

Minimum Stocking Levels and Marketing Strategies of Healthful Foods for Small Retail Food Stores

Healthy Eating Research

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Introduction

The healthfulness of foods and beverages found in retail food stores differs widely across the United States, both by location of the store as well as by store type. Communities with predominantly white residents have two to four times more supermarkets and large-chain grocery stores than communities of color.^{1,2} In contrast, lower-income and communities of color have more small food outlets, such as small food stores (‘corner stores’) and convenience stores.^{1,3} These small food stores primarily tend to sell pre-packaged foods and beverages that are high in calories and poor in nutrients. They are also less likely to sell healthy, staple foods such as fruits and vegetables, whole grain-rich foods, and low-fat dairy products.⁴⁻⁸

Thus, some communities have limited access to stores that carry healthful foods, and these limitations likely contribute, at least in part, to disparities in diet and health.^{9,10} As such, several strategies are now being implemented in many locations across the United States to increase access to healthy foods in underserved communities.

One strategy is to attract grocery stores or supermarkets that currently are not located in these lower-income neighborhoods and communities of color. However, opening a new store requires substantial investments, and it is not clear that this strategy is feasible and/or appropriate in all settings.

A second strategy is to improve the healthfulness of foods and beverages sold by existing food retailers in underserved communities, including retailers that are both small and large in size. Evaluations of “healthy corner store” programs have demonstrated success in increasing the availability, visibility, affordability, promotion, and sales of healthy foods and beverages in small stores.¹¹⁻¹³

Whether the goal is to attract new stores to a neighborhood or change the ones that already exist, there is a need to identify the minimum amounts of healthful foods and beverages that stores, particularly smaller food stores, should stock on their shelves. There is also a need to recommend how these healthful foods and beverages should be marketed to consumers. Carrying healthful foods and beverages, but not effectively marketing them, is unlikely to have an impact on the purchase and consumption of these items.



Rationale

This report is aimed at pointing out the need for both carrying healthful foods and beverages and marketing them. It identifies basic, minimum stocking levels for healthful foods and beverages in small retail food stores. For stores already meeting these basic levels, it identifies preferred levels of stocking that provide access to a wider range and larger supply of healthful foods and beverages. The report also provides marketing strategies that stores should adopt to enhance sales of healthful foods and beverages.

The report is expected to help local, state, and federal efforts to improve the healthfulness of foods and beverages sold in a variety of small retail food stores. It could be used in setting standards for financing of new retail food stores in underserved communities, designing “healthy retailer” certification programs, and other local policies and initiatives. The recommendations in this report may also be used to inform policies for stores participating in ongoing federal programs, like the United States Department of Agriculture’s (USDA) Supplemental Nutrition Assistance Program (SNAP). Many of these stores do not currently stock a variety of healthy offerings.⁷

Expert Panel Recommendations

The recommendations included in this report were developed by a panel of experts in food retail, nutrition, and obesity prevention. The panel was convened in 2015 by *Healthy Eating Research*, a national program of the Robert Wood Johnson Foundation.

To develop minimum stocking levels, the panel reviewed and analyzed evidence from a wide range of sources, including: peer-reviewed, scientific research; recommendations and guidelines from the federal government, scientific bodies, national organizations, and public health organizations;¹⁴⁻²⁸ and existing requirements for retailers participating in nutrition- and/or health-related policies and programs at the local, state, and national levels.²⁹⁻³⁴ Recognizing that increasing customer demand is an important complement to increasing availability of healthy foods, the panel also developed recommendations for evidence- and practice-based strategies to increase healthy food and beverage sales through retailer marketing, particularly in-store marketing strategies.³⁵⁻⁵⁵

For more information on the panel process and methods used to develop these recommendations, please see Appendix I.

Definition of Small Retail Food Stores

For the purposes of this report, *retail food stores* are broadly defined as stores that have retail floor space dedicated to foods and/or beverages.*

This definition includes stores that sell a range of merchandise, including foods and beverages as well as other products (e.g., dollar stores, retail pharmacies); however, those stores that primarily sell non-food merchandise but often have foods and beverages in checkout areas are not included (e.g., home goods stores, electronics stores, office supply stores). Improving the healthfulness of foods and beverages promoted and sold in these types of stores should be addressed in future work. Regardless of type, all retail stores participating in federal nutrition assistance programs, such as SNAP or the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), are included in this definition. Stores not authorized to accept SNAP or WIC may also be included if they meet the definition above. Additionally, the definition of retail food stores here does not include farmers markets or mobile food vendors.

For the purposes of this report, *small retail food stores* are limited to those that meet the definition above and have no more than three cash registers that may be used for food and/or beverage transactions.

