

A National Research Agenda to Support Healthy Eating through Retail Strategies

Healthy Eating Research

November 2020



Introduction

In the United States, children and adults consume more calorie-dense, nutrient-poor foods and beverages, and fewer fruits, vegetables, and whole grains than recommended by the *Dietary Guidelines for Americans*, which aim to optimize health and reduce the risk of diet-related chronic disease.¹ These dietary practices put many people at elevated risk of chronic health conditions, including type 2 diabetes, heart disease, and obesity.² Socially disadvantaged communities of color are traditionally underserved by access to healthy foods and beverages, among other basic services, and are inequitably impacted by diet-related chronic disease.³

The food retail environment is an important driver of dietary choices. Consumers acquire three times more calories from supermarkets and other grocery retailers than from away-from-home sources, such as restaurants and schools.⁴ Large grocery stores (e.g., super stores, supermarkets, club stores, and wholesalers) account for the vast majority of at-home purchases across income groups, providing more than 65 percent of calories purchased.⁴ Small and specialty stores (e.g., farmers' markets and bakeries) and other retail food outlets (e.g., convenience, dollar, and drug stores), provide 3 percent and 6 percent of calories, respectively.⁴ While convenience and dollar stores represent a small proportion of total calories in the average diet, purchases at these outlets tend to be less healthy than those from supermarkets and club stores, and these outlets are more frequently patronized by people with low incomes compared to those with high incomes.^{4,5}

Food and beverage manufacturers pay retailers billions of dollars each year to market their products in stores, including through prominent placement, pricing, and other aggressive promotion strategies.⁶ This in-store marketing, which is more often for unhealthy products compared to healthy products, influences what shoppers buy and eat.^{7,8} Unhealthy food and beverage marketing can be especially pervasive in stores in communities of color and low-income communities. For example, sugar-sweetened beverage marketing has been shown to increase when Supplemental Nutrition Assistance Program (SNAP) benefits are distributed, particularly in neighborhoods with high SNAP participation.^{9,10} Whether these differences in marketing practices are due to manufacturers and retailers looking to reach a growing customer base, to attract customers at a time when food benefits are distributed, or to respond to trends in sales or perceived preferences, they have negative



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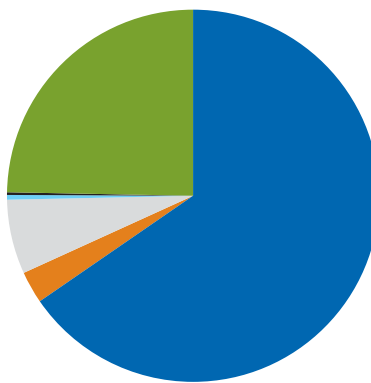
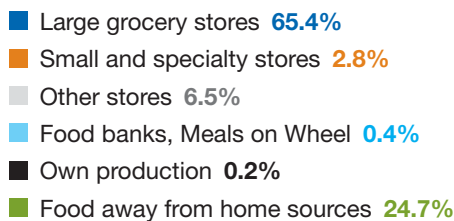
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Figure 1. Distribution of sources of household calories across food outlets for total U.S. population



Note: Food away from home includes restaurants, fast food establishments, school, work, friends and family, and others. Other stores include convenience/corner stores, dollar stores, drug stores, and others.

Source: USDA Economic Research Service estimates using data from USDA's National Household Food Acquisition and Purchase Survey collected between April 2012 and January 2013.⁴

implications for health equity.¹¹ Unhealthy food and beverage marketing has a powerful impact on dietary behaviors and may be linked to racial and ethnic disparities in diet-related outcomes, such as obesity and diabetes.⁸

