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## Nutrition-Focused Food Banking in the US: A Qualitative Study of Healthy Food Distribution Initiatives

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### Abstract

**Background**—Nutrition-focused food banking is broadly defined as organizational and programmatic efforts to address nutrition-related health disparities among charitable food clients. Additional information is needed to systematically describe how US food banks, as key influencers of the charitable food system, are working to advance nutrition-focused food banking initiatives in their communities.

**Objective**—To describe food bank leadership-identified organizational strategies, “best practices”, and innovative programs for advancing nutrition-focused food banking in the US.

**Design**—Semi-structured qualitative interviews to elicit information about the nutrition-focused food banking practices and processes being employed by US food banks. *Participants/setting.* Participants comprised a purposive sample of food bank executives (n=30) representing a diverse selection of food banks across the US. Interviews were conducted between April 2015-January 2017 at national food bank conferences.

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**Analysis**—Transcripts were reviewed independently by two researchers to identify themes using code-based qualitative content analysis.

**Results**—Executive leader descriptions of specific strategies to support nutrition-focused food banking primarily centered around four major themes: building a healthier food inventory at the food bank; enhancing partner agency healthy food access, storage, and distribution capacity; nutrition education outreach; and expanding community partnerships and intervention settings for healthy food distribution, including healthcare and schools.

**Conclusions**—Study findings indicate that food banks are implementing a variety of multi-level approaches to improve healthy food access among users of the charitable food system. Further evaluation is needed to assess the reach, scalability, and sustainability of these various approaches, and their effectiveness in reducing determinants of nutrition-related health disparities.

### Keywords

Food bank; food insecurity; fruits and vegetables; community nutrition; qualitative research

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## INTRODUCTION

The first US food bank opened in Phoenix, AZ, in 1967 to address the need for coordinated collection and redistribution of shelf-stable, charitable emergency food aid.<sup>1</sup> This model has since been replicated to include over 200 food banks in all 50 states, Washington D.C., and Puerto Rico.<sup>2</sup> These food banks function to source and warehouse bulk food items from manufacturers, retailers, and government commodity food programs for redistribution to over 60,000 partner agencies.<sup>2</sup> These partner agencies operate as ‘front line’ programs that directly give clients food, and include food pantries, soup kitchens, homeless shelters, and schools.<sup>2,3</sup> Collectively, this charitable food system serves 1 in 7 (46.5 million) Americans annually.<sup>2</sup>

While initially conceptualized as a community resource for families in need of emergency food assistance,<sup>1,4</sup> the US charitable food system increasingly serves low-income households on a routine basis, with an estimated 54% of clients accessing food assistance six or more months of the year.<sup>5</sup> More than half (57.8%) of the households served by US food banks include a member with hypertension and one-third (33.2%) include a member with diabetes.<sup>2</sup> The high prevalence of chronic disease observed in these settings is consistent with epidemiologic research showing that food insecurity, a household-level economic and social condition of limited or uncertain access to adequate food,<sup>6</sup> is associated with nutrition-related chronic diseases and conditions, including obesity, hypertension, and diabetes.<sup>7,8</sup> Partially these findings are likely to be related to poor dietary intake. In addition, these conditions, because they put pressure on the household food budget and/or reduce employment capacity, may further lead to increased risk for food insecurity.<sup>9</sup> Thus, providing client households with foods that promote good health is considered one avenue for “shortening the line” of hunger by addressing a root cause of food insecurity.<sup>9</sup> Collectively, these data sparked a 2015 national call encouraging US food banks to respond to the nutritional needs of vulnerable populations through nutrition-focused food banking

initiatives, including efforts to improve the nutritional quality of foods distributed to clients of charitable food programs.<sup>4</sup>

A national survey of food bank clients conducted in 2013 suggests that many charitable food clients prefer nutritious foods, and that fresh fruits and vegetables (F&V) are the most requested item not received by clients.<sup>2</sup> Because the historical model for a US food bank has been to coordinate the sourcing, warehousing and redistribution of shelf-stable foods,<sup>4</sup> food inventory has traditionally included a rich supply of processed foods that are lower in nutrient density. The limited infrastructure for fresh food warehousing and distribution,<sup>4</sup> combined with stakeholder desires for fresh and more nutritious foods, have prompted quality improvement and related research initiatives. Past studies have focused on how food banking culture, capacity, and practices affect the nutritional quality of food inventory,<sup>10</sup> as well as identifying key barriers to the distribution of perishable foods such as fruits and vegetables.<sup>10–12</sup> However, limited information is available on how food banks have overcome these identified barriers to nutrition-focused food banking. Existing information includes predominantly case studies of food banks distributing fresh produce to partner agency sites during their hours of operation,<sup>13</sup> nutrition profiling systems to measure the nutrition quality of food bank inventory,<sup>13,14</sup> and food bank-sponsored client nutrition education.<sup>15</sup> Additional information is needed to more broadly describe how US food banks, as key influencers of the charitable food system, are working to advance nutrition-focused food banking initiatives in their communities, specifically through organizational and other programmatic efforts.