Basic and Preferred Stocking Levels

The stocking levels established by the expert panel are structured around food categories and nutrition guidelines in the *Dietary Guidelines for Americans*.¹⁶ The categories include: fruits and vegetables, low- and non-fat dairy and fortified soy beverages, whole grain-rich staple foods, and meat/protein, plus an additional category for healthy beverages.

Each food category has qualifying nutrition and/or size standards. For example, qualifying varieties of canned fruits and vegetables must be packed in water, 100 percent juice, extra light syrup, or light syrup, with no other added ingredients. Qualifying varieties of milk and fortified soy beverages include unsweetened and unflavored fat-free (skim) or low-fat (1%) milk and “plain” or “original” soy beverages fortified with calcium and vitamins A and D, and must be in package sizes of one half-gallon or larger. Other food categories have similar qualifying standards identified in Table 2. The panel’s recommendations focus on foods intended to be consumed routinely for meals, rather than snacks.

Two levels of stocking healthful foods and beverages are outlined for small retail food stores, a basic and a preferred level.

* To establish the focus of this report and the scope of stores to which these recommendations would apply, the panel reviewed retail segment definitions from the Food Marketing Institute and the North American Industry Classification System (NAICS) codes.

Two levels were established to give retailers flexibility, while also setting aspirational goals, and to recognize differences in business models, sales volume, distribution channels, and other logistical challenges across stores. The primary difference between the basic and preferred levels is the amount and variety of healthful foods and beverages required. To achieve either level, retailers must meet the stocking requirements in all product categories outlined for that level.

Marketing Strategies

The marketing strategies outlined in Table 3 are intended for use by all small retail food stores, regardless of whether those retailers are meeting basic or preferred levels of healthful food stocking. Minimum requirements set forth by the panel would include utilization of at least one strategy from each category (placement, price, promotion) detailed in the table. The panel recognized that the combination of multiple strategies would be better than employing one strategy alone and that different

strategies may be more or less effective for different product categories and different store types. To the extent possible, these strategies should be given consideration as retailers negotiate agreements with manufacturers and distributors on product placement, promotion, and pricing issues.

The expert panel's recommendations are based on the best available science and current practices in the field for promoting more healthful (versus less healthful) foods and beverages, as described in the appendix. However, the health-related, peer-reviewed literature on this issue is limited and lacks the depth and breadth for the panel to issue additional recommendations beyond those included in Table 3. In particular, there is limited evidence on the specific minimum amount of healthful food and beverage marketing needed to change purchasing behaviors (and whether this varies by food/beverage category), or whether specific combinations of marketing strategies are more effective than others in influencing healthy purchasing decisions.