Healthy retail is increasingly recognized as a priority issue among academics, government agencies, advocates, foundations, and other funders. In 2010, the Robert Wood Johnson Foundation (RWJF) and The Food Trust hosted the first convening of key stakeholders – including public health leaders, researchers, food retailers, manufacturers, and marketers – to discuss the role that supermarkets play in providing access to healthy food, and strategies they could use to promote healthy eating and discourage unhealthy options.¹² Since then, the federal Interagency Committee on Human Nutrition Research, which includes representatives from the U.S. Department of Agriculture (USDA) and U.S. Department of Health and Human Services (HHS), identified food retail as an area of interest in the *National Nutrition Research Roadmap for 2016–2021*.¹³ The Centers for Disease Control and Prevention (CDC) has published several reports citing healthy retail as a strategy to address chronic disease, including *Healthier Food Retail: An Action Guide for Public Health Practitioners*.^{14,15} With this increased recognition of healthy retail as a strategy to improve health and reduce disparities in diet-related chronic disease, there has been considerable investment in research in the field. The National Institutes of Health funded more than 200 grants related to food retail between 1985 and 2018.¹⁶ Healthy Eating Research (HER), a national program of RWJF, has made food retail a priority and has funded 35 retail-related research projects, including five through a special solicitation focused on in-store marketing. Together, in 2015, HER and CDC's Nutrition and Obesity Policy Research and Evaluation Network (NOPREN) launched the Healthy Food Retail (HFR) Working Group, which brings together researchers and others committed to identifying retail strategies that promote health. This group continues to be an important mechanism for inter-disciplinary collaboration and the identification of healthy food retail research needs.

Thanks to these and other investments, progress has been made toward designing retail interventions that promote healthy eating and to identify retail practices that undermine healthy eating. However, the food retail landscape continues to evolve: grocery store chains have consolidated, dollar stores have

gained market share, and some consumers have shifted their purchases online. This national research agenda outlines key research questions aiming to better understand current food retail practices and consumer behaviors and to identify potential retail strategies to support healthy eating, while reflecting advancements in research and changes in the food retail landscape. Special attention was also given to addressing racial and income disparities in diet quality and related diseases in the development of the research agenda. Research in these domains can guide changes to policy and corporate practice that improve the retail environment and promote health equity. This is the first national research agenda focused on healthy food retail.

Research Agenda Development Scope and Process

The research agenda was developed using a structured, mixed-methods approach that included the following steps: (1) convening of a scientific advisory committee; (2) five commissioned literature reviews and one original research project; (3) in-person convening of expert stakeholders in January 2020; (4) thematic analysis of convening notes and research questions raised at the meeting; (5) follow-up survey of convening participants; and (6) refinement of the research agenda, including input from the scientific advisory committee. This iterative process builds on similar methods used by others to develop research agendas.^{17,18,19} The collaborative agenda-setting process, which included perspective from experts in public health research, advocacy, food retail, and marketing, aimed to build consensus around key research gaps.

The scientific advisory committee was selected based on published work in the field, leadership in related working groups and professional organizations (e.g., the HER-NOPREN HFR Working Group), and history of work with RWJF/HER's priority populations (see definition in call out box). Eight researchers from government and academia representing a variety of substantive areas related to psychology, nutrition, health behavior, anthropology, and public policy were included. Advisory committee members provided input on literature review topics and the convening structure, agenda, and guest list; played an active role in note-taking and guiding small group discussions at the convening; and provided critical feedback on the follow-up survey and final research agenda.

Five systematic reviews and one original analysis were commissioned for the in-person meeting, with the aim of providing an overview of the existing literature on key topics, guiding discussion at the convening, and informing research question generation. Commissioned papers were organized into three themes: (1) retail environment and practices, which included reviews on (a) the influence of food and beverage companies on food retail and (b) current practices in the stocking and marketing of sugar-sweetened beverages; (2) consumer shopping patterns, which included a literature review and original analysis of food purchasing trends by race/ethnicity, socioeconomic status, and geographic location (urban v. rural); and (3) effectiveness of retail interventions, which included two literature reviews on (a) governmental policies to improve healthy food access in supermarkets (e.g., sugary drink taxes, revisions to the USDA Special Supplemental Nutrition Program for Women, Infants and Children (WIC) food package) and (b) in-store interventions aimed at promoting healthy food and beverage purchases. Findings from these commissioned research projects, which were completed by experts in the field, as well as an article that provides greater detail on the agenda-setting methods and survey results are published in the “*Retail Strategies to Support Healthy Eating*” special issue of the *International Journal of Environmental Research and Public Health*.

