIGURE 4: AVERAGE SUGARY DRINK PLACEMENTS AND PROMOTIONS IN STORES IN ABOVE- VS. BELOW-MEDIAN INCOME WARDS



There is no clear relationship between ward median household income and store size, though it appears that mid-sized stores are more prevalent in above-median income wards, whereas small and large stores may be more evenly distributed across the city (Appendix C).

[d] Promotions were not counted for perimeter and center aisles, therefore they are not included in this analysis.
[e] Only 15 stores included in the ward analysis since one of the Aldi stores included in the study is in Hyattsville, Maryland.

Discussion and Recommendations

Our pilot study of 16 grocery stores in the Washington, DC area found that sugar-sweetened beverages appeared in an average of roughly 30 locations per store, and an average of nine placements contained promotions (promotions were only counted for endcaps, checkout aisles, and other freestanding displays). Sugary drinks appeared most frequently on endcaps and center aisles, but were also commonly found at checkout and on other freestanding displays. Promotions were most often found on endcaps; more than half of endcaps with sugary drinks had price promotions.

With Amazon's acquisition of Whole Foods, Prime members now get discounts on sugary drinks.

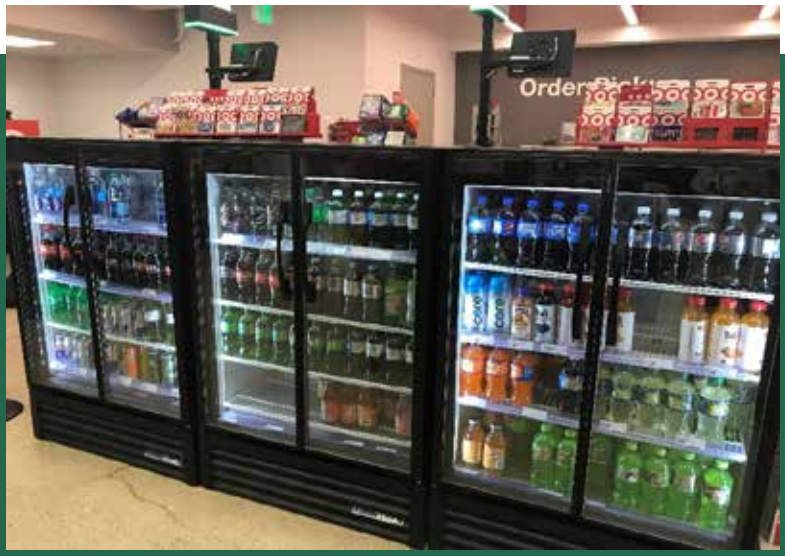
The number of placements and promotions appeared to increase with store size. Small stores (≤ 20,000 square feet) had a greater proportion of sugary drink displays on perimeter and center aisles, whereas in mid-sized and large stores, sugary drinks were more equally distributed between perimeter, center, and checkout aisles, and endcaps. The proportion of placements on endcaps and center aisles appeared to increase with store size.

This study provides no evidence of differences in the number of placements and promotions between stores in DC's below-median income and above-median-income wards. However, two of the three below-median income wards had only a single grocery store.

These results build on a previous RAND Corporation study of beverage placement in 52 grocery stores in Alabama, Mississippi, and Southern California, which found sugary drinks in an average of 25 locations within a store, a number similar to that in the present pilot study.[28] In that study, however, sugary drinks were

most often placed in checkout aisles (67 percent), followed by endcaps (24 percent), a distribution strikingly different than in the present study. The previous study did not assess price promotions, but it compared the placement of sugary drinks with other beverages and found that in all retail stores assessed the number of sugary drink placements exceeded that of low/no-calorie beverages and water.

Consumers are trying to make healthier purchases. A 2019 report from the Food Industry Association (FMI, formerly the Food Marketing Institute) found that 73 percent of shoppers are concerned about the nutritional content of their food.[29] In addition, 64 percent of shoppers say weight loss/management is the most sought-after health benefit from foods.[30] Retailers should respond to consumers' requests by limiting the placement and promotion of sugary drinks and replacing them with healthier alternatives, like water and seltzer.



A sea of sugary drinks makes it hard to find the single row of water bottles in this Target checkout aisle.

Several retailers have already taken steps to reduce the prevalence of sugar-sweetened beverages in stores. In 2016, California-based retailer Raley's voluntarily removed sugar-sweetened beverages from its checkout aisles.[31] Other retailers are piloting healthy swaps,

such as replacing soda with water at checkout and other prominent store areas. Private label retailers, like Aldi and Trader Joe's, also serve as an instructive model for less aggressive sugary drink marketing. In this pilot study, these stores had the fewest sugary drink placements and no price promotions.

