

Policy approaches to nutrition-focused food banking in industrialized countries: a scoping review

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Objective: This review aims to synthesize the literature describing policy approaches to nutrition-focused food banking in industrialized countries, spanning the period 2000 to October 2021. **Background:** The charitable food system provides food assistance to increasing numbers of people experiencing food insecurity in industrialized countries. Calls to improve the nutrition quality of foods provided by food banks, pantries, and shelves have increased, yet little is known about the challenges faced when initiating policy in this setting. **Methods:** A protocol based on the Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for Scoping Reviews Guidelines was developed and registered with Open Science Framework. Four electronic databases (MEDLINE [Ovid], Global Health, ProQuest, and Scopus) were searched for peer-reviewed articles published in English. A gray literature search was conducted using Google Advanced Search. **Results:** Of 642 peer-reviewed articles screened, 15 were eligible for inclusion. In addition, 24 gray literature documents were included. These 39 papers were assessed against the Iron Triangle of Hunger Relief and the Campbell et al framework of organizational factors. Six themes were identified: (1) there is a moral imperative to take action to ensure the provision of appropriate and nutritious food for vulnerable clients; (2) nutrition policies are unlikely to be formalized; (3) the unpredictability of donated food is a barrier to providing healthy foods; (4) reliance on donations affects the sector's willingness to reduce the unhealthy inventory for fear of losing donors, and the challenges of managing donor relationships were emphasized; (5) organizational capacity (volunteer workforce, executive leadership support) must be considered; (6) the existing measure of success is a weight-based metric that does not support food banks' prioritizing of healthy foods. These, and other characteristics, were incorporated into an adapted framework. **Conclusion:** There is a need and opportunity for nutrition-focused food banking. A priority action area is the adoption of an outcome metric that is based on nutritional quality, to reorient the charitable food system.

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INTRODUCTION

Food insecurity refers to limited or uncertain physical, social, or economic access to sufficient, safe, nutritious, and culturally relevant food,¹ and is a serious public health issue, associated with increased risk of obesity, diet-related chronic disease, and mental health issues.² The population prevalence of food insecurity in developed countries is estimated at 8%–20%, based on poverty estimates,³ but, as it is not routinely or adequately measured in many countries, it is likely underreported.⁴ The food banking system (also known as the emergency food system or charitable food system)⁵ is a diverse network that varies across countries and incorporates numerous food service models. This includes food banks (organizations responsible for sourcing, warehousing, and distributing food to community agencies); food pantries or food shelves (community agencies where individuals can pick up food at no or limited cost), and congregate meal sites (community agencies where individuals are served free meals for on-site consumption, such as “soup kitchens”).⁶ This system exists to address the immediate needs of people experiencing food insecurity who are unable to access food,⁷ or those with unmet food needs, because they do not qualify for government benefits (eg, the Supplemental Nutrition Assistance Program [SNAP] or the Special Supplemental Nutrition Program for Women, Infants and Children [WIC] in the United States), or the benefits are inadequate.⁵

The charitable food system, initially intended to provide short-term food relief, has become a seemingly irreplaceable solution to food poverty⁸ for the growing number of individuals who experience chronic food insecurity. This increasing demand for charitable food relief is evidence of both market and government failure,⁹ and over the last few decades food banks and pantries have become a fixed part of food-relief landscapes in industrialized countries such as the United States, Canada,¹⁰ Germany,¹¹ Finland,⁸ and Australia.¹² There has also been a dramatic reported increase in the use of food banks since the COVID-19 pandemic.¹³ Along with concerns regarding the ongoing capacity of the sector to meet increasing demand,^{10,12} there is evidence of a suboptimal nutritional quality of food being provided.^{14,15} As Popkin (2012) notes, the need to address food insecurity and hunger, without adding to the burden of overweight and obesity, is a key challenge for the charitable food system, given the low cost and high availability of energy-dense, nutrient-poor foods.¹⁶