Forty-six expert stakeholders representing a wide range of academia, government, advocacy groups, and food and retail industry were convened for a full-day meeting in Washington, D.C. on January 29, 2020. The meeting aimed to: (1) summarize the effectiveness of government policies, corporate practices, and in-store pilots for promoting healthy food purchases and reducing unhealthy food purchases; (2) identify gaps in the healthy retail

literature and generate questions for future research, with an intentional focus on reducing health disparities and improving equity; (3) highlight best practices for partnering with retailers and food manufacturers on healthy retail research; (4) facilitate relationships between retailers and researchers to implement and evaluate interventions; and (5) identify existing datasets, ongoing work, and new opportunities for retail-research partnerships. The in-person meeting included brief presentations from academic researchers on preliminary findings from commissioned research and from industry partners about best practices for retailer-researcher collaboration, facilitated group discussions, and guided research question generation.

Notes and research questions from the in-person meeting were thematically analyzed and grouped by three authors collaboratively. Research questions were grouped into ten key themes and were refined by removing questions that were duplicates, overly vague or specific, and outside the scope of the research agenda. A follow-up survey was sent to convening participants (26 respondents, 57% response rate) asking them to rank each question on a scale from 1 (lowest) to 5 (highest) in terms of feasibility, equity, and importance (see definitions in call-out box). Three questions with low composite scores (<3) or low scores in all three domains (<3.5) were removed. Survey respondents were also asked to identify gaps in the list of research questions and data sources identified at the meeting, which informed a new area of inquiry related to food retail changes due to the COVID-19 pandemic. Cross-cutting research approaches emerging from the meeting were summarized and grouped into (a) partnerships; (b) data sources; and (c) study designs and settings. Research themes and approaches are described in detail below.

Research Agenda Definitions

Social determinants of health are nonmedical factors that influence health such as employment, income, housing, transportation, child care, education, discrimination, and the quality of the places where people live, work, learn, and play.²⁰

Health disparities are differences in health (or in key determinants of health) that adversely affect marginalized or excluded groups.²⁰

Health equity means that everyone has a fair and just opportunity to be as healthy as possible.²⁰

Research feasibility is a measure of the likelihood that research can be conducted successfully and produce valid and reliable results.

Research importance assesses how valuable the research results might be in helping to inform policy, programs, or retailer practice, given the state of the current evidence.

Priority populations are those groups at highest risk for poor health and wellbeing, especially nutrition and weight-related health disparities, and include: Non-Hispanic Black, Hispanic/Latinx, Asian American, Native Hawaiian/Pacific Islander, American Indian/Alaska Native, and rural children and their families.²¹

Healthy foods or beverages are those that contribute to a nutritionally balanced diet that meets *Dietary Guidelines for Americans* recommendations.²²

Trade promotion practices describe a wide range of payments or incentives that food and beverage manufacturers make to retailers to influence product stocking, placement, pricing, and promotion.⁶

Retailer marketing strategies are in-store approaches that retailers use to encourage product sales. These strategies may include price discounts, bundle deals (e.g., 2-for-1), placement in prominent locations (e.g., at checkout or end-of-aisle displays), signs, and taste-tests.

Retail formats are the types of outlets where food and beverages are sold.⁵ These include supermarkets (e.g., Kroger, Safeway), drug stores (e.g., Rite-Aid, CVS), mass merchandisers (e.g., K-Mart, Target), supercenters (e.g., Walmart Supercenter, Fred Meyer), convenience and corner stores (e.g., 7-Eleven), dollar stores (e.g., Dollar Tree, Dollar General), club stores (e.g., Costco, Sam’s Club), online retailers (e.g., Amazon, Peapod), and other (e.g., military commissaries, farmers markets).