Shoppers can barely see over Safeway's towering soda display to the fresh food section on the other side.

Public health advocates and researchers can use this assessment tool to evaluate in-store marketing of sugar-sweetened beverages in their own communities. The findings can be used to advocate for policies that limit placement and promotion of sugary drinks in states and jurisdictions. In the city of Berkeley, California, where advocates conducted a similar assessment, local lawmakers passed a Healthy Checkout Aisle ordinance in September 2020. Berkeley is the first locale in the United States to pass this type of legislation. In all retail stores greater than 2,500 square feet, beverages in the checkout aisle must have no added sugars and no artificial sweeteners.[32] Assembly members in the state of California introduced similar legislation in February 2019, but it did not pass.[33] Other policies could limit sugar-sweetened beverage placement to a designated soda aisle and eliminate manufacturer coupons that enable price promotions for sugary drinks.

While our findings add to the body of evidence on the ubiquity of sugary drinks and promotions in food retail, further research is necessary. Similar assessments should be completed with a larger number of stores and across a broader geographic region to better understand the scope of sugary drink marketing and the degree of variation across retailers and store locations. Such an approach might permit a more robust assessment of differences in promotional practices between stores. However, the small sample size, within-retailer variability (Appendix D) with respect to the

primary outcomes of interest, and the non-random nature of the sampling preclude strong conclusions about differences between retailers. Finally, future research should evaluate the prevalence of other product categories, such as candy and sweet baked goods, in stores.

Sugar-sweetened beverages are pervasive in grocery stores. Given the link between high added sugar intake and adverse health outcomes, it is not acceptable for companies to continue to aggressively market sugary drinks in grocery stores. Local advocates, coalitions, and community-based organizations can mobilize to bring about the necessary change to improve the grocery store environment through policy interventions that reduce the impact of harmful marketing tactics such as restricting sugar-sweetened beverages to a specific location in stores and limiting price promotions.

Appendix

APPENDIX A: IN-STORE SUGARY DRINK MARKETING ASSESSMENT TOOL

SSB retail marketing: Store observation form

Observer Name _____

Date _____

Store name _____

Address (street, city, state, zip)

_____

The purpose of this observation form is to quantify the placement of and price promotions for sugar-sweetened beverages in grocery stores. To complete the form, you will need to walk around the store and down the aisles multiple times.

DEFINITIONS

Center Aisles: A passage between two long shelves. If there are breaks in the aisle, i.e., for a walkway, consider the passage before the break and after the break as one aisle.

Aisle Display: Each side of an aisle is one aisle display. One aisle display counts as one hash mark.

Endcap Display: The shelf at either end of an aisle. One endcap display counts as one hash mark.

Other Display: Discrete display of one or more types of products, typically disconnected from a center aisle (examples include, near the deli, by the salad bar, in the front of the stores, in the middle of an aisle). Typically on a wire rack or in a cardboard box. One other display counts as one hash mark.

Placement: The number of times a sugar-sweetened beverage appears on a display in a store.

Price promotion: Discounts on sugar-sweetened beverages, such as sales (x cents off per bottle), two-for-one (10 for $10) deals, or loyalty card holder discounts.

Sugar-sweetened beverages (SSBs): Soda, energy drinks, sports drinks, juice drinks, coffee, and tea with added caloric sweeteners. Includes liquid and powdered beverages. No-calorie alternatives, like diet soda and seltzer water should not be included.

TABLE 1. PERIMETER WALLS

Walk along the perimeter of the store. If the store is not rectangular, please draw a rough map outline of store shape on page 4, numbering which segments you included as perimeter walls. All assessors should agree on the store shape and number of segments before proceeding. Each wall segment counts as one aisle display.

	NUMBER (HASH MARKS)		TOTAL
# Perimeter Wall Aisle Displays			
	AT LEAST HALF THE WALL	LESS THAN HALF THE WALL	
Have SSBs			
# that include any SSB price promotions			

TABLE 2. CENTER AISLES

Walk down each aisle and count the number of aisle displays. If there are breaks in the aisle, please consider the segments as one continuous aisle display. Please include any aisle displays that face the perimeter walls of the store.

Do the aisles go from one end of the store to the other?
___Yes ___Partial ___ No

If no or partial, how many breaks per aisle? _____

	NUMBER (HASH MARKS)		TOTAL
# Center Aisle Displays			
	AT LEAST HALF THE WALL	LESS THAN HALF THE WALL	
Have SSBs			
# that include any SSB price promotions			

TABLE 3. ENDCAP DISPLAYS

Walk past the ends of every center aisle, counting the number of endcap displays. If the end of an aisle has multiple displays clustered together, please count them as one endcap display.