Table 1. Healthful Food/Beverage Stocking Levels for Small Retail Food Stores

Basic	Fruits and Vegetables^a	<ul style="list-style-type: none"> ■ 4 varieties of qualifying fruits, up to 2 of which may be canned or frozen AND ■ 6 varieties of qualifying vegetables, up to 2 of which may be canned or frozen ■ At least 1 vegetable variety must be dark green or red/orange, as defined by USDA ■ In total, at least 30 pounds of qualifying fruits and vegetables ■ No more than 50% of minimum eligible stock from 1 variety
	Dairy and Fortified Soy Beverages^b	<ul style="list-style-type: none"> ■ At least 5 gallons of qualifying milk or fortified soy beverage in at least 1 variety ■ At least 32 ounces of qualifying yogurt ■ At least 2 pounds of low-fat, part-skim, or fat-free cheese (only required if any cheese is stocked)
	Whole Grain-Rich Staple Products^c	<ul style="list-style-type: none"> ■ At least 5 pounds of whole grain-rich staple products (not including breakfast cereal) in any combination of at least 2 varieties ■ At least 4 containers (with 11 or more ounces) of whole grain-rich breakfast cereal in any combination of at least 3 varieties
	Meat/ Protein^d	<ul style="list-style-type: none"> ■ At least 4 varieties of any of the following: qualifying meat products, poultry, fish, eggs, dried or canned beans, dried split peas, black-eyed peas, lentils, soybean products (including tofu), nuts, or nut butter ■ At least 1 variety of lean or extra lean red meat (only required if any red meat is stocked)
	Beverages^e	<ul style="list-style-type: none"> ■ Plain bottled water in any container size, but at least the equivalent of twenty-four 16-ounce bottles or 384 ounces ■ If fountain beverages are available, at least 1 option must be plain water, at least 1 additional option must have no more than 40 calories per 8-ounce serving, and at least 1 container size 12 ounces or less must be available ■ For 100% fruit or vegetable juice, at least 6 family-sized containers (≥59-ounce containers or 11.5-12 ounces frozen or non-frozen concentrate) OR twenty-four 8-ounce bottles in at least 1 variety must be available (only if any juice or juice-flavored beverages are stocked)
Preferred	Fruits and Vegetables^a	<ul style="list-style-type: none"> ■ 6 varieties of qualifying fruits, up to 3 of which may be canned or frozen AND ■ 8 varieties of qualifying vegetables, up to 4 of which may be canned or frozen ■ At least 2 vegetable varieties must be dark green or red/orange, as defined by USDA ■ In total, at least 45 pounds of qualifying fruit and vegetables ■ No more than 50% of the total stock being from 1 variety
	Dairy and Fortified Soy Beverages^b	<ul style="list-style-type: none"> ■ At least 10 gallons of qualifying milk or fortified soy beverage in any combination of at least 2 varieties ■ At least 64 ounces of qualifying yogurt in any combination of at least 2 varieties ■ At least 4 pounds of low-fat, skim, or fat-free cheese in any combination of at least 2 varieties (only required if any cheese is stocked)
	Whole Grain-Rich Staple Products^c	<ul style="list-style-type: none"> ■ At least 10 pounds of whole grain-rich staple products (not including breakfast cereal) in any combination of at least 2 varieties ■ At least 12 containers (with 11 or more ounces) of whole grain-rich cereal in any combination of at least 4 varieties
	Meat/ Protein^d	<ul style="list-style-type: none"> ■ At least 8 varieties of any of the following: qualifying meat products, poultry, fish, eggs, dried or canned beans, dried split peas, black-eyed peas, lentils, soybean products (including tofu), nuts, or nut butter ■ At least 1 variety of lean or extra lean red meat (only if any red meat is stocked)
	Beverages^e	<ul style="list-style-type: none"> ■ Plain bottled water in any container size, but at least the equivalent of twenty-four 16-ounce bottles or 384 ounces ■ If fountain beverages are available, at least 1 option must be plain water, at least 2 additional options must have no more than 40 calories per 8-ounce serving, and at least 1 container size 12 ounces or less must be available ■ For 100% fruit or vegetable juice, at least 12 family-sized containers (≥59-ounce containers or 11.5-12 ounces frozen or non-frozen concentrate) OR forty-eight 8-ounce bottles in at least 2 varieties must be available (only if any juice or juice-flavored beverages are stocked) ■ Fountain beverages must be sold in containers no larger than 16 ounces ■ Access must be provided to dispensed potable water, free of charge

Table 2. Qualifying Food Standards

<p>^a Fruits and Vegetables:^{14,20,21,29,33}</p>	<p>All products must be non-expired and non-spoiled. Qualifying varieties of canned and frozen fruit must be packed in water, 100% juice, extra light syrup, or light syrup, with no other added ingredients. Canned and frozen vegetables must have no added ingredients except water or a small amount of sugar for processing purposes to maintain the quality and structure of the vegetable, and must be low sodium (no more than 240 mg per serving). The following may not be included to meet the minimum stock: fruit or vegetable juice, garlic, herbs, condiments, ginger root, lemons, and limes.</p>
<p>^b Dairy and Fortified Soy Beverages:^{15,16,24,25,28,29,33}</p>	<p>Qualifying varieties of milk and fortified soy beverages include unsweetened and unflavored fat-free (skim) milk, low-fat (1%) milk, and “plain” or “original” soy beverages fortified with calcium and vitamins A and D. Milk and fortified soy beverages must be in package sizes of one half-gallon or larger. Qualifying yogurt must have no more than 23 grams of total sugar per 6-ounce serving and does not include frozen yogurt or yogurt with mix-in ingredients, such as granola or candy. Qualifying cheese does not include processed cheese products or cheese packaged with other foods, such as meat.</p>
<p>^c Whole Grain-Rich Staple Products:^{15,16,20,22,23,26}</p>	<p>Whole grain-rich staple products are defined as those for which a whole grain is the first ingredient. Whole grain-rich snacks and sweets, such as tortilla chips and granola bars, do not qualify given the focus of these recommendations on staple foods, as opposed to snack foods. Qualifying varieties include but are not limited to whole grain bread, brown rice, whole wheat or whole corn tortillas, quinoa, and barley. Qualifying whole grain-rich cereal must have no more than 21.2 grams of total sugar per 100 grams of cereal (e.g., whole grain cereals that meet WIC standard for total sugar) or no more than 6 grams per 1 dry ounce, and be in packages of at least 11 ounces. Specific examples of whole grain-rich cereals that meet the WIC standards can be found at: http://www.fns.usda.gov/wic/links-state-agency-wic-approved-food-lists.</p>
<p>^d Meat/Protein:^{14,27,29-33}</p>	<p>Qualifying meat products are cuts of meat or deli meat that are labeled by USDA as lean or extra lean. Qualifying meat products, poultry, fish, eggs, dried or canned beans, dried split peas, black-eyed peas, lentils, and soybean products (including tofu) must be plain and packaged with no oils, sauces, or other food products. All products in this category must be low sodium (no more than 360 mg per serving). Beef jerky, pork rinds, or wasabi peas do not qualify. Nuts must have no added sugar and nut butter must be packaged with no other food products such as jelly, jam, chocolate, or honey.</p>
<p>^e Beverages:^{17,19,20,29,31,32}</p>	<p>Qualifying water must be plain and unflavored, with or without carbonation, in any size container. Qualifying juice must be 100% pure and unsweetened fruit or vegetable juice. Qualifying vegetable juices must contain no more than 140 milligrams of sodium per serving.</p>

