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Evaluation of efforts to reduce sodium and ensure access to healthier beverages in four healthcare settings in Massachusetts, US 2016–2018

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ABSTRACT

Considerable science links diets lower in sodium and sugar-sweetened beverage consumption with better health outcomes.

This study describes the evaluation process and outcomes of intervention strategies to reduce sodium in foods and sugar in beverages as part of a collaborative partnership between state public health, academic, community, and healthcare partners in Massachusetts, US.

This quasi-experimental, pre-post study used nutrient data linked to observations of foods and beverages available in cafeterias and vending machines in four community healthcare settings to inform intervention strategies and evaluate changes.

At post-assessment, beverages with no or very low sugar were significantly more prevalent in vending machines (OR = 1.93, $p < 0.001$) and cafeterias (OR = 1.83, $p = 0.01$) and low-sodium packaged foods were significantly more prevalent in cafeterias (OR = 2.45, $p < 0.001$), but not vending machines.

These types of partnerships and tailored feedback and technical assistance strategies may support healthier food and beverage options within healthcare settings that serve patients, their families, and employees each day.

1. Introduction

Considerable science links diets lower in sodium (Siervo et al., 2015) and sugar-sweetened beverage consumption (Malik et al., 2013) with better health outcomes, such as hypertension and diabetes. Despite this evidence, the majority of adults (89%) and children (90%) in the United States exceed recommended daily sodium intake (Jackson et al., 2016), and while sugar-sweetened beverage consumption is on the decline, 61% of children and 50% of adults still drink a sugar-sweetened beverage daily (Bleich et al., 2018). Sodium in foods prepared outside the home accounts for approximately 70% of dietary sodium intake (Harnack et al., 2017). Likewise, 85% of households consume food away from home more than five times per week, and 22% of households obtain food while at work (Todd and Scharadin, 2016). Thus, strategies that limit sodium in commercially prepared and processed foods and promote healthy beverage consumption in community and worksite settings may improve health outcomes among consumers and employees. In particular, healthcare settings can play a role in promoting healthy food and beverage offerings in cafeterias and vending outlets for employees and visitors (Moran et al., 2016).

In 2014, the Massachusetts Department of Public Health received funding from the Centers for Disease Control and Prevention to support local community-clinical linkages to prevent obesity, diabetes, heart disease, and stroke in four communities prioritized due to their higher chronic disease rates. Grant activities created partnerships between four healthcare settings and community-based organizations to undertake intervention and program evaluation activities with the support of technical assistance and academic partners. Through a data-driven action planning process, each healthcare setting selected strategies tailored to their local needs to support the implementation of evidence-based nutrition guidelines related to sugar and sodium that could be implemented within their healthcare setting's cafeteria and vending.

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This study describes the intervention process and evaluation outcomes of collaborative strategies in these four communities in Massachusetts. Intervention and evaluation activities that were the focus of the supports provided by the technical assistance and academic partners were grounded in prior collaborative strategies used to address sodium and sugar in foods and beverages in other community contexts, including foodservice and vending venues (Brooks et al., 2017; Cradock et al., 2015).

2. Materials and methods

The intervention approach was based on prior studies of strategies to reduce the levels of sodium available in packaged foods in vending and cafeterias (Brooks et al., 2017) and menu items in cafeterias (Moran et al., 2016), and to improve the accessibility of non-sugar sweetened beverages in cafeterias and vending in community settings (Cradock et al., 2015). In late 2015, before implementation, the technical assistance providers, employees of a non-profit organization with a focus on food systems improvements in health care settings, and academic partners met with four community partnerships created as part of the project. Each community partnership included a healthcare setting and a mix of local community-based organizations, public health agency collaborators, healthcare setting administrators, and foodservice management. Meetings were held in each community separately to establish a shared understanding of each healthcare setting's institutional commitment to reducing sodium and sugar-sweetened beverages.

Intervention activities in each healthcare setting included initial data collection to develop 1) a tailored feedback report created by the academic partners for each healthcare setting with recommendations for reducing sodium in foods and sugar in beverages based on findings from the baseline assessments (2016) (see section 2.1 data collection), 2) a collaborative action planning process with the healthcare setting, community, academic and technical assistance partners for each community (2016–2017), 3) individually-tailored technical assistance provided periodically by the academic partners and technical assistance providers to leaders and food service personnel at each healthcare settings between baseline and follow-up to identify barriers and actions for implementation of new purchasing, recipe reformulation and substitution suggestions (2016–2017), 4) materials and supports for communication and implementation of nutrition standards for sodium and beverage sugar content provided by the academic and technical assistance providers (2016–2017), 5) marketing and promotional materials to educate consumers provided by the healthcare settings and community-based organizations (2017), and 6) a follow-up tailored feedback report created by the academic partners based on data collected in 2018 that included recommendations for further action. (Contact the corresponding author for examples of feedback reports.).