### Aims

The “Foodbanking Research to Enhance the Spread of Healthy Foods” (FRESH-Foods) Study was a multi-aim study, conducted by the study authors, to qualitatively explore nutrition-focused programmatic practices and priorities of US food banks, including opportunities and challenges regarding food bank distribution of fresh F&V and other healthy foods. Here, we describe this study’s findings on food bank leadership-identified organizational strategies, “best practices”, and innovative programs for advancing nutrition-focused food banking in the US.

## METHODS

The unit of analysis for this qualitative study was food bank organizations across the US. The authors selected executive leaders of Feeding America-affiliated food banks, the US’s largest network of independently-operated food bank organizations,<sup>2</sup> as key informants for this study. These executive leaders included chief executive officers and executive directors of food banks, who are responsible for overseeing all aspects of food bank operations, including administrative, programmatic, donor engagement, community outreach, and strategic planning. For these reasons, they are used as key informants in food banking research.<sup>13</sup> The overall sampling framework for the FRESH-Foods study was similar to the design used in a previous qualitative food bank study,<sup>13</sup> and has been fully described elsewhere.<sup>11,16</sup> Briefly, the purposive sampling criteria was designed to solicit a diversity of opinions from food banks across the network. Sampling began with all 199 Feeding

America-affiliated food banks using commonly available organizational and community-level criteria in order to ensure a balanced representation of perspectives across the network. These criteria included: 1) fresh produce distribution at the level of the food bank (measured as a percentage of total food pounds distributed), 2) available resources at the level of the community (measured as an aggregate of four components of food and fund availability for charitable donation in a given community), and 3) availability of fresh fruits and vegetables at the level of the state (measured in acreage devoted to fruit and vegetable production per person). Food bank data for the sampling criteria were provided to the research team by Feeding America. Seven food banks were missing data for at least one sampling criteria, resulting in a final sampling pool of 192 food banks. The 192 food banks were each categorically divided into one of three tertiles for each of these three criteria, and then different combinations of criteria (e.g. high produce distribution, high financial resources, and moderate availability) were assembled into strata. The researchers randomly selected three food banks from each of the nine-resulting stratum for an interview, for a preliminary sample of 27 food banks. Three additional food banks from larger states were later added to the sample to better ensure a diversity of perspectives since food bank operating in larger states may experience significant differences in local availability of state-grown produce, which was one of the study's sampling criteria. The final sample size included 30 food banks within the Feeding America network, which exceeded the minimum recommended sample size for qualitative research that aims to describe major themes and perspectives on a singular issue.<sup>17</sup>

The researchers selected interviews as qualitative method of inquiry because the study aimed to elicit information regarding executive's personal experiences, perceptions, and practices related to nutrition-focused food banking. The full 28-item semi-structured interview guide used in the FRESH-Foods study included questions about systems-level nutrition-focused food banking practices, primarily related to fresh F&V sourcing, handling and operations, outbound delivery to agencies, and final distribution to partner agency clients. As a standard qualitative methods practice,<sup>18</sup> the interview guide was pre-tested and refined through a pilot interview with a single executive prior to the collection of data used in this study. The analyses presented here focus on those 7 questions that were developed to gain insight into how executives are working to advance nutrition-focused food banking, including internal organizational strategies and executive-identified "best practices" or innovative programs (Table 1). While some questions directed executives to speak specifically about nutrition-focused initiatives, other questions more broadly asked about strategic planning and food bank visioning. These broad, non-leading questions provided executives with the opportunity to contextualize nutrition-focused initiatives within organization-wide efforts to meet community needs.

The study coordinator invited food bank executives by email to participate in an interview at an upcoming national food banking conference. In-person interviews were performed by either M.S.W. or H.K.S. between April 2015 and October 2016 (n 27). Participants who were unable to participate via in-person interviews (n 3) completed phone interviews between October 2016 and January 2017, since phone interviews can be an acceptable alternative to in-person interviews.<sup>19</sup> Interviews lasted approximately one hour (36-82 minutes) and were taped using an encrypted audio recorder for verbatim transcription.

Participants provided written informed consent (in-person interviews) or verbal consent (telephone interviews) and received a \$100 gift card after the interview. The University of California San Francisco Committee on Human Research and the University of Oklahoma Health Sciences Center Institutional Review Board approved this study.