Table 3. Marketing Strategies for Retailers

Category	Strategy #	Strategies
Placement	1	<p>Place <i>healthier foods and beverages</i> (see Glossary) in multiple prominent locations throughout the store, including:</p> <ul style="list-style-type: none"> – at eye level for adults or children, as appropriate – in end caps – in facing aisles (e.g., healthier products placed on both sides of an aisle such that they face each other) – in merchandising displays – in aisles facing the entrance and/or exit – in grab-&-go display cases near the entrance or checkout area
	2	<p>Stock only healthier foods and beverages and/or non-food items in some or all <i>checkout areas</i> (see Glossary) OR increase the proportion of healthier foods and beverages and/or non-food items found in all checkout areas.</p>
	3	<p>Cross-merchandise healthier foods and beverages by placing <i>complementary products</i> (see Glossary) near each other in the store.</p>
Price	4	<p>Offer at least a 10% price discount in promotions for fruits and vegetables through coupons, vouchers, rebates, or other methods.</p>
	5	<p>Offer at least a 10% price discount in promotions for healthier versions of products within a product category (e.g., fat-free or low-fat milk versus whole milk; whole grain-rich bread versus white bread).</p>
	6	<p>Use <i>proportional pricing</i> (see Glossary), as opposed to value pricing, for full-calorie fountain beverages (e.g., pricing a 16-ounce beverage at no less than twice that of an 8-ounce beverage).</p>
Promotion	7	<p>Cross-promote healthier foods and beverages by offering price promotions for complementary products purchased together (e.g., through use of circulars, digital media, and/or in-store signage).</p>
	8	<p>Use shelf tags, labels, tear off cards, and/or other point-of-purchase signage to promote healthier foods and beverages.</p>

Glossary

Checkout area is defined as any area accessible to a customer that is within six feet of any cash register or in an area where the store directs customers to wait in line to make a purchase.⁵⁶ This includes spaces on the checkout counter, below the checkout counter, and the aisles, end caps, and merchandising displays surrounding the cash registers and areas where customers wait in line.

Complementary products are products that are typically purchased together.³⁷ For example, whole grain-rich cereal and bananas, or whole grain-rich tortillas and lean ground beef.

Healthier foods and beverages are products that meet the standards for the stocking levels outlined in this report as well as products that meet national recommendations for healthy beverages¹⁷ and healthy snacks.^{18,20}

Proportional pricing is defined as pricing products with a consistent unit price, regardless of the volume purchased (e.g., a 16-ounce beverage costs twice as much as an 8-ounce beverage).⁴² This is in contrast to 'value pricing,' in which the unit price decreases as the volume purchased increases. In other words, a discount is given for purchasing larger quantities (e.g., a 16-ounce beverage costs less than two 8-ounce beverages).

Variety is any single kind of product, regardless of form, processing, and/or package size. For example, "apple" constitutes one variety regardless of type (e.g., granny smith, golden delicious, honey crisp). "Cheddar cheese" constitutes one variety regardless of whether it is sold in block, sliced, or shredded forms.²⁹

Conclusion

In considering recommendations for minimum stocking levels and marketing strategies for small retail food stores, the panel recognized that increasing the availability of healthy foods is likely insufficient to induce population-wide changes in eating practices; however, it is a necessary component of a comprehensive strategy that addresses both supply-side and demand-side barriers to healthy eating in an economically sustainable way. Future work should address specific stocking and marketing practices that could be employed by larger

retail food stores, such as large grocery stores and supermarkets, to promote healthier food and beverage purchases while remaining revenue-neutral. Future work should also examine strategies for engaging food manufacturers and distributors in discussions on healthier food and beverage placement, pricing, and promotion in retail outlets, and how these healthy strategies could be incentivized in retail outlets in a way that benefits all parties involved, including manufacturers, distributors, retailers, and customers.