All tailored feedback reports provided by the academic partners in collaboration with the technical assistance providers included the sodium content in packaged foods available for purchase in cafeterias, vending and in the foods on cafeteria menus by type (e.g., packaged snack, side-dish, entrée), the mix of beverages offered in cafeterias and vending according to categories of sugar content, suitable substitutions for products, suggestions for menu item modifications, and suggested supportive actions (e.g., promotions and branding, placement, and pricing) to highlight healthier options. The action planning process was anchored by a work plan designed to help each healthcare setting select goals, specify objectives, and concrete strategies for creating healthier food and beverage environments. These work plans were created in 2016 and updated at each technical assistance meeting through 2018.

2.1. Data collection

Researchers used a quasi-experimental, pre-post design to evaluate the impact of the intervention strategies implemented on the food and beverage offerings in cafeterias and vending machines between baseline (March-April 2016) and follow-up (January-February 2018). On one day at each site at baseline and follow-up, researchers recorded the type and brands of packaged foods (packaged snacks and grab-and-go items) and beverages available in vending machines and cafeterias, cafeteria menu offerings, and food and beverage promotions including signage, placement, and pricing. Baseline data were collected in both vending and cafeterias at each site. According to areas of focus selected for technical assistance and planned activities in that site, follow-up data were collected in either or both vending and cafeterias. For each pre-packaged food and beverage item, trained research assistants recorded the size, brand, type, and price and counted the number of "facings" of pre-packaged offerings (e.g., spaces facing the consumer in vending machines, in coolers, or on shelves or racks behind which identical products are situated). Only pre-packaged food or beverage items were included in this analysis of facings. Digital photographs were taken to document observations. Foodservice staff provided menus documenting the meals served during the month of data collection at each site. Qualitative descriptions of goals and action steps taken in the collaborative action planning process were recorded and updated by research staff at each check-in meeting. The Harvard TH Chan School of Public Health Office for Human Research Administration determined the research protocol did not involve human subjects.

2.2. Beverage and sodium standards for nutrient analysis

Researchers used familiar "Traffic light" categories to classify beverages as "red: drink rarely, if at all" (e.g., regular soda, energy drinks), "yellow: drink occasionally" (e.g., artificially sweetened drinks, 100% juices), and "green: drink plenty" (e.g., non-fat milk, water) that were developed as part of implementation guidelines for an executive order in Boston, MA (Cradock et al., 2015). Packaged and prepared foods were classified as "low sodium" according to established nutrition guidelines (National Salt Reduction Initiative: Packaged Food Categories, 2009) and state policies (Executive Order No. 509: Establishing Nutrition Standards for Food Purchased and Served by State Agencies, 2009). Packaged snacks with no more than 200 mg of sodium per package were considered "low sodium". In cafeterias, "low sodium" items were identified as plates, entrées, deli, and grill items with less than or equal to 805 mg of sodium per serving and side dishes and soups with less than or equal to 480 mg of sodium per serving. Nutrient information used to classify each packaged food and beverage was obtained using product manufacturer websites or by contacting the manufacturer. When no information was available from the manufacturer, data from the US Department of Agriculture Nutrient Database (12) or the Food Processor Nutrition Analysis Software (Esha Research, Salem OR; SQL10.12; 2013) were used (Brooks et al., 2017; Cradock et al., 2015) Where possible, foodservice operators in healthcare settings provided nutrient data for menu items prepared in cafeteria settings (i.e., entrees, sides, soups) at baseline and follow-up.