The full research team initially developed a codebook containing a priori themes based on the previous literature, personal researcher experiences in the food banking sector, and the question path itself. The codebook was also reviewed by a registered dietitian at Feeding America to ensure all anticipated codes related to nutrition programming were included. Two members of the research team (M.S.W. and K.C.W.) conducted thematic analysis to explore and describe major themes by independently coding each transcript using Atlas.ti (Germany) software.<sup>20</sup> During the first round of coding, emergent themes, including the innovative program codes derived from responses to the “best practices” question, were identified inductively.<sup>21</sup> These emerging codes were then discussed between the two coders and standardized for addition to the codebook for use in the second, and final, round of coding.<sup>21</sup> All of the specific strategies described in the interviews could be categorized into one of four major initiative categories, indicating that saturation was met for these four major themes.<sup>22</sup> Final frequencies for specific strategies were calculated based on the number of interviewees who mentioned a particular program or “best practice,” in accordance with guidelines for qualitative research with larger data sets.<sup>23</sup> While these frequencies helped guide identification of the most frequently cited programs among this study’s sample, they were not intended for making generalizations or inferences beyond what is observed in this sample. Inter-coder reliability for final codes used in these analyses was assessed using the Coding Analysis Toolkit,<sup>24</sup> which is available for users of Atlas-ti to calculate percent agreement between coders. All codes reached an acceptable percent agreement of 85%<sup>25</sup> and a Cohen’s Kappa value of 0.9; discrepancies were resolved through mutual consensus. Results from the final analyses were shared with food banking experts at Feeding America, who were from outside the research team, to confirm the credibility of the findings.

## RESULTS

Participants (n 30) represented food banks from across the US, including Northeastern (n 3), Southern (n 11), Midwestern (n 10), and Western states (n 6).<sup>26</sup> Food banking experience averaged over 13 years (M 13.4 years, SD 8.2 years), but ranged widely (11 months to 28 years).

The major themes from the interviews fell into four broad categories of nutrition-focused food banking initiatives: building a healthier food inventory at the food bank; enhancing partner agency healthy food access, storage, and distribution capacity; nutrition education outreach; and expanding community partnerships and intervention settings for healthy food distribution, including healthcare and schools (Figure 1). The number of executives citing each type of practice are included in Figure 1 to illustrate those practices that were more commonly reported and those that were more novel (i.e., unique approaches) within the sample. Illustrative quotes for each nutrition-focused food banking practice are summarized in Table 2.

### **Building healthier food inventory**

The majority of food bank executives described nutrition or health-related grant writing and donor requests specifically for fresh F&V (n 25). Executives described these efforts as being very successful, which often allowed food banks to increase the volume and diversity of fresh produce inventory. Grant makers for these initiatives commonly included insurance companies, health organizations, and other health-sector funding sources. Nearly half of executives reported implementation of nutrition-focused metrics (n 14), such as fresh produce distribution goals, that were often used by food bank leaders and staff. These metrics included various approaches to measuring or rating the nutritional quality of food inventory, including the CHOP rating system,<sup>14</sup> Foods to Encourage,<sup>27</sup> or other measures of nutritious poundage. One executive of a food bank with high F&V distribution described the innovative development of an interdepartmental perishable foods committee to help achieve F&V distribution goals, which was comprised of representatives from procurement, handling, and agency relations. Fewer executives reported using formal nutrition policies, although this practice was still commonly reported. These policies varied, but broadly fell into two approaches including refusing unhealthful donations, such as soda and sweet bakery items from retailers or manufacturers (n 5), or using inventory purchasing dollars only for healthful foods (n 7). Executives described these policy decisions to be philosophically important for the advancement of nutrition-focused food banking, and generally described these policies as having either a neutral or positive impact on the quantity of total food inventory.

### **Enhancing partner agency healthy food access, storage, and distribution capacity**

In addition to internal efforts to build a healthier food bank inventory, many executives acknowledged partner agency barriers to being able to procure and distribute perishable healthy foods. To overcome these barriers, executives commonly described efforts to build physical and human capacity at partner agency sites. Many executives reported food bank-sponsorship of cold storage for partner agencies so they could provide clients with fresh produce and other perishable items, such as dairy (n 11). Over one-quarter of executives described food bank-sponsored agency training programs (n 8), which indirectly address partner agency capacity by aiming to improve knowledge and skills among partner agency leaders and volunteers. Topics included grant writing, education on what constitutes “nutritious” food products, food safety practices, and how to conduct Supplemental Nutrition Assistance Program (SNAP) outreach.

To improve partner agency access to perishable foods, including fresh F&V, food banks employed several strategies. The most frequently cited strategy involved notifying partner agencies that fresh F&V is available for immediate pickup (n 9), often through a mass e-mail to higher-capacity partner agencies. Some executives described efforts to directly link partner agencies with perishable food donors, such as retailers (n 7). This strategy offered the added benefit of maximizing the shelf-life of perishable food products by shortening the distribution time. Few executives described the strategy of making F&V visible and readily available for agencies to immediately add on to their order at time of food pick-up (n 3). “Produce drops” were often described by executives as a best practice for enhancing partner agency and community member access to fresh F&V. These “produce drops” are designed to

help eliminate transportation, staffing, and cold storage barriers among partner agencies, and are typically implemented in one of three ways. The first approach involves food bank staff directly distributing fresh product to clients at the same time dry foods are distributed by the agency (n 6). These coordinated distributions often use the food bank's mobile market vehicle or involve setting up a "farmer's market" in the parking lot of a partner agency. The second "produce drop" approach involves "just-in-time" delivery of fresh produce (n 5) to a partner agency immediately before services begin, with the main difference being that the foods are distributed by partner agency volunteers rather than food bank staff. The third "produce drop" strategy involves food bank transport of produce to a central drop-off location for access by partner agencies operating in distant counties (n 4). Some food banks further invested in this strategy by sponsoring large, off-site refrigerated storage units so that partner agencies could access fresh product at their convenience.