	NUMBER (HASH MARKS)	TOTAL
# Endcap Displays		
# that include any SSBs		
# that include any SSB price promotions (note examples of promotions)		

TABLE 4. CHECKOUT AISLE DISPLAYS

Walk along the checkout area of the store. Count each of the following as a separate display—above the belted area, across from the belted area, and displays on the end of each checkout aisle. If the end the checkout aisle has multiple displays clustered together, please count them as one display. Each side of a self-checkout aisle counts as one display.

	NUMBER (HASH MARKS)	TOTAL
# Checkout Aisle Displays		
# that include any SSBs		
# that include any SSB price promotions (note examples of promotions)		

TABLE 5. OTHER FREESTANDING DISPLAYS

Walk around the front of the store (inside and outside), store perimeter, and down every aisle again. Count each additional display of sugar-sweetened beverages that was not captured in the previous tables. This includes discrete coolers, cardboard boxes, or metal racks containing sugar-sweetened beverages, or packages/containers of sugar-sweetened beverages stacked together on the floor. Pay close attention in the produce section and bakery, near the hot and salad bars, and near and under the deli counter.

	NUMBER (HASH MARKS)	TOTAL
# Other Displays that include any SSBs		
# Other Displays that include any SSB price promotions (note examples of promotions)		

TABLE 6. VENDING

Look inside and outside of store to count the number of vending machines, soda fountains, or cafés. Include any that are within a restaurant in the store.

	NUMBER (HASH MARKS)	TOTAL
# Vending Machines, Soda Fountains, and Cafés		
# that include any SSBs		

TABLE 7. OTHER PROMOTIONS

Are there circulars at the front of the store? (If so, take a copy)	☐ Yes	☐ No
Are any samples/taste-tests available for SSBs? If yes, for which ones?	☐ Yes	☐ No
Any additional observations about SSB promotions? i.e., Holiday specials, interactive displays, etc.		

TABLE 8. PICTURES

Please take photographs of the following:

1. The largest display of SSBs	☐ Yes	☐ None
2. Any sugary beverage coupon being distributed	☐ Yes	☐ None
3. Any pages of the store circulars with SSB promotions	☐ Yes	☐ None
4. Any sugary beverage sample being distributed	☐ Yes	☐ None
5. The front of the store showing SSB promotions	☐ Yes	☐ None
6. Checkout aisle area showing SSB promotions	☐ Yes	☐ None

Drawing of Store Perimeter and Additional Notes:

APPENDIX B: MEDIAN HOUSEHOLD INCOME BY WARD IN WASHINGTON, DC

WARD	MEDIAN HOUSEHOLD INCOME*
1	$93,284
2	$104,504
3	$122,680
4	$82,625
5	$63,522
6	$102,214
7	$40,021
8	$31,954

* Retrieved from DC Economic Strategy via 2013-2017 U.S. Census Bureau 5-Year Estimates.

APPENDIX C: NUMBER OF STORES BY WARD AND STORE SIZE

	BELOW-MEDIAN INCOME (WARDS 5, 7, 8)	ABOVE-MEDIAN INCOME (WARDS 1, 2, 3, 4, 6)
Small stores (≤ 20,000 sq ft)	Aldi 17th St, Trader Joe's Florida Ave (2 stores)	Trader Joe's 25th St (1 store)
Mid-sized stores (20,001-49,999 sq ft)	None	Harris Teeter Kalorama Rd, Harris Teeter Potomac Ave, Target Connecticut Ave, Target Georgia Ave, Whole Foods 25th St, Whole Foods P St (6 stores)
Large stores (≥ 50,000 sq ft)	Giant Alabama Ave, Safeway Alabama Ave (2 stores)	Giant 7th St, Safeway Wisconsin Ave, Walmart Georgia Ave, Walmart H St (4 stores)

APPENDIX D: PERCENT DIFFERENCE IN AVERAGE PLACEMENTS AND PROMOTIONS WITHIN RETAILERS

For placements, the two stores for each retailer were within 20.0 percent of each other, except for Aldi, where the difference was 41.7 percent, although the number of placements were small. There was greater variability for promotions, with half of the stores with promotions having inter-retailer variability 50.0 percent of greater, although numbers of promotions were often small. With a small sample size, conclusions about within retailer variability may not be drawn.