National Research Agenda

Research Themes

Ten key issue areas emerged as priorities for future research. Five of these issue areas focus on understanding the current food retail environment and consumer behavior and five focus on assessing implementation and effectiveness of interventions and policies to attain healthier retail environments. For each key issue area identified, a brief rationale is provided below, and related research questions are listed in Table 1.

Understanding the current food retail environment and consumer behavior

Considering an estimated three-quarters of purchase decisions are made while shopping,²³ the retail food environment plays an important role in shaping consumer purchases.^{24,25} Research to understand the ways in which the current food retail environment—including manufacturer and retailer marketing strategies and types of retailers available in communities—influences consumer behavior can guide policies and corporate practices that promote purchases of healthy foods and beverages and curb purchases of unhealthy food and beverages. Further, understanding whether and the degree to which some communities are differentially targeted and impacted by food marketing can inform targeted interventions that advance health equity.

I. Understanding and describing the retail food marketing environment

Food and beverage manufacturers shape the retail setting through trade promotion practices or incentives to retailers to influence product availability, pricing, promotion, placement, and prominence in the store. One review outlined four key strategies that manufacturers use to influence retailer marketing practices, but additional research, including analyses using proprietary data from retailers and manufacturers, is needed to better understand how trade promotion shapes the retail environment.²⁶ Additionally, research is warranted on which healthy and unhealthy products and categories are most often available, promoted, and purchased in stores and which strategies are used to market them. Research on how marketing efforts differ by community, retailer, and product characteristics is needed to guide policy intervention efforts to promote healthy products and limit promotion of unhealthy products, particularly among priority populations.

II. Understanding consumer shopping behavior

Myriad factors influence which products people purchase, how much they buy, and where they shop, including characteristics of the retailer, product, individual shopper, and the marketing environment.²⁷ Considerable research has been conducted

outside of public health, including by experts in marketing and psychology, to understand the relationship between these factors and consumer purchasing decisions. A review of this literature, with special attention to implications for public health interventions and policy, is warranted. In an original research paper commissioned for this project, the authors used household panel purchasing data from 2010-2018 and found that the quality of packaged foods that consumers purchase varied by retail format and that the quantity of calories purchased at each retail format varied by sociodemographic group (e.g., rural households tend to buy more packaged foods from mass merchandisers and dollar stores, which tend to carry more packaged foods of lower nutritional quality).²⁸ Further research is needed to explain why these differences exist. Another review commissioned for this project also identified a need for more research focused on differences in purchasing trends by race/ethnicity, socioeconomic status, and location (urban vs. rural), and how these three factors intersect to influence consumer food purchasing.²⁹

III. Impact of retail marketing strategies

A systematic review found evidence that retailer marketing strategies, including price discounts and prominent store placement, are associated with increased sales, but other in-store promotional strategies, such as signs and displays, are understudied.²⁶ In addition to measuring purchase behavior, future studies should also examine associations between retailer marketing strategies and health-related outcomes, such as diet quality, and measures of importance to industry, such as profit and customer loyalty. Studies that measure long-term effects of marketing strategies on consumer behavior are also warranted. Additionally, research that examines how the effects of retail marketing strategies differ by consumer, retailer, and product characteristics is needed.

IV. Understanding targeted food marketing

Evidence suggests that some manufacturers and retailers target promotion of unhealthy products towards people of color or with lower income, which may contribute to existing disparities in diet quality and health. For example, media watched by African Americans feature more advertisements for low-cost, high-calorie, and low-nutrition food and beverages,⁹ and marketing of sugar-sweetened beverages increases during the time of the month that SNAP benefits are issued.¹⁰ One review evaluated targeted marketing-mix and choice-architecture (MMCA) strategies, which are strategies to nudge consumer decision-making through placement, pricing and other promotional strategies in the store.³⁰ The authors found that MMCA strategies may be used to influence purchase of sugar-sweetened beverages among consumers on the basis of income or race/ethnicity, and that the types of MMCA strategies used may vary by store format. Most studies included in the analysis, however were not designed to capture such differences, representing an important knowledge gap. Some manufacturers

also use deceptive and unsubstantiated claims regarding product health benefits and nutrient content in their front-of-package marketing. Research that explores the extent to which low-income and racially/ethnically diverse populations are targeted with promotions of unhealthy products and affected by deceptive marketing is needed to inform policies that eliminate these practices.