Finally, some executives reported tiering partner agencies as a strategy for maximizing distribution of healthier products (n 6). Executives described a process where partner agencies are first divided into groups, typically based on agency service capacity (e.g. high tiers being ready and requesting more produce, middle tiers requesting more produce but needing capacity expansion such as more refrigerated storage and low tiers being unable to handle more produce). This tiering system is then used to grant food ordering priority to those partner agencies who are able to distribute more produce to more people. Providing partner agencies with nutrition information of foods at the time of order was not commonly reported. In fact, only one executive reported integrating the CHOP rating<sup>14</sup> of foods into their food bank's online food ordering system.

### **Community-based nutrition education**

Executives frequently described the importance of providing clients with education on basic nutrition education and opportunities to taste and to learn how to prepare healthy foods. Registered dietitian nutritionists, dietetic interns, or nutrition education paraprofessionals primarily performed these activities, and were either food bank employees or volunteers, or leveraged from state or local healthcare community programs. Nutrition education programs (n 19) most often focused on teaching the health benefits of fresh produce or the impact of a healthful diet on chronic diseases, such as diabetes and obesity. The majority of these programs included a cooking component (n 16) to build client confidence and skills for preparing nutritious foods and increase acceptance of unfamiliar foods.

### **Expanding community partnerships and intervention settings for healthy food distribution**

The final type of nutrition-focused food banking initiative involved expanding food bank partnerships with schools and healthcare settings. Executives commonly identified schools as prime intervention settings for healthy food distribution initiatives. Nearly one-third of executives reported direct food distribution to students and families at school sites (n 9), most often through the mobile market model, where foods are delivered by the food bank to schools. Distributions were primarily implemented on Fridays or at the end of the school day, and frequently targeted low-income schools. Executives described these distributions as an effective strategy for distributing fresh produce, which is typically not distributed through the school "backpack" programs (in which students take home non-perishable food in a pre-

packed backpack to support their weekend food requirements). Fewer executives described their role in administering summer breakfast and lunch feeding programs (n 3). Several executives also described efforts to improve the nutritional quality of foods provided to students during the school day, either through political advocacy efforts (n 2) or by directly supplying school meal programs with fresh F&V (n 3). One executive described how the food bank leveraged their handling facility to bag donations from local growers for free redistribution and delivery to local schools for use in their breakfast and lunch programs. This program's expansion plans include further leveraging of the food bank handling facility to wash, chop, and prepare F&V for the school system. This executive reflected on the role of food banks in addressing a community's determinants of hunger:

'Well, if you're going to eliminate hunger it takes more than just the food banks giving out food... It takes drilling down to the root cause of hunger and the places where the vulnerable populations are going and providing them with manna--the food. The school systems were a natural connection, they have children, they have all the children that are there with the families whether they are of means or not. For us it doesn't matter, children should have access to food whether their families can afford it or not.'

One-third of executives identified healthcare partnerships as an emerging opportunity for innovative programs. These programs were described as a natural extension of a food bank's established role in community nutrition education. Healthcare partnerships included produce "prescription" programs or food bank-sponsored mobile markets at healthcare sites (n 10). Produce "prescription" programs generally involved referrals by a doctor or healthcare navigator for healthful food, with the prescription generally fulfilled by the food bank, either at the mobile market or at a food bank-affiliated food pantry. Some of these programs integrated food security screenings into medical visits (n 3).

For areas without an identified community partner, some food banks reported distribution of foods directly to people in public areas. These fresh F&V mobile markets (n 20) used food bank-owned refrigerated vehicles or trailers to deliver and distribute nutritious, perishable foods, with frequent geographic prioritization of food deserts. Several executives described these mobile markets as a community venue for simultaneously delivering health outreach services or health fairs (n 3).

## DISCUSSION

This study explored how food bank leaders across the US are working to advance nutrition-focused initiatives within their organizations and through community partnerships. Although many specific strategies were identified, our findings suggest that food bank leaders have prioritized four major types of nutrition-focused food banking initiatives: building a healthier food inventory, supporting partner agency capacity for fresh food distribution, providing community-based nutrition education, and expanding community partnerships. Collectively, these initiatives intersect with the major elements of the charitable food system, including food sourcing, handling and operations, outbound delivery to partner agencies, and food distribution to household beneficiaries of the charitable food system. This study adds to existing literature by providing health program developers, policy makers, and anti-hunger



advocates with qualitative insight into how US food banks are working to effect nutrition-focused charitable food systems change.