2.3. Analysis

At each time point, researchers calculated the percentage of beverage facings in each traffic light category (i.e., red, yellow, and green) and summarized the percentage of packaged food facings in vending and cafeterias and the percentage of cafeteria menu items categorized as low sodium and the mean sodium content (mg) of packaged food facings. Researchers used regression models to examine the change in these food and beverage environments from baseline to follow-up within each healthcare setting and averaged across all healthcare settings. The unit of analysis was individual facings for packaged foods and beverages and unique menu items on cafeteria menus. Estimates averaging outcomes across all healthcare settings accounted for repeated observations of facings or items within healthcare settings. Within each healthcare setting, researchers estimated the change in the likelihood of beverage facings falling into each traffic light

category and change in the likelihood of packaged food facings or cafeteria menu items being classified as low sodium using logistic regression models and change in the mean sodium content of packaged food facings using linear regression models. Researchers used generalized estimating equation models with a logit link and binomial distribution to estimate average change across all healthcare settings in the likelihood of beverage traffic light categories and low sodium package foods. To estimate average change across all healthcare settings in mean sodium content of packaged foods, researchers used linear mixed models, assuming a compound symmetry variance–covariance structure. Separate analyses were performed for vending machines and cafeterias observed at both baseline and follow-up. In posthoc sensitivity analyses, researchers performed nonparametric tests of change in sodium content (mg) ranked scores, using the Kruskal-Wallis test for comparison within each healthcare setting and the Friedman test for the average comparison across all healthcare settings, to examine the impact of skewed outcome distributions on model results and interpretation. All analyses were performed using SAS version 9.4 (Cary, North Carolina, USA) and used a statistical significance level of 0.05.

3. Results

The annual number of people served as patients and staff by each healthcare setting varied based on healthcare setting-provided estimates of patient bed numbers, occupancy rates, and staffing (Setting 1, 10,719; Setting 2, 55,362; Setting 3, 14,840; Setting 4, 3,658). Strategies implemented to reduce sodium and promote healthy beverages at each site appear in Tables 1 and 2.

3.1. Bottled beverages

The number of bottled beverage vending machines ranged from two to fifteen within a healthcare setting and included 275 and 280 unique beverage facings with nutrient information at baseline (2016) and follow-up (2018), respectively (Table 1). Overall, machines offered 11% green beverage facings at baseline and 19% green beverage facings at follow-up. Facings were significantly more likely to hold a green beverage (OR 1.93, 95% CI 1.68, 2.22, $p < 0.001$) and less likely to hold a yellow beverage (OR 0.70, 95% CI 0.50, 0.98, $p = 0.04$) at follow-up.

In the cafeteria setting (Table 1), among 791 facings at baseline and

Table 1
Change in Bottled Beverages in Vending Machines and Cafeterias Before and After Initiatives in Four Healthcare Settings, 2016 to 2018.[a, b, c,d]

VENDING	# of Total Facings	Beverage Facings with Red Beverages			Beverage Facings with Yellow Beverages			Beverage Facings with Green Beverages		
	N	%	OR (95% CI)	p-value	%	OR (95% CI)	p-value	%	OR (95% CI)	p-value
Healthcare Setting 1										
Strategies: Collaboration with vendor on healthier beverage options, changed vendor										
Baseline	57	70	…	…	25	…	…	5	…	…
Follow Up	60	67	0.85 (0.39, 1.86)	0.68	22	0.85 (0.36, 2.01)	0.71	12	2.38 (0.58, 9.69)	0.23
Healthcare Setting 2										
Strategies: Collaboration with vendor on healthier beverage options, changed vendor										
Baseline	202	57	…	…	33	…	…	10	…	…
Follow Up	205	59	1.09 (0.74, 1.62)	0.67	22	0.58 (0.37, 0.90)	0.02	19	2.03 (1.14, 3.58)	0.02
Healthcare Setting 4										
Strategies: Collaboration with vendor on healthier beverage options, request list of available product options that meet nutrition guidelines and sales data for current products from vendor, calorie labeling										
Baseline	16	56	…	…	13	…	…	31	…	…
Follow Up	15	20	0.19 (0.04, 0.97)	0.05	40	4.67 (0.77, 28.40)	0.09	40	1.47 (0.34, 6.43)	0.61
Vending Overall										
Baseline	275	60	…	…	30	…	…	11	…	…
Follow Up	280	59	0.96 (0.75, 1.22)	0.72	23	0.70 (0.50, 0.98)	0.04	19	1.93 (1.68, 2.22)	<0.001
CAFETERIAS										
Healthcare Setting 1										
Strategies: Educational sessions, changed vendor										
Baseline	246	46	…	…	26	…	…	29	…	…
Follow Up	257	35	0.65 (0.45, 0.92)	0.02	36	1.65 (1.12, 2.42)	0.01	29	1.00 (0.68, 1.47)	0.99
Healthcare Setting 2										
Strategies: Educational sessions, changed vendor										
Baseline	478	37	…	…	39	…	…	24	…	…
Follow Up	432	33	0.83 (0.63, 1.10)	0.19	24	0.50 (0.37, 0.66)	<0.001	43	2.39 (1.80, 3.17)	<0.001
Healthcare Setting 3										
Strategies: Educational sessions, healthy beverage promotional signage, development of planogram to promote healthier items										
Baseline	67	6	…	…	63	…	…	31	…	…
Follow Up	87	7	1.17 (0.32, 4.31)	0.82	40	0.40 (0.21, 0.77)	0.01	53	2.46 (1.26, 4.78)	0.01
Cafeterias Overall										
Baseline	791	37	…	…	37	…	…	26	…	…
Follow Up	776	31	0.76 (0.65, 0.89)	0.001	30	0.73 (0.39, 1.35)	0.31	39	1.83 (1.14, 2.96)	0.01