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Appendix I: Expert Panel Process and Methods

To develop recommendations for minimum stocking levels, the panel reviewed and analyzed evidence from a wide range of sources, including: peer-reviewed, scientific research; recommendations and guidelines from the federal government, scientific bodies, national organizations, and public health organizations;¹⁴⁻²⁸ and existing requirements for retailers participating in nutrition- and/or health-related policies and programs at the local, state, and national levels, including a 50-state analysis of the distribution of and heterogeneity in minimum stocking requirements for WIC-participating retailers.²⁹⁻³⁴ Two stocking levels were established, including a basic level and a preferred level, so as to provide both achievable and aspirational recommendations for small stores. Recognizing that increasing customer demand is an important complement to increasing availability of healthy foods, the panel also developed recommendations for evidence- and practice-based strategies to increase healthy food and beverage sales through retailer marketing, particularly in-store marketing strategies. The panel considered peer-reviewed research from the health sciences and, to a lesser extent, reports from public health organizations and healthy food marketing literature.³⁵⁻⁵⁵

Expert Panel Recommendations

The expert panel's recommendations are based on the best available science and current practices in the field for promoting more healthful (versus less healthful) foods and beverages. There is a critical need for rigorous store-based evaluations of effective and feasible strategies for retailers to specifically increase sales of healthy products, particularly where healthier products are purchased in lieu of less healthy products. The panel's recommendations are intended for use by small retail food stores (i.e., those with no more than three cash registers).

Minimum Stocking Levels

As described in the body of the report, the basic and preferred stocking levels developed by the panel are structured around food categories identified by the 2015 *Dietary Guidelines for Americans*,¹⁶ and are aligned with those currently used by federal nutrition assistance programs. These stocking levels include minimum quantities and varieties of products that meet specific nutrition and package-size standards in each of these categories. Where possible, nutrition standards were based on widely-accepted national guidelines, such as the *Dietary Guidelines for Americans*.^{15,16} Minimum package sizes were primarily based on standard industry sizes for staple foods, as well as package sizes approved for inclusion in the WIC program, to ensure value for the customer.

For some product categories (i.e., juice/juice-flavored beverages, such as fruit punch and other fruit-flavored juice drinks;

cheese; red meat), stocking levels were specified only for stores already stocking products in that category. The panel made this distinction because some stores serving specific ethnic or cultural groups may not stock every product category given that some of these foods may not be culturally appropriate. These products are also not necessary to obtain a balanced diet.^{15,16}

Marketing Strategies

The expert panel also considered evidence- and practice-based marketing strategies to increase sales of the healthy foods and beverages specified in the stocking levels. The panel recognized that increasing customer demand for these products is a critical complement to increasing availability, particularly in order to achieve the dual goals of health promotion and a financially viable retail food sector.

The marketing strategies outlined in Table 3 are indicated for use by all small retail food stores, regardless of whether retailers are meeting basic or preferred levels of healthful food stocking. The panel recognizes that some strategies may be immediately employable, whereas others—particularly those subject to formal contracts or even informal agreements with food manufacturers or distributors—may take time to implement. To the extent possible, these recommended strategies should be given consideration as retailers negotiate agreements with manufacturers and distributors (e.g., product placement in the store), and future work should examine strategies for engaging these 'upstream' stakeholders in discussions and recommendations for healthier food placement, pricing, and promotion in retail outlets. Furthermore, food manufacturers, distributors, and retailers could support efforts to create healthier retail food environments by sharing information about these agreements with researchers in ways that protect competitively sensitive information.

Rationale for use of product placement strategies

Food marketing literature indicates that shoppers most often notice end-of-aisle displays, merchandising displays, and in-store signage. These placement strategies, plus product information on shelves, are reportedly the most influential on customers' purchase decisions.³⁵ Placing products on facing aisles, end-of-aisle displays, and checkout aisles, as well as with complementary products, can increase purchases of some products.^{35-37,39} Sugar-sweetened beverages (SSBs) and energy drinks are among the most commonly found products in checkout aisles,⁴⁰ and one recent intervention study found that water sales in checkout aisles increased after placing healthier beverages at eye level and dedicating 50 percent of beverage facings to healthier beverages.³⁶ Various product placement strategies have been used in healthy corner store programs around the country,^{11,12} and are beginning to be rigorously evaluated in the public health literature.^{35,36}