RETAILER	PLACEMENTS	PROMOTIONS	PERCENT DIFFERENCE*
Safeway Wisconsin Ave	58	30	Placements: 1.7% Promos: 11.8%
Safeway Alabama Ave	59	34	
Giant 7th St	61	23	Placements: 19.7% Promos: 52.2%
Giant Alabama Ave	49	11	
Walmart H St	34	4	Placements: 19.0% Promos: 0%
Walmart Georgia Ave	42	4	
Whole Foods P St	25	5	Placements: 13.8% Promos: 25%
Whole Foods H St	29	8	
Harris Teeter Kalorama Rd	28	6	Placements: 10.7% Promos: 53.8%
Harris Teeter Potomac Ave	25	13	
Target Georgia Ave	14	1	Placements: 12.5% Promos: 50.0%
Target Connecticut Ave	16	2	
Aldi Hyattsville	7	0	Placements: 41.7% Promos: N/A
Aldi 17th St	12	0	
Trader Joe's Florida Ave	8	0	Placements: 0% Promos: N/A
Trader Joe's 24th St	8	0	

*Percentages expressed as difference between higher and lower number divided by higher number.
N/A = Not Applicable

[i] U.S. Department of Health and Human Services and U.S. Department of Agriculture. *2020-2025 Dietary Guidelines for Americans*. 2020. https://www.dietaryguidelines.gov/sites/default/files/2021-03/Dietary_Guidelines_for_Americans-2020-2025.pdf. pp. 42-46. Accessed May 6, 2021.

[ii] Mancino L, Guthrie J. *Supermarkets, Schools, and Social Gatherings: Where Supplemental Nutrition Assistance Program and Other U.S. Households Acquire Their Foods Correlates with Nutritional Quality*. U.S. Department of Agriculture Economic Research Service. 2018. https://www.ers.usda.gov/amber-waves/2018/januaryfebruary/supermarkets-schools-and-social-gatherings-where-supplemental-nutrition-assistance-program-and-other-us-households-acquire-their-foods-correlates-with-nutritional-quality/. Accessed September 4, 2019.

[iii] Rivlin G, Almy J, Wootan M. *Rigged: Supermarket Shelves for Sale*. The Center for Science in the Public Interest. 2016. https://cspinet.org/sites/default/files/attachment/CSPI_Rigged_4_small.pdf. Accessed September 4, 2019.

[iv] U.S. Department of Health and Human Services and U.S. Department of Agriculture. *2020-2025 Dietary Guidelines for Americans*. 2020. https://www.dietaryguidelines.gov/sites/default/files/2021-03/Dietary_Guidelines_for_Americans-2020-2025.pdf. p. 43. Accessed May 6, 2021.

[1] Mancino, 2018.

[2] U.S. Department of Health and Human Services and U.S. Department of Agriculture. *2015-2020 Dietary Guidelines for Americans*. 2015. https://health.gov/sites/default/files/2019-09/2015-2020_Dietary_Guidelines.pdf. Accessed September 4, 2019.

[3] Rivlin, 2016.

[4] Yach D, et al. The Role and Challenges of the Food Industry in Addressing Chronic Disease. *Glob Health*. 2010;6:10.

[5] Drewnowski A, Rehm CD. Consumption of added sugars among US children and adults by food purchase location and food source. *Am J Clin Nutr*. 2014;100(3):901–907. 2020-2025 DGA figure 1-10 p. 43.

[6] Cohen DA, et al. Beverage marketing in retail outlets and The Balance Calories Initiative. *Prev Med*. 2018;115:1-7.

[7] Fielding-Singh P, Almy J, Wootan MG. *Sugar Overload: Retail Checkout Promotes Obesity*. The Center for Science in the Public Interest. 2014. https://cspinet.org/sites/default/files/attachment/sugaroverload.pdf. Accessed September 4, 2019.

[8] U.S. Federal Trade Commission. A *Review of Marketing Food to Children and Adolescents: Follow-up Report*. 2012. http://www.ftc.gov/os/2012/12/121221foodmarketingreport.pdf. Accessed September 4, 2019.

[9] Rosinger A, et al. *Sugar-sweetened Beverage Consumption Among U.S. Youth, 2011-2014*. National Center for Health Statistics. 2017. https://www.cdc.gov/nchs/data/databriefs/db271.pdf. Accessed September 4, 2019.

[10] Poti JM, Slining MM, Kenan Jr. WR. Where are kids getting their empty calories? Stores, schools, and fast food restaurants each play an important role in empty calorie intake among US children in 2009-2010. *J Acad Nutr Diet*. 2014;114(6):908-917.