Abbreviations: CI, confidence interval; OR, odds ratio.

[a]Cells are empty because the data does not apply.

[b]Researchers used established categories (i.e., traffic light categories) used in prior community-level studies to classify beverages as "red: drink rarely, if at all", "yellow: drink occasionally", and "green: drink plenty" (6). Red beverages are those with greater than 12 g of sugar per 12 oz (e.g., regular soda, energy drinks, sports drinks, tea drinks, juices with added sugar), whole and 2% milk, flavored low-fat and non-fat milk with greater than 25 g of sugar per 8 oz or in a package of greater than 12 oz, and unflavored low-fat and non-fat milk in a package of greater than 12 oz. Yellow beverages are those with 6 to 12 g of sugar per 12 oz or artificial sweetener (e.g., diet soda, tea, sports drinks, and energy drinks), 100% fruit or vegetable juices, and flavored low-fat and non-fat milk up to 12 oz in size with less than 25 g of sugar per 8 oz. Green beverages are unflavored low-fat and non-fat milk up to 12 oz in size and beverages with up to 5 g of sugar per 12 oz (e.g., water, seltzer water).

[c]Site-specific change estimates derived from logistic regression models. Overall change estimates derived from generalized estimating equation models with logit link and binomial distribution, accounting for repeated observations of facings within sites.

[d]Healthcare setting 3 had an existing policy restricting the sale of bottled sugar-sweetened beverages in vending and so was not assessed in this category, Healthcare setting 4 did not have bottled beverages for sale in the cafeteria and so was not assessed in this category.

Table 2
Change in Sodium Content of Packaged Foods in Vending Machines and Cafeterias Before and After Initiatives in Four Healthcare Settings, 2016 to 2018[a, b,e.]

VENDING	# of Total Food Facings	Food Facings with Low Sodium Foods[c]			Sodium Content (mg) of Food Facings[d]		
	N	%	OR (95% CI)	p-value	Mean (SD)	Change Mean (95% CI)	p-value
Healthcare Setting 1							
Strategies: Collaboration with vendor on healthier food options, changed vendor							
Baseline	134	51	…	…	242 (249)	…	…
Follow Up	134	43	0.70 (0.43, 1.13)	0.14	258 (160)	16 (−34, 67)	0.52
Healthcare Setting 2							
Strategies: Collaboration with vendor on healthier food options, changed vendor							
Baseline	262	62	…	…	214 (261)	…	…
Follow Up	263	49	0.59 (0.41, 0.83)	0.003	229 (146)	15 (–22, 51)	0.43
Healthcare Setting 4							
Strategies: Collaboration with vendor on healthier food options, request list of available product options that meet nutrition guidelines and sales data for current products from vendor							
Baseline	45	69	…	…	165 (158)	…	…
Follow Up	44	64	0.79 (0.33, 1.91)	0.60	173 (161)	7 (−60, 75)	0.83
Vending Overall							
Baseline	441	59	…	…	218 (250)	…	…
Follow Up	441	48	0.64 (0.56, 0.72)	<0.001	232 (153)	14 (−13, 42)	0.30
CAFETERIAS							
Healthcare Setting 1							
Strategies: Educational sessions, promotions, changed vendor							
Baseline	394	63	…	…	190 (152)	…	…
Follow Up	168	77	1.97 (1.30, 2.99)	0.001	159 (170)	−31 (−60, −3)	0.03
Healthcare Setting 2							
Strategies: Educational sessions, promotions, changed vendor							
Baseline	822	44	…	…	301 (281)	…	…
Follow Up	756	66	2.55 (2.08, 3.12)	<0.001	200 (259)	−100 (−127, −74)	<0.001
Healthcare Setting 3							
Strategies: Collaboration with vendors on healthier food and ingredient substitutions, educational sessions, healthier food promotional signage, development of planogram to promote healthier items							
Baseline	69	72	…	…	169 (184)	…	…
Follow Up	85	88	2.85 (1.22, 6.64)	0.02	121 (88)	−47 (−92, −3)	0.04
Cafeterias Overall							
Baseline	1285	51	…	…	260 (250)	…	…
Follow Up	1009	70	2.45 (2.21, 2.72)	<0.001	187 (237)	−82 (−102, −62)	<0.001