Rationale for use of pricing strategies

In general, price reductions (e.g., through discounts and vouchers) increase purchasing, and price increases (e.g., through taxes) decrease purchasing.^{38,41-43} However, less is known about whether price changes induce substitution of healthier products for less healthy products. Some evidence indicates that price reductions on healthier foods may increase purchases of both healthier and less healthy foods, which could result in an increase in total calories purchased and limit the impact of pricing strategies on obesity.^{41,42} There is also evidence that price reductions can be revenue neutral for the retailer when they result in increased purchases of healthier foods.⁴² Most research on the price impacts on healthy food purchasing has focused on discounts or vouchers for fruit and vegetable purchases and indicates that price reductions of at least 10 percent can increase purchasing of these items.^{43,44}

Regarding proportional pricing for SSBs, only a few studies have examined proportional pricing interventions directly. Overall, findings indicate that this strategy did not have a significant effect on the general public,⁴⁵⁻⁴⁷ but may be

effective in reducing calories purchased among overweight customers.⁴⁵ This strategy may also be helpful as part of a more comprehensive set of marketing strategies intended to increase the healthfulness of purchases.

Rationale for use of promotion strategies

Marketing literature indicates that cross-promotion of complementary products increases sales, but to our knowledge there have been no published scientific evaluations of the effect of this strategy on healthful food and beverage purchases in real-world settings.³⁵ Previous peer-reviewed research has also shown that the provision of product nutrition information or education in stores is mostly ineffective on its own but may be helpful in combination with other strategies, such as pricing and placement strategies.^{35,48-52} Promising new strategies, such as shopper marketing and the use of social messaging, are also emerging in the literature as an innovative way to influence shopper behavior and increase healthier food purchasing, and should continue to be evaluated.^{53-55,57} Note that any regulatory policy prohibiting or requiring speech, including advertising, could have First Amendment implications, and should be reviewed by an attorney.