V. Role of emerging retail formats in supporting healthy food access

Nontraditional food retailers, including dollar stores, have gained considerable market share in the past decade.^{5,31} Dollar stores are widely recognized as offering few healthy food options, and share of consumer expenditures on unhealthy products is significantly higher at dollar stores compared to supermarkets.⁵ A small but growing number of dollar stores, however, have recently started to offer more healthy options, including fresh fruits and vegetables.³² In 2015, dollar stores represented two-thirds of new stores in areas designated as USDA “food deserts” (i.e., areas with limited access to retailers selling healthy and affordable foods).³³ Research is needed to explore how the rapid proliferation of dollar stores in low-income and rural areas affects disparities in diet quality and food purchasing. Interventions to increase access to and purchase of healthy foods in dollar stores should also be assessed.

Implementation and Effectiveness of Interventions and Policies to Attain Healthier Retail

While there is a growing body of research on the implementation and effectiveness of interventions and policies designed to improve the food retail environment, considerable knowledge gaps persist and potential innovations remain untested. Additional research in these domains can ensure that effective practices and policies are elevated, replicated, and scaled up successfully.

I. Supporting healthy purchases and reducing unhealthy purchases

Researchers have tested a range of interventions that have successfully promoted healthy purchases and decreased unhealthy purchases, including financial incentives to purchase fruits and vegetables for SNAP participants and other populations with limited income.^{34,35,36} These interventions may benefit not only consumers, but also farmers and retailers. A review of 64 in-store marketing studies conducted between 2009-2019 found that the majority of interventions achieved at least one positive effect related to healthier food purchasing, consumption, and sales.³⁷ The review concluded that in-store marketing approaches, and in particular promotion,



show evidence of effectiveness for favorably shifting food purchasing and eating behaviors, but more research is needed to understand what combinations of strategies work best by product category and retail format. Further research should use experimental designs, scale and replicate effective interventions in additional settings, and evaluate long-term effects (e.g., purchasing patterns once financial incentive programs end). Given the rising uptake of online shopping and the allowance of SNAP for online purchases, interventions to promote healthy purchases using cell phone applications and online retail platforms also merit further investigation.

II. Leveraging SNAP to support healthy eating

SNAP is the largest federal nutrition assistance program, providing nearly \$57 billion in benefits to more than 35 million people with low incomes in 2019.³⁸ Studies show that while SNAP reduces food insecurity and alleviates poverty, it does not improve diet quality.^{39,40,41} Strategies to leverage SNAP to support healthy eating may help address existing disparities in diet quality among priority populations. Considering SNAP serves as an important source of revenue for many food and beverage retailers,⁴² changes in SNAP could be used to shift the broader retail landscape. One review found that changes to the WIC food packages were associated with improved diet quality and maternal and child health outcomes, but limited evidence of shifts in healthy food availability in supermarkets.³⁶ These findings provide support for research to examine how changes to the products eligible for purchase with SNAP may impact both consumers' diet quality and retailer environments. Other possible strategies to leverage SNAP to support healthy eating, including changing the SNAP benefit amount and distribution timing, and incentives for healthy purchases, also warrant further investigation.

III. Limiting unhealthy food establishments

Convenience and dollar stores, which are often the most accessible retail food stores in communities that are home to individuals and families with low-incomes, contain product selections that are considerably less healthy than in supermarkets.⁵ Across the country, jurisdictions are using zoning as a tool to limit the location and density of retailers that sell unhealthy products.⁴³ Research should investigate the impacts of zoning policies on neighborhood healthy food availability, purchasing, consumption, and health.