This study's findings provide a deeper understanding of the various strategies that food bank executives are implementing to build a more nutritious food inventory in their warehouses, as well as possible barriers that still remain. Health-focused grant writing efforts were reported by a large majority of executives, indicating that many food banks are actively working to enhance their organizational capacity in this area. Nutrition-focused metrics were also commonly described, which can provide food banks with objective measures to benchmark their progress. Interestingly, the use of formal nutrition policies, including both refusals of unhealthy food donations or healthy food purchasing guidelines, were less common. These policy-related findings are consistent with past qualitative research conducted in 2010 that also found infrequent use of formal nutrition policies,<sup>14</sup> which indicates a persistent hesitancy among some food banks to explicitly institutionalize nutrition into their organizational bylaws. Additional studies are needed to identify how different nutrition policy approaches influence the nutritional quality and overall availability of food inventory, which may help to inform policy decisions by food bank leaders who have not yet chosen to implement nutrition policies. It is also probable, given current momentum, that some of the food bank leaders interviewed have implemented formal nutrition policies since the time of these interviews.

The majority of food bank executives also described efforts to build partner agency capacity for healthy food distribution and other nutrition-focused initiatives, and reported using a wide range of tactics to achieve this goal. A few of the more popular approaches identified here have also been described in past research,<sup>10,13,14</sup> including those efforts that address physical capacity barriers, such as the provision of cold storage to partner agencies and produce drops. This study's analyses also revealed additional strategies aimed at making fresh foods more conveniently accessible to partner agencies. Nearly one-third of executives described efforts to grow human capacity through food bank-sponsored training programs, which may be particularly useful for shaping partner agency practices on how healthy foods are stocked and promoted to clients. Collectively, these efforts may support an improved food environment and a more holistic provider-client interface at charitable food sites that can complement longer-standing initiatives identified here and elsewhere,<sup>28,29</sup> including food bank-sponsored nutrition and cooking education programs.

Finally, study findings illustrate how food banks can partner with other systems to further promote healthier food access in communities. Identified in past research as a common outreach practice,<sup>10,13</sup> mobile markets were also widely-reported among this study's sample as way to directly provide students and their families, patients, and community members at large with food assistance. This strategy illustrates a major community role change for many food banks, since the US charitable food system was not initially conceptualized for food banks to provide food directly to clients. Additionally, food bank-led collaborations with school, healthcare, and other community systems may provide communities with new comprehensive community health frameworks for connecting at-risk populations with nutrition and other health resources. For example, the Healthy Cities intervention study,<sup>30</sup> which was being conducted at the beginning of this research, found that food banks can

function as lead facilitators of multi-component, school-based community health initiatives. However, evaluators found that the health screening component of these initiatives were more difficult for food banks to implement than nutrition education and food distribution. Interestingly, very few executives in this study described the use of health screenings or fairs. Since health screening plays an important public health role in disease prevention and detection, food bank health outreach initiatives may benefit from strategic partnerships with nursing or medical schools, healthcare systems, health departments, health payors or community health workers to conduct health screenings at food distribution sites.

This study has several limitations. First, the FRESH-Foods study was designed to describe opportunities and challenges regarding food bank distribution of fresh F&V and healthier foods, including operational, leadership, and programmatic factors. Themes related to ancillary activities that did not involve direct food distribution, such as nutrition education and other health programming (e.g., health fairs/screenings), were analyzed as emerging themes and not directly solicited through the original interview guide. This analysis focused on perceptions by food bank executives about how various initiatives and strategies are working to improve healthy food access, but this research is not able to objectively confirm the degree to which these efforts are impacting access or consumption of healthy foods.

Finally, the U.S. food banking system is in a stage of constant innovation and transformation,<sup>4</sup> including gains in fruit and vegetable distribution across the network since this study began<sup>16</sup> which may be due to efforts by the Feeding America national organization since 2011<sup>4</sup> to actively promote nutrition initiatives and fresh produce distribution by its food bank members.<sup>31</sup> Although these analyses achieved saturation in the major initiatives being employed, the specific types of strategies identified were too numerous to achieve saturation with the study design. Many of the major initiatives or specific strategies identified in this study may have further experienced changes between the time of the interviews, which spanned two years, and publication of the study's findings.

## IMPLICATIONS FOR RESEARCH AND PRACTICE

The strategies described in this manuscript potentially could be strengthened through engagement with dietetics professionals at many levels, particularly those that aim to expand community partnerships and intervention settings. In this study, registered dietitian nutritionists were primarily described as providers of client nutrition education. However, these professionals have the additional training and expertise to advise on the development of evidence-based community nutrition programs for primary, secondary, and tertiary disease prevention. Interprofessional collaboration with social workers can further complement these efforts by connecting clients with resources to support other determinants of health, such as public insurance benefits and prescription drug assistance. Since both types professionals are typically employed by healthcare and school systems, dietitians and social workers may be key implementation contacts for food banks that are working to initiate cross-sector collaborations. Additionally, those professionals who are working outside of the charitable food system need to be familiar with local food bank initiatives. This awareness is critical for connecting eligible clients with community food resources, and potentially for the identification of new community outreach settings.