[11] An R, Maurer G. Consumption of Sugar-Sweetened Beverages and Discretionary Foods among US Adults by Purchase Location. *Eur J Clin Nutr*. 2016;70:1396-1400.

[12] Cassady BA, Considine RV, Mattes RD. Beverage consumption, appetite, and energy intake: what did you expect? *Am J Clin Nutr.* 2012 Mar;95(3):587-93. doi: 10.3945/ajcn.111.025437. Epub 2012 Jan 18. PMID: 22258267; PMCID: PMC3278240.

[13] Centers for Disease Control and Prevention. *Get the Facts: Sugar-Sweetened Beverages and Consumption*. https://www.cdc.gov/nutrition/data-statistics/sugar-sweetened-beverages-intake.html. Accessed November 12, 2019.

[14] Arnett DK, et al. 2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease: Executive Summary. *J Am Coll Cardiol*. 2019;74(10):1376-1414.

[15] American Medical Association. *Strategies to Reduce the Consumption of Beverages with Added Sweeteners H-150.927*. 2017. https://policysearch.ama-assn.org/policyfinder/detail/sugar-sweetened%20beverages?uri=%2FAMADoc%2FHOD.xml-H-150.927.xml. Accessed November 12, 2019.

[16] American Diabetes Association. 5. Lifestyle Management: Standards of Medical Care in Diabetes—2019. *Diabetes Care*. 2019;42(Suppl. 1):S46-S60.

[17] American Public Health Association. *Taxes on Sugar-Sweetened Beverages*. 2012. https://www.apha.org/policies-and-advocacy/public-health-policy-statements/policy-database/2014/07/23/13/59/taxes-on-sugar-sweetened-beverages. Accessed November 12, 2019.

[18] Institute of Medicine. *Accelerating Progress in Obesity Prevention: Solving the Weight of the Nation*. The National Academies Press. 2012. https://www.nap.edu/catalog/13275/accelerating-progress-in-obesity-prevention-solving-the-weight-of-the. Accessed November 12, 2019.

[19] World Health Organization. *Guideline: Sugar intake for adults and children*. 2015. https://www.who.int/nutrition/publications/guidelines/sugars_intake/en/. 16. Accessed November 12, 2019.

[20] S. Department of Health and Human Services and U.S. Department of Agriculture, 2015. 2020-2025 DGA.

[21] Cohen, 2018.

[22] Progressive Grocer. *The Top 50 Grocers of 2019, Ranked*. May 10, 2019. https://progressivegrocer.com/top-50-grocers-2019-ranked/. Accessed June 3, 2019.

[23] Cohen, 2018.

[24] Washington DC Economic Partnership. *Retail & Restaurants*. https://wdcep.com/dc-industries/retail/. Accessed June 3, 2019.

[25] City of Hyattsville. Aldi Expansion Project. https://www.hyattsville.org/749/Aldi-Expansion-Project. Accessed March 18, 2021.

[26] Anderson J. Safeway's Ward 7 Monopoly, Explained. *Washington City Paper*. March 30, 2017. https://washingtoncitypaper.com/article/191558/safeways-ward-7-monopoly-explained/. Accessed March 18, 2021.

[27] U.S. Census Bureau (2017). Income in the Past 12 Months (in 2017 Inflation-Adjusted Dollars), American Community Survey 1-Year Subject Table S1901. Retrieved from https://data.census.gov/cedsci/table?q=District%20of%20Columbia%20Income%20and%20Poverty&tid=ACSST1Y2017.S1901&hidePreview=true. Accessed August 16, 2021.

[28] Cohen, 2018.

[29] FMI. *The Power of Health and Well-Being in Food Retail*. 2019. https://www.fmi.org/forms/store/ProductFormPublic/power-of-health-and-well-being-in-food-retail. Accessed September 4, 2019.

[30] International Food Information Council Foundation. *2019 Food & Health Survey*. 2019. https://foodinsight.org/wp-content/uploads/2019/05/IFIC-Foundation-2019-Food-and-Health-Report-FINAL.pdf. Accessed September 4, 2019.
[31] Raley's. *Raley's reimages check stands by reducing candy and offering "better for you" options*. https://www.raleys.com/news/raleys-reimagines-check-stands-by-reducing-candy-and-offering-better-for-you-options/. Accessed September 4, 2019.
[32] Center for Science in the Public Interest. *Berkeley City Council Approves Nation's First Healthy Checkout Policy*. September 23, 2020. https://cspinet.org/news/berkeley-city-council-approves-nations-first-healthy-checkout-20200923. Accessed April 5, 2021.
[33] A.B. 765, California Legislature, 2019 Sess. (Cal. 2019).