IV. Addressing social determinants of health

Research has shown that factors at the individual, interpersonal (e.g., families, friends, social networks), community, and societal levels interact to shape food purchases and consumption. Poor diet quality is affected by lack of access, availability, or affordability of healthy foods, but it is also influenced by more upstream factors including an individual's economic stability, neighborhood and built environment, education access and quality, etc. Policies that address these

social determinants of health, such as universal basic income and a higher minimum wage, may reduce barriers to healthy food access and affordability. As local and state governments experiment with the implementation of such policies, impacts on food purchases and consumption should be evaluated.

V. Assessing differential impacts

All of the policy and programmatic interventions described above may yield different results depending on the consumer population, product, and retail format studied. For example, one review found some evidence that promotion of healthy products may be less effective at driving sales than promotion of unhealthy products.²⁶ Evaluations should be conducted in diverse settings and with priority populations, with particular attention to how impacts differ, in order to guide targeted and effective interventions.

Cross-Cutting Research Considerations

Three cross-cutting considerations emerged for future research: potential research partnerships, data sources, and possible study designs and settings.

I. Partnerships

Most retailers and manufacturers carefully guard the privacy of their sales and marketing data. Researchers should work to build relationships with retailers and manufacturers to facilitate the implementation and evaluation of in-store interventions and gain access to proprietary data. Researchers should consider collaboration with nontraditional partners, including trade associations, growers and distributors, marketing firms, business schools, non-profit organizations, and advocacy groups, many of which have existing relationships with industry. Partnerships with researchers in government agencies, including the USDA, may also lead to improved data access. Food retailers connected to academic research institutions, such as university hospitals, cafeterias, and campus stores, may be open to partnership and data sharing.

II. Data sources

Government agencies and industry already collect vast amounts of data that can be used to understand current marketing practices and consumer behavior and evaluate interventions (See examples in Table 2). Some of these data may be accessed only through partnerships or data use agreements, while others are publicly available for free or for a fee. While sales or geolocation data from private firms may be prohibitively expensive for some researchers, these data may be available through existing university partnerships (e.g., many universities have access to Nielsen data at reduced rates through the Kilts Center for Marketing). Other data sources are available only to select researchers (e.g., SNAP redemption data are available only to USDA researchers). Strategies

to improve accessibility and affordability of data could be modeled after the RWJF Health Data for Action program, which aims to reduce barriers to data access by serving as a conduit between data owners and researchers.

III. Study designs and settings

Rapid growth of grocery sales through nontraditional retailers, including supercenters, dollar stores, and online retailers highlights a need for rigorous research in a variety of settings.⁵ Diverse study designs, ranging from laboratory experiments and pilot interventions to large randomized controlled trials, and longitudinal evaluations of federal or state policies with comparison groups, should be used. As states and localities experiment with novel policies to promote healthy retail, researchers can provide evaluation support. Studies exploring the impact of interventions or policies abroad can also inform domestic practice.

Positioning This Agenda in the Context of Recent Events

COVID-19 Pandemic

The research convening was held prior to widespread awareness of the COVID-19 pandemic in the U.S. The pandemic has led to increased consumer reliance on food retail as away-from-home food sources such as restaurants and cafeterias close or operate at limited capacity. New research questions have since emerged about impacts of the pandemic on the grocery industry, particularly in light of recent increases in online grocery shopping and at-home food preparation and expansion of the SNAP Online Purchasing Pilot program (a federal program to assess the feasibility and impact of allowing retail food stores to accept SNAP benefits online). The pandemic's lasting impact on the industry is unclear and could be a focus of future retail research.⁴⁴

Systemic Racism in the Food System

While this research agenda was designed with an emphasis on identifying interventions that have the potential to eliminate racial and income disparities in diet and related chronic disease, it was not designed with a specific focus on addressing racism within the broader food system. We support investment in research on racism within the food system, recognizing the critical importance of this work for reducing racial disparities in health and promoting equity.