Future quantitative research on nutrition-focused food banking should aim to identify evidence-based approaches, including types of initiatives, specific strategies, and community partnerships, that are most effective for producing intended outcomes, such as healthy food distribution at the food bank- or partner agency-level as well as improved client food security, dietary intake, and health outcomes. Client satisfaction should be evaluated to identify the positive and negative implications of new healthy food initiatives, such as programmatic impact on the client-perceived quality of healthy foods and whether these foods sufficiently address household needs.

Additionally, rigorous evaluation of multi-sector collaborations may require unprecedented information sharing between social, healthcare, and educational sectors. For example, research that aims to evaluate the health impact of produce prescription programs will most likely require some type of data-sharing agreement between charitable food providers and health care systems. Similarly, studying the impact of school-based initiatives on student academic outcomes, which are long-term predictors of health in adulthood, would most likely require information sharing between food banks and schools. Comprehensive research designs on the health, educational, and economic benefits of these nutrition-focused food banking initiatives can help inform policymaking decisions across multiple sectors.

## CONCLUSION

This study describes an ongoing transformation within the charitable foods system toward nutrition-focused food banking. This transformation is evidenced by, and will likely be further achieved through, a combination of strategies at the local and national levels that support the expanding role of food banks to include direct food distribution and strategic cross-sector community partnerships. Future research needs to systematically evaluate the reach, impact, and scalability of the various initiatives identified in this study to determine the most effective strategies for promoting nutrition and health equity among persons accessing charitable food assistance.

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## Research Snapshot

### Research Question

To describe food bank leadership-identified organizational strategies, “best practices”, and innovative programs for advancing nutrition-focused food banking in the US.

### Key Findings

Qualitative analyses identified many types of strategies that food banks are employing to support nutrition-focused food banking. These strategies primarily centered around four major themes: building a healthier food inventory at the food bank; enhancing partner agency healthy food access, storage, and distribution capacity; nutrition education outreach; and expanding community partnerships and intervention settings for healthy food distribution, including healthcare and schools.

**MAJOR INITIATIVES**

**SPECIFIC STRATEGIES**



**Building Healthier Food Inventory**

- Focused grant-writing and donor communications (n 25)
- Nutrition-focused metrics (n 14)
- Nutrition policies, including donation refusal guidelines (n 5) and purchasing guidelines (n 7)
- Perishable foods committee (n 1)



**Enhancing Healthy Food Access, Storage, and Distribution Capacity for Partner Programs**

- Provision of cold storage to partner agencies (n 11)
- Partner notification when fresh produce is available (n 9)
- Partner agency training programs (n 8)
- Bypass food bank for direct access to donations (n 7)
- Tier partner agencies (n 6)
- Provide food bank-sponsored "produce drops", including coordinated with partner agency distribution (n 6), "just-in-time" produce drops (n 5), and central location produce drop (n 4)
- Fruit and vegetable visibility at time of order pickup (n 3)



**Community-Based Nutrition Education**

- Nutrition education (n 19), most often including a cooking component (n 16)



**Expanding Community Partnerships and Intervention Settings for Healthy Food Distribution**

- Community*
  - Mobile markets (n 20)
  - Community health fairs (n 3)
- Healthcare*
  - Healthy food distribution at a healthcare site or produce prescription programs (n 10)
  - Food insecurity referral resource (n 3)
- Schools*
  - Direct distribution to students and families (n 9)
  - Feeding programs outside of school day (n 3)
  - Feeding programs during school day (n 3)
  - Advocacy efforts (n 2)

**Figure 1.** Major initiatives and specific strategies for nutrition-focused food banking as identified by executive leaders of US food banks (n 30), The Foodbanking Research to Enhance the Spread of Healthy Foods (FRESH-Foods) Study, 2015-2017

**Table 1.**

Questions used during food bank executive interviews (n 30) to identify internal strategies and community programmatic initiatives to advance nutrition-focused food banking, The Foodbanking Research to Enhance the Spread of Healthy Foods (FRESH-Foods) Study, 2015-2017

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**Questions to elicit internal organizational strategies**

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- Within your food bank, who are the key people who advocate for fruit and vegetable distribution, if any?
  - Please think here of yourself and all of your stakeholders: growers, donors, Board of Directors, operations staff, programs staff, agency relations staff, development staff, agency volunteers, and clients
- Has your food bank done any fundraising around the issue of distribution of healthier foods or Foods to Encourage?
- Has your food bank ever discussed with a food donor a desire for healthier food products?
- Has your food bank ever considered implementing a guideline or adopting a standard practice on the nutritional quality of foods it distributes?
  - [If yes/guideline in place] Were there concerns raised, and if so what were they? Are there plans to revise the guideline or practice in the future?
- What is your food bank’s biggest strategic priority over the next 3-5 years?