References

1. Morland K, Wing S, Diez Roux A, Poole C. Neighborhood characteristics associated with the location of food stores and food service places. *Am J Prev Med.* 2002;22(1):23-29.
2. Powell LM, Slater S, Mirtcheva D, Bao Y, Chaloupka FJ. Food store availability and neighborhood characteristics in the United States. *Prev Med.* 2007;44(3):189-195.
3. Cannuscio CC, Tappe K, Hillier A, Buttenheim A, Karpyn A, Glanz K. Urban food environments and residents' shopping behaviors. *Am J Prev Med.* 2013;45(5):606-614.
4. Cavanaugh E, Mallya G, Brensigner C, Tierney A, Glanz K. Nutrition environments in corner stores in Philadelphia. *Prev Med.* 2013;56(2):149-151.
5. Lucan SC, Karpyn A, Sherman S. Storing empty calories and chronic disease risk: Snack-food products, nutritive content, and manufacturers in Philadelphia corner stores. *J Urban Health.* 2010;87(3):394-409.
6. Laska MN, Borradaile KE, Tester J, Foster GD, Gittelsohn J. Healthy food availability in small urban food stores: A comparison of four US cities. *Public Health Nutr.* 2010;13(7):1031-1035.
7. Laska MN, Caspi CE, Pelletier JE, Frieubur R, Harnack LJ. Lack of healthy food in small-size to mid-size retailers participating in the Supplemental Nutrition Assistance Program, Minneapolis-St. Paul, Minnesota, 2014. *Prev Chronic Dis.* 2015;12:E135.
8. Caspi CE, Pelletier JE, Harnack L, Erickson DJ, Laska MN. Differences in healthy food supply and stocking practices between small grocery stores, gas-marts, pharmacies and dollar stores. *Public Health Nutr.* In Press. DOI: [dx.doi.org/10.1017/S1368980015002724](https://doi.org/10.1017/S1368980015002724).
9. Larson NI, Story MT, Nelson MC. Neighborhood environments: Disparities in access to healthy foods in the U.S. *Am J Prev Med.* 2009;36(1):74-81.
10. Cannuscio CC, Weiss EE, Asch DA. The contribution of urban foodways to health disparities. *J Urban Health.* 2010;87(3):381-393.
11. Gittelsohn J, Rowan M, Gadhoke P. Interventions in small food stores to change the food environment, improve diet, and reduce risk of chronic disease. *Prev Chronic Dis.* 2012;9:110015. DOI: [dx.doi.org/10.5888/pcd9.110015](https://doi.org/10.5888/pcd9.110015).
12. Langellier B, Garza J, Prelep M, Gilk D, Brookmeyer R, Ortega A. Corner store inventories, purchases, and strategies for intervention, a review of the literature. *Calif J Health Promot.* 2013;11(3):1-13.
13. Paek HJ, Oh HJ, Jung Y, et al. Assessment of a healthy corner store program (FIT Store) in low-income, urban, and ethnically diverse neighborhoods in Michigan. *Fam Community Health.* 2014;37(1):86-99.
14. American Heart Association. Heart-Check Food Certification Program Nutrition Requirements. http://www.heart.org/HEARTORG/GettingHealthy/NutritionCenter/Heart-CheckMarkCertification/Heart-Check-Food-Certification-Program-Nutrition-Requirements_UCM_300914_Article.jsp. Updated August 18, 2015. Accessed September 15, 2015.
15. Dietary Guidelines Advisory Committee. *Report of the Dietary Guidelines Advisory Committee on the Dietary Guidelines for Americans, 2010, to the Secretary of Agriculture and the Secretary of Health and Human Services.* Washington, D.C.: United States Department of Agriculture, Agricultural Research Service; 2010.
16. Dietary Guidelines Advisory Committee. *Scientific Report of the 2015 Dietary Guidelines Advisory Committee to the Secretary of Agriculture and the Secretary of Health and Human Services.* Washington, D.C.: United States Department of Agriculture, Agricultural Research Service; 2015.
17. Healthy Eating Research. *Recommendations for Healthier Beverages.* Minneapolis, MN: Healthy Eating Research; 2013.
18. National Alliance for Nutrition & Activity. Model Beverage and Food Vending Machine Standards. Accessed at: <http://cspinet.org/new/pdf/final-model-vending-standards.pdf>.
19. The Federal Health and Sustainability Team for Concessions and Vending. *Health and Sustainability Guidelines for Federal Concessions and Vending Operations.* Atlanta, GA: U.S. Department of Health and Human Services, General Services Administration, and the Centers for Disease Control and Prevention; 2012.
20. United States Department of Agriculture. Smart Snacks in Schools: USDA's "All Foods Sold in Schools" Standards. http://www.fns.usda.gov/sites/default/files/allfoods_flyer.pdf. Accessed September 15, 2015.
21. United States Department of Agriculture. Vegetables Gallery: Choose MyPlate. <http://www.choosemyplate.gov/foodgallery-vegetables>. Accessed September 15, 2015.
22. United States Department of Agriculture. What We Eat in America Food Categories. <http://www.ars.usda.gov/Services/docs.htm?docid=23429>. Accessed September 15, 2015.
23. 7 CFR-National School Lunch Program. *7 CFR 210. 11*.
24. 21 CFR Part 133- Cheese and Cheese-Related Products. *21CFR133. 188*.
25. 21 CFR Part 101-Food Labeling. *21CFR101. 62*.
26. 7 CFR Part 246-Special Supplemental Nutrition Program for Women, Infants, and Children. *7 CFR 246. 10*.
27. 9 CFR Part 317 - Nutrient Content Claims for Fat, Fatty Acids, and Cholesterol Content. *9 C.F.R. § 317. 362*.
28. Institute of Medicine. *Nutrition Standards for Foods in Schools: Leading the Way toward Healthier Youth.* Washington, D.C.: Institute of Medicine; 2007.
29. City of Minneapolis. Staple Foods Ordinance (Minneapolis Code of Ordinances Title 10, Chapter 203). <http://www.minneapolismn.gov/health/living/eating/staple-foods>. Accessed September 15, 2015.
30. City of Baldwin Park. Baldwin Park Administrative Policy #29 "Healthy Corner Store Policy." Baldwin Park, CA; 2014.
31. Philadelphia Healthy Corner Store Network. Healthy Corner Store Certification: Standards and Incentives for Becoming a Certified Healthy Corner Store. In: Health PDoP, ed. Philadelphia, PA: The Food Trust; 2013.
32. North Carolina Community Transformation Grant. Healthy Small Food Retail Store Criteria. 2013.
33. U.S. Department of Agriculture, Food and Nutrition Service. Women, Infants, and Children (WIC). <http://www.fns.usda.gov/wic/women-infants-and-children-wic>. Accessed September 18, 2015.
34. U.S. Department of Agriculture, Food and Nutrition Service. Supplemental Nutrition Assistance Program. <http://www.fns.usda.gov/snap/supplemental-nutrition-assistance-program-snap>. Accessed September 18, 2015.