Conclusions

This research agenda describes research priorities to support healthy eating through retail strategies. Notably, several research questions outlined in this report were considered by convening participants to be of high importance to advance practice and policy and critical to promoting health equity, but logistically challenging to execute. This finding highlights the need to address feasibility barriers through engagement of retailers, local governments, and advocacy groups in retail food pilot programs; exploration of new study designs; and the importance of data sharing. Innovative data collection approaches, such as investigative journalism or Federal Trade Commission studies, may also fill gaps in knowledge about retailer and marketing practices. Legal barriers that may hinder healthy retail interventions should also be examined and addressed through policy change.

This agenda can guide funders as they develop priorities, helping to ensure that research dollars are directed to projects that fill critical knowledge gaps, promote equity, and advance policy and practice. While federal departments and agencies such as USDA, CDC, and NIH have previously recognized the importance of healthy retail in some reports and funding calls, healthy retail could be better integrated into existing and future strategic plans, initiatives, and funding opportunities for research on nutrition, obesity, and health disparities. For example, healthy retail is missing from the USDA Science Blueprint; and the Strategic Plan for NIH Obesity Research briefly mentions the food environment, but not healthy retail.^{45,46} The 2020-2030 Strategic Plan for NIH Nutrition Research, however, recognizes the important role of the food environment in shaping dietary behavior, suggesting that there may be opportunity to integrate the research themes outlined in this agenda into future calls for research proposals. Coordination across federal departments and agencies is needed to ensure proposals for healthy retail research do not slip through funding gaps.

Research on these topics requires collaboration across disciplines and sectors; building the relationships needed for this work to be successful takes considerable time and financial investment. Research institutions and funders should recognize the importance of creating long-term partnerships and provide financial support for researchers to advance these efforts without expectation of immediate research deliverables.

While considerable progress has been made in the field of healthy retail research, much remains to be done. Periodic convenings of key stakeholders and agenda-setting can facilitate this work. Research on food retail is critical to inform corporate strategies and public policies that promote the purchase of healthy products, reduce pressure on consumers to purchase unhealthy products, support advocacy for healthier retail policies and practices, and improve health. This work has the potential to reduce disparities and promote health equity.

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Table 1: National Research Agenda Questions

Key Issue Area	Research Question
Understanding the Current Food Retail Environment and Consumer Behavior	
Understanding and describing the retail food marketing environment	1. How does the healthfulness of foods and beverages available in retail outlets differ by retail format?
	2. How does the healthfulness of foods and beverages promoted in retail outlets differ by retail format?
	3. What are the effects of manufacturer trade promotion practices on retailer practices?
	4. How do frequency and duration of retailer promotions differ by: <ul style="list-style-type: none"> a. community characteristics (e.g., race/ethnicity, socioeconomic status)? b. time of month (e.g., when SNAP benefits are issued)? c. product characteristics (e.g., healthfulness, category)? d. retail format (e.g., supermarkets vs. convenience stores)? e. retail ordering platform (e.g., brick-and-mortar vs. online)? f. geography (e.g., urban vs. rural)?
Understanding consumer shopping behavior	5. Which factors influence consumer decision-making at the point of purchase?
	6. Which factors influence where consumers shop (e.g., shopping at a dollar store vs. supermarket)?
Impact of retailer marketing strategies	7. What are the impacts of retailer marketing strategies on: <ul style="list-style-type: none"> a. consumer behaviors (e.g., purchasing, impulse buying, stockpiling)? b. consumer health (e.g., diet quality, body mass index, overweight/obesity)? c. outcomes of importance to retailers (e.g., sales, profitability, brand loyalty)?
	8. How do the impacts of retailer marketing strategies differ by: <ul style="list-style-type: none"> a. consumer characteristics (e.g., race/ethnicity, socioeconomic status, participation in federal nutrition programs)? b. time of month (e.g., when SNAP benefits are issued)? c. product characteristics (e.g., healthfulness, category)? d. geography (e.g., urban vs. rural)?
Understanding targeted food marketing	9. To what extent do retailers create targeted promotions based on customer characteristics (e.g., race/ethnicity, socioeconomic status, participation in federal nutrition programs)?
	10. Which food or beverage manufacturers and food categories have deceptive marketing or front-of-package claims?
Role of emerging retail formats in supporting healthy food access	11. How do dollar stores affect a community's access to healthful food?
Implementation and Effectiveness of Interventions and Policies to Attain Healthier Retail	
Supporting healthy purchases and reducing unhealthy purchases	12. What is the optimal design of a retail environment to support healthy eating?
	13. What changes to retailer marketing strategies improve the healthfulness of food purchases?
	14. What changes to product packaging, labeling, and/or portion size improve the healthfulness of food purchases?
	15. What are effective digital strategies to improve the healthfulness of food purchases?