Abbreviations: CI, confidence interval; OR, odds ratio; SD, standard deviation.
[a]Cells are empty because the data does not apply.
[b]Packaged and prepared foods were classified as "low sodium" according to established nutrition guidelines (10) and state policies (11). Packaged snacks with no more than 200 mg of sodium per package were considered "low sodium". In cafeterias, "low sodium" items were identified as plates, entrées, deli and grill items with less than or equal to 805 mg of sodium per serving and side dishes and soups with less than or equal to 480 mg of sodium per serving.
[c]Site-specific change estimates derived from logistic regression models. Overall change estimates derived from generalized estimating equation models with logit link and binomial distribution, accounting for repeated observations of facings within sites.
[d]Site-specific change estimates derived from linear regression models. Overall change estimates derived from linear mixed models, accounting for repeated observations of facings within sites, assuming a compound symmetry covariance structure.
[e]Healthcare setting 3 did not determine food vending an actionable area and so was not assessed in this category, Healthcare setting 4 did not have packaged foods in the cafeteria and so was not assessed in this category.

776 facings at follow-up, green beverages were more prevalent at follow-up (39%) than baseline (26%), indicating a significant increase in the likelihood of a facing holding a beverage with no-or very low sugar content (OR 1.83, 95% CI 1.14, 2.96, $p = 0.01$). Cafeterias also had fewer red beverages at follow-up (31%) than baseline (37%) with a decreased likelihood that a facing would hold a red beverage after the intervention (OR 0.76, 95% CI 0.65, 0.89, $p = 0.001$).

3.2. Sodium content in packaged foods

Table 2 presents data suggesting a significant decrease in the likelihood of having a low-sodium facing option in vending foods from baseline (59%) to follow-up (48%) (OR 0.64, 95% CI 0.56, 0.72, $p < 0.001$) among 441 facings at baseline and follow-up. However, overall, the mean sodium content per facing did not change significantly. In contrast, in cafeterias, packaged low-sodium options were more prevalent overall and within each setting at follow-up data collection. The proportion of overall food facings that were low-sodium choices at baseline was 51%, increasing to 70% at follow-up, with facings at follow-up more than twice as likely (OR 2.45; 95% CI 2.21, 2.72, $p < 0.001$) to contain a low-sodium option than at baseline among 1,285 facings at baseline and 1,099 facings at follow-up. Average sodium content (mg) per facing was lower at follow-up (-82 mg; 95% CI −102 mg, −62 mg, $p < 0.001$) in cafeterias. Results of sensitivity analyses examining change in ranked sodium scores in cafeterias were similar, showing lower sodium content per facing at follow-up (baseline median 200 mg; follow-up median 120 mg; median change −80 mg; $p < 0.001$), while in vending, higher sodium content per facing was observed at follow-up (baseline median 160 mg; follow-up median 208 mg; median change 48; $p < 0.001$).

3.3. Sodium content in cafeteria menu options

Recipes or menu item nutrient data were not available at two time points for menus collected from two independently operated healthcare setting locations. Two healthcare setting locations did have nutrient information for unique menu items at baseline (193 items) and follow-up (255 items). In these two healthcare settings (Setting 1 and Setting 2), independent of the intervention activities undertaken, the foodservice operator changed between the baseline and follow-up data collection periods. These settings moved from self-operation to a contracted food service management agreement. The academic partners and technical assistance providers were not involved in institutional decisions regarding foodservice operational changes, but continued collaborations with these new partners during the follow-up study period. Accompanying this foodservice change, the proportion of items that

were classified as low-sodium increased from 57% in 2016 to 72% in 2018, although the increased likelihood of an item being low-sodium at follow-up was not significant (OR 1.92; 95% CI 0.96, 3.84, p = 0.067). Individual items in entree and soup categories were significantly more likely to be classified as low-sodium, while grill, deli, and grab-and-go items were significantly less likely to be classified as low-sodium at follow-up. At both baseline (88%) and follow-up (93%), the large majority of side dishes were classified as low-sodium.