35. Glanz K, Bader MD, Iyer S. Retail grocery store marketing strategies and obesity: an integrative review. *Am J Prev Med.* 2012;42(5):503-512.
36. Foster GD, Karpyn A, Wojtanowski AC, et al. Placement and promotion strategies to increase sales of healthier products in supermarkets in low-income, ethnically diverse neighborhoods: A randomized controlled trial. *Am J Clin Nutr.* 2014;99(6):1359-1368.
37. Shankar V, Kannan PK. An across-store analysis of intrinsic and extrinsic cross-category effects. *Customer Needs and Solutions.* 2014;1(2):143-153.
38. Andreyeva T, Long MW, Brownell KD. The impact of food prices on consumption: A systematic review of research on the price elasticity of demand for food. *Am J Public Health.* 2010;100(2):216-222.
39. Almy J, Wootan MG. *Temptation at Checkout: The Food Industry's Sneaky Strategy for Selling More.* Washington, D.C.: Center for Science in the Public Interest; 2015.
40. Fielding-Singh P, Almy J, Wootan MG. *Sugar Overload: Retail Checkout Promotes Obesity.* Washington, D.C.: Center for Science in the Public Interest; 2014.
41. Eyles H, Ni Mhurchu C, Nghiem N, Blakely T. Food pricing strategies, population diets, and non-communicable disease: A systematic review of simulation studies. *PLoS Med.* 2012;9(12):e1001353.
42. Epstein LH, Jankowiak N, Nederkoorn C, Raynor HA, French SA, Finkelstein E. Experimental research on the relation between food price changes and food-purchasing patterns: A targeted review. *Am J Clin Nutr.* 2012;95(4):789-809.
43. An R. Effectiveness of subsidies in promoting healthy food purchases and consumption: A review of field experiments. *Public Health Nutr.* 2013;16(7):1215-1228.
44. Powell LM, Chriqui JF, Khan T, Wada R, Chaloupka FJ. Assessing the potential effectiveness of food and beverage taxes and subsidies for improving public health: A systematic review of prices, demand and body weight outcomes. *Obes Rev.* 2013;14(2):110-128.
45. Vermeer WM, Altink E, Steenhuis IH, Seidell JC. Value for money or making the healthy choice: The impact of proportional pricing on consumers' portion size choices. *Eur J Public Health.* 2010;20(1):65-69.
46. Vermeer WM, Steenhuis IH, Poelman MP. Small, medium, large, or supersize? The development and evaluation of interventions targeted at portion size. *Int J Obes.* 2014;38(S13-S18).
47. Harnack LJ, French SA, Oakes JM, Story MT, Jeffery RW, Rydell SA. Effects of calorie labeling and value size pricing on fast food meal choices: Results from an experimental trial. *Int J Behav Nutr Phys Act.* 2008;5:63.
48. Glanz K, Hoelscher D. Increasing fruit and vegetable intake by changing environments, policy and pricing: Restaurant-based research, strategies, and recommendations. *Prev Med.* 2004;39 Suppl 2:S88-93.
49. Escaron AL, Meinen AM, Nitzke SA, Martinez-Donate AP. Supermarket and grocery store-based interventions to promote healthful food choices and eating practices: A systematic review. *Prev Chronic Dis.* 2013;10:E50.
50. Liberato SC, Ballie R, Brimblecombe J. Nutrition interventions at the point-of-sale to encourage healthier food purchasing: A systematic review. *BMC Public Health.* 2014;14:919-32.
51. van 't Riet J. Sales effects of product health information at points of purchase: A systematic review. *Public Health Nutr.* 2013;16(3):418-429.
52. Seymour JD, Yaroch AL, Serdula M, Blanck HM, Khan LK. Impact of nutrition environmental interventions on point-of-purchase behavior in adults: A review. *Prev Med.* 2004;39 Suppl 2:S108-136.
53. Payne CR, Niculescu M. Social meaning in supermarkets as a direct route to improve parents' fruit and vegetable purchases. *Agricultural and Resource Economics Review.* 2012;41(1):124-137.
54. Payne CR, Niculescu M, Just DR, Kelly MP. Shopper marketing nutrition interventions: Social norms on grocery carts increase produce spending without increasing shopper budgets. *Preventive Medicine Reports.* 2015;2:287-291.
55. Payne CR, Niculescu M, Just DR, Kelly MP. Shopper marketing nutrition interventions. *Physiol Behav.* 2014;136:111-120.
56. National Policy and Legal Analysis Network to Prevent Childhood Obesity (NPLAN). *Model Healthy Checkout Aisle Ordinance.* ChangeLab Solutions; 2015.
57. Shankar V, Inman JJ, Mantrala M, Kelley E, Rizley R. Innovations in shopper marketing: Current insights and future research issues. *Journal of Retailing.* 2011;87:S29-S42.

About Healthy Eating Research

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