Table 1: National Research Agenda Questions

Key Issue Area	Research Question
Leveraging SNAP to support healthy eating	16. What is the impact of increasing the SNAP benefit amount?
	17. What is the impact of changing the frequency and/or timing of SNAP distribution (e.g., benefits issued twice per month or benefits issued on different days of the month)?
	18. What is the impact of changing the list of products eligible for purchase with SNAP (e.g., sugar-sweetened beverages)?
	19. What is the impact of offering produce boxes to SNAP beneficiaries?
	20. What is the impact of providing incentives for healthy foods for SNAP beneficiaries (e.g., discounts or matching dollars for purchases of whole grains, fruits and vegetables)?
Limiting unhealthy food establishments	21. How do zoning restrictions for unhealthy food retailers impact access to healthy food in the community?
Addressing social determinants of health	22. How do interventions or policies that address social determinants of health (e.g., universal basic income, increased minimum wage) impact food and beverage purchasing and consumption?
Assessing differential impacts	23. How do the impacts of interventions and policies differ by: <ol style="list-style-type: none"> consumer characteristics (e.g., race/ethnicity, socioeconomic status, participation in federal nutrition programs)? product characteristics (e.g., healthfulness, category)? retail format (e.g., supermarkets vs. convenience stores)? retail ordering platform (e.g., brick-and-mortar vs. online)? geography (e.g., urban vs. rural)?

Table 2: Example Data Sources for Healthy Retail Research

Data Source	Accessibility
Store visitor data using cell phone geolocation information from companies such as SafeGraph	Fee
Sales and customer demographic data from companies such as Nielsen and IRI	Fee
Sales and loyalty card data from independent or chain retailers	Through partnerships
Prepared food purchase data from university cafeterias	Through partnerships
State WIC electronic benefit transfer redemption data	Through partnerships
Farmers market sales and customer demographic data through the Farmers Register Portal	Free, coming soon
Data collected by federal agencies such as <ul style="list-style-type: none"> ■ Consumer Expenditure Survey (Bureau of Labor Statistics) ■ National Household Food Acquisition and Purchase Survey (USDA) ■ National Health and Nutrition Examination Survey (Centers for Disease Control and Prevention) 	Free, public use and restricted datasets

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About Healthy Eating Research

Healthy Eating Research (HER) is a national program of the Robert Wood Johnson Foundation. Technical assistance and direction are provided by Duke University under the direction of Mary Story, PhD, RD, program director, and Megan Lott, MPH, RDN, deputy director. HER supports research to identify, analyze, and evaluate environmental and policy strategies that can promote healthy eating among children and prevent childhood obesity. Special emphasis is given to research projects that benefit children and adolescents and their families, especially in lower-income and racial and ethnic populations at highest risk for obesity. For more information, visit www.healthyeatingresearch.org or follow HER on Twitter at [@HERResearch](https://twitter.com/HERResearch).

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