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**Questions to elicit “best practice” or innovative program descriptions**

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- Can you share a best practice of how your food bank is currently distributing produce or healthier food?
    - What are key barriers you have had to overcome and how did you do it? What is working best?
  - What do you think food banking will look like in 10 years?
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Table 2.

Strategies for nutrition-focused food banking as identified through qualitative interviews with food bank executive leaders (n 30), including illustrative quotes, The Foodbanking Research to Enhance the Spread of Healthy Foods (FRESH-Foods) Study, 2015-2017

Strategy	Interviews Cited	Illustrative Quotes
<b>Building Healthier Food Inventory</b>		
<b>Focused grant-writing and donor communications</b>	n 25	'From a fundraising perspective, we're tackling all the fresh fruits and vegetables. We've got some donors who are really interested in supporting that. A couple of foundations who've made significant gifts on an annual basis to help us distribute more produce. We've been growing our produce distribution about a million pounds each year.'
<b>Nutrition-focused metrics</b>	n 14	'We follow something called the CHOP Rating System which is a system designed by the Pittsburgh Food Bank... We set an internal goal every year that 80% of what goes out the door is a rank 1 or a 2. Last year we achieved 85 [percent] so we're very, very focused on putting out the most nutritious food that we can because we know the impact it has.'
<b>Nutrition policies</b>	n 5 (donation refusal guidelines) n 7 (purchasing guidelines)	'We actually have adapted a pretty far-reaching healthy food and beverage policy which speaks both to foods that we will not accept and do not intend to distribute, notably candy and sugar-sweetened beverages as well as some specific goals.' 'We would never buy anything like that [candy or sodas]. No, never, no. We are very careful on how we spend the money that we spend.'
<b>Perishable foods committee</b>	n 1	'That's probably a best practice, too. I don't think about it that way. It's just something that we do, but it has been one of the keys to our success. It's a very cross-functional team. It's agency services, operations, it's food solicitors, it's our mobile pantry coordinators. It's our nutritionist. There are 10 people on that team and it meets religiously every week. We track our perishable product distribution by source, by distribution method, every week.'
<b>Enhancing Healthy Food Access, Storage, and Distribution Capacity for Partner Programs</b>		
<b>Provision of cold storage to partner agencies</b>	n 11	'We have had a cold storage program so we provide industrial coolers and freezers for member agency partners so that they can accept and distribute more perishable food.'
<b>Partner notification when fresh produce is available</b>	n 9	'I have over 80 different pantries that I can call and have this product distributed. Like yesterday, like I said, we distributed over 80,000 pounds, and it's just calling those pantries. Believe me, when you have fresh produce, they come in like little ants.'
<b>Tier partner agencies</b>	n 6	'We have in our top tier, agencies that are high capacity and fully capable and chomping at the bit for more fresh produce and more other things. Part of the definition of being in that top tier is around really embracing nutrition and produce strategies. Second tier, organizations in the middle. They want to get there but there is a physical capacity constraint or there's maybe a human capital constraint. Then, the bottom tier which those are low capacity, probably will never move out.'
<b>"Produce drop" coordinated with partner agency distribution</b>	n 6	'They [partner agencies] all book their refrigerator, the mobile refrigerator, in connection to their distributions, 100% produce. They combine that with what they pick up from the warehouse which tends to be all non-perishable and they're doing that out of their church. And then you [clients] get your food box, now you go by the refrigerator and you get all the produce and you take it home. If an agency said I'd like to take more produce, I just don't have the space, we would say we've solved that problem for you.'
<b>"Just-in-time" produce drops</b>	n 5	'We'll tell a pantry that we're going to come out and, as part of their overall food distribution that day, we're going to do a produce distribution as well. That way it couples and it leverages the time that they have with their clients.'
<b>Central location produce drop</b>	n 4	'We have volunteer produce drivers who everyday deliver fresh produce just in time to pantries they are serving. Your food pantry is going to be open from 11:00 to 1:00, our volunteer shows up at 10am and gives you 5 boxes of fresh produce.' 'We have purchased a renovated freight container, shipping container like you see on the ships... We're putting a Thermos King unit on it so it's totally refrigerated. I have a partner agency ... that has the capability to handle it. What we're going to do is we're going to put that shipping