4. Discussion

This study suggests that intervention strategies within healthcare setting foodservice operations and management systems can be used to encourage a healthier food and beverage environment. Collaboration with vendors to identify healthier options emerged as a necessary, but not always fully adequate, approach for change in offerings. Additionally, cafeteria and vending settings may need different types of implementation supports to be successful. Complementary strategies in cafeterias included signage and planograms (i.e., plan showing the organization of products on shelving in a retail environment to maximize sales) to promote healthy foods and beverages and educational sessions. Such changes to the physical or social environments to cue healthier behaviors, primarily focused on proximity, availability, and sizing have shown promise as effective intervention components in other studies. (Al-Khudairy et al., 2019) Resources for measuring the nutrition environments in healthcare settings and promoting changes in these environments are available to support this work (Food Service Guidelines, n. d.). However, it is also suggested that institutional organizational policies address layout and design of the foodservice location as well as integrate nutrition standards into organizational policies and contracts (Food Service Guidelines Implementation Toolkit, 2021).

Operational and institutional policies and standards to further implementation of nutrition guidelines by purveyors and producers of foods and beverages for the cafeteria, retail, and vending environments of hospitals are suggested (Jilcott Pitts et al., 2016), but were not accomplished during the study period. Longer-term collaborations may be needed to support and execute changes in these types of institutional and operational policies. In this study, the foodservice operational contexts varied widely between healthcare settings, from self-operated structures with limited meal or vending options to sites with multiple cafeterias or cafes serving menus with several meal and a la carte options each day. Two healthcare settings changed their food service management operators and their vending suppliers during the study period, likely contributing to changes in offerings available in the cafeterias that included more, or fewer products that fit the low-sodium criteria within a given category.

While this study benefits from direct observation, the small number of healthcare settings, variability in numbers of offerings by site, and nutrient data availability may not adequately capture all products, reformulations by manufacturers, or be generalizable. Researchers did not measure sales volume or purchases and lack control sites. Future studies would benefit from collecting data on purchasing in addition to availability. However, studies suggest that increasing the availability of healthier items in vending machines can lead to more purchases of healthier items without a decline in profits or sales volume (Grech and Allman-Farinelli, 2015; Derrick et al., 2015). Prior studies of workplace cafeteria interventions suggest that those that focus on changes in food quality, client information, education, or motivation and those that focus on point-of-purchase and price have the potential to increase purchasing of specific products and influence dietary behaviors and health indicators (Naicker et al., 2021). Further, a study that conducted cost-analysis of multiple workplace nutrition interventions would suggest that relative to environmental modification strategies like menu modifications, positioning, and pricing, implementing employee nutrition education interventions are relatively higher cost strategies for employers (Fitzgerald et al., 2017). This study highlights both the promises and challenges of a multisector and collaborative approach (Lasker and Weiss, 2003) where local community partners worked with healthcare settings to improve the food and beverage environment in the places serving both patients and staff. The findings of differential levels of improvements in cafeteria and vending between locations would point to the need for approaches that can be tailored to these food system segments. Additionally, longer-term collaborations may be needed to foster the adoption and implementation of changes in institutional and operational policy that help promote sustained improvements in food and beverages in healthcare settings.

5. Conclusions

In this study, researchers found that tailored feedback reports and technical assistance strategies used to support partnerships between food service management, food service operations, healthcare setting administration, public health, and community partners may create healthier eating environments within healthcare settings that serve thousands of patients, families, and employees each day.

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CRediT authorship contribution statement

Angie L. Cradock: Conceptualization, Methodology, Resources, Writing – original draft, Writing – review & editing, Supervision. **Jessica L. Barrett:** Methodology, Software, Formal analysis, Data curation, Writing – review & editing. **James G. Daly:** Conceptualization, Investigation, Data curation, Writing – review & editing, Project administration. **Rebecca S. Mozaffarian:** Formal analysis, Investigation, Resources, Writing – review & editing. **John Stoddard:** Conceptualization, Methodology, Resources, Writing – review & editing, Project administration. **Meg Her:** Conceptualization, Methodology, Writing – review & editing, Project administration. **Kim Etingoff:** Conceptualization, Methodology, Writing – review & editing, Project administration. **Rebekka M. Lee:** Conceptualization, Methodology, Supervision, Visualization, Writing – review & editing, Project administration.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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