Strategy	Interviews Cited	Illustrative Quotes
<b>Fruit and vegetable visibility at time of order pickup</b>	n 3	<p>container at this partner agency. We're going to take 12,000 pounds of fresh produce twice a week and then he's going to contribute to partner agencies in his area.'</p> <p>'Then we've tried to put [fresh produce] outside where the agencies pick up so that they can see it, [in contrast to when]...it was stored in the cooler and in the back and the agencies didn't know it was there. The goal is to really have it visible and have the agencies who are picking up take a look at it, talk to them about it, and then we can just add it to their order.'</p>
<b>Community-Based Nutrition Education</b>		
<b>Nutrition education</b>	n 19	<p>'I think the best practice for us... [is] we have a full-time staff person and nutritionist that goes out to the agencies every day. She does about 12 training sessions a month with clients [and] with the member agencies, to talk about the benefits of fresh produce so that when we get it people know that it's available, and they also get it with menus on how to use it, recipes.'</p> <p>'Doing the nutrition classes with the kids has worked really well. We're able to show them that when they're with mom and dad at the grocery store and mom says you can pick something, don't pick the bag of chips. Pick the orange. Pick the apple. It will taste better. It's fresher. Probably that would be one of our best practices is doing that.'</p>
<b>Cooking component</b>	n 16	<p>'We blanket the state and I don't know if you are familiar with that [nutrition education] program but it's teaching people to cook their meals but it also teaches people how to shop. We have our culinary training which also, outside of producing meals, is teaching folks in class even how to give them the opportunity to experience other produce they may not have access to.'</p> <p>'We used our [nutrition education] program to provide some recipes for our clients and the community partners so they know how to prepare eggplant. Now, whereas before, eggplant, kale, those sorts of vegetables would sit on the shelf because people wouldn't know how to cook them. Now they know how to cook them so they are going off the shelf.'</p>
<b>Expanding Community Partnerships and Intervention Settings for Healthy Food Distribution</b>		
<i>Community</i>		
<b>Mobile direct distribution by food bank</b>	n 20	<p>'One of the biggest ways we're distributing fresh produce is through this program that we call our mobile pantry program. We identify under-served areas in the community or create partners like healthcare partners. We'll go in to that community in partnership with another non-profit or community group once a month... We bring in, essentially, a truck load of fresh produce by the pallet.'</p> <p>'Distributing directly to clients I think is an easier model... because you can go into specific areas, food desert areas. You can go into communities that are low income communities or housing areas and with little notice or not much pre-planning if you have something-if you find out today that say it's Monday, that on Wednesday you are going to have a variety [of produce...]. I think that's a more effective, quicker, safer way [than having agencies pick up fresh produce].'</p>
<b>Community health fairs</b>	n 3	<p>'... We have representation from everybody if we're doing something for an outreach, if we're doing a mobile distribution. We have the colleges there, somebody from the hospital is there because we're usually doing A1C testing [for diabetes] for people who are... [receiving] SNAP outreach, we have health navigators, it's everybody. If we're there, we're investing our time, we want to get as much accomplished [as possible].'</p>
<i>Healthcare</i>		
<b>Healthy food distribution at a healthcare site or produce prescription programs</b>	n 10	<p>'The docs there are being trained to say, "Don't forget nutritious food is critical to your health. The food bank is here. Take some produce before you go." We have this prescription that looks like it's prescription pads... for a doctor or a nurse or anyone in the healthcare to give out this essentially says, "Fresh or nutritious food is vital to your health. Call the... Food Bank health center to get connected."'</p> <p>'For this pilot, they'll be also screening for diet-related chronic conditions, specifically high blood pressure and diabetes. The doctor will then refer the patient to the client navigator that is on site and part of their system. That navigator will connect them with all kinds of resources, one of them being a prescription to our twice monthly mobile food distribution that will happen at the clinic. When we receive a prescription from a client, we'll</p>

Strategy	Interviews Cited	Illustrative Quotes
then kind of document the identifying information about who they are, the product that they get and feed that back into that systems data systems so that they can track health outcomes.'		
<i>Schools</i>		
<b>Direct distribution to students and families</b>	n 9	'We take the produce to 9 high need elementary schools. Right now, we're assisting about 7,300 children and their families because we bring enough produce to the school for them to take home for their families to use.'
<b>Feeding programs outside of school day</b>	n 3	'It's our healthier version of the backpack... Farm Fresh Fridays is a sack of produce that kids get that when they go home from school, they get that and they also get a dose of nutritional education.'
<b>Feeding programs during school day</b>	n 3	'My main experience with that [client demand] is the summer feeding program. We do produce specifically for that program as well. The kids were always excited about it. They actually, we'd send bags and they could take it home with them.'
<b>Advocacy efforts</b>	n 2	'... We partnered with [our county's] school system and distributed to every school. It was part of their schools' ordering process so they would order through us what fruits and vegetables they needed and then we would deliver it to them weekly. The processing plant will allow the schools to have a variety... I'm talking beets, things that they didn't have time to chop the heads off and slice and dice. We'll be able to do that for them and then prepare it in a way that they need it because their school budgets have been cut.'
		'Just the food that they are feeding these kids, from the school districts, is ridiculous... I was actually up in [the state capitol] trying to do some lobbying because we have a local chef who has transformed school lunch for the private schools... It really is no more expensive and his menus are phenomenal. We actually then put it into the... school districts and it was amazing, and the kids loved it.'