People who are food insecure are particularly vulnerable to diet-related disease. Food insecurity is associated with malnutrition and inadequate nutrient intake,¹⁷ diet-related chronic disease, obesity,¹⁸ and

mental illness in adults, and poor growth and development, dental caries, socioemotional impairment, and behavioral issues in children.¹⁹ There are ethical concerns about providing foods to alleviate hunger that increase the risk of obesity and chronic disease among low-income families.¹⁴ To meet immediate need, the charitable food system has focused on ensuring food availability, with little consideration of the appropriateness or quality of the food provided. This focus is likely due to organizational capacity and the demands on the sector, but does not make the most of the influential role that food banks could play in shaping the food environment of their clients.²⁰

There is evidence, however, that the focus is changing. In the United States, since the mid-2000s, the rising prevalence of obesity, concurrent with increasing food insecurity, focused attention on the nutritional quality of emergency foods.²¹ “Nutrition-focused food banking” (NFFB) is a term that has been used to describe organizational and programmatic efforts to provide nutritious food to reduce the health disparities of clients,²² with Campbell et al (2015) describing a vision to stimulate specific, positive changes of the nutritional quality of food in the charitable food system.¹⁵ Theoretical frameworks to assess and improve the food system capability have been developed and applied. Sengul Orgut et al (2015) proposed the Iron Triangle of Hunger Relief framework to illustrate the complex operational decision-making that exists at food banks,²³ with the outcomes of “equity,” “effectiveness,” and “efficiency” influenced by supply and demand constraints and capacity limitations.²³ Campbell et al (2013) developed a simplified conceptual framework of organizational factors that influence the nutritional quality of foods acquired by food banks,¹⁴ incorporating 3 organizational themes: culture, capacity, and practices, indicating commitment and intent to increase the nutritional quality of emergency food.¹⁴ Together, these frameworks highlight the multiple, complex factors that need to be considered in the context of NFFB.

Many approaches to achieving NFFB have been developed, including: nutrition standards,⁶ inventory tracking,^{15,24–27} color-coded categorizations of nutrient density,²⁸ those utilizing behavioral economics,²⁹ and the use of nutrition guidelines or policy to influence procurement and donation arrangements.²⁴ The proliferation of approaches towards NFFB is concurrent with the rapid emergence and institutionalization of food banks,³⁰ considered to be a well-organized “industry.”³¹ Despite evolving into a much larger and more organized food distribution system,²¹ the quality of food provided by food banks remains poor, and the vulnerability of the client group persists.¹² Given that environmental and policy interventions are likely to be among the

most effective strategies for creating population-wide improvements in dietary quality,³² and thoughtful, evidence-informed policy provides an opportunity to support improvements in diets, well-being, and equity,³³ this scoping review explores nutrition policy and the factors affecting implementation within the charitable food system. To date, there has not been any systematic attempts to understand and characterize challenges of nutrition policy implementation in this sector.

The overarching purpose of this scoping review is to identify what is known about policy approaches to NFFB in industrialized countries. The research questions this review aims to explore include: how are policy approaches defined? what are policies comprised of? and how is policy implemented in the charitable food system? The application of an adapted framework that incorporates the Iron Triangle of Hunger Relief²³ and Campbell et al's (2013) framework of organizational factors¹⁴ will guide the exploration of factors affecting policy approaches to NFFB.

METHOD

Scoping review methodology was chosen as the most appropriate way to present an overview of the NFFB (peer-reviewed and gray) literature. While scoping reviews do not aim to critically appraise individual studies that may in fact be heterogeneous in terms of study design, methodology, and quality of results reported,³⁴ they are a useful way of mapping the existing literature on a topic to identify the key concepts, theories, and sources of evidence.³⁵ This scoping review was based on the Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for Scoping Reviews (PRISMA-ScR) Guidelines and is underpinned by the methodological guidance for the conduct of scoping reviews described by Peters.³⁶ A protocol was developed by S.M. using the PRISMA-ScR Checklist,³⁷ and this was reviewed by an academic librarian and all authors. The protocol was registered with the Open Science Framework (wfvu-v1) and the search conducted in October 2021. The PRISMA flow diagram displays the flow of the article searching, from the initial search to the final selection (Figure 1).

Search

Four electronic databases (MEDLINE [Ovid], Global Health, ProQuest, and Scopus) were searched for peer-reviewed articles published in English between the year 2000 and October 2021. The search algorithm included the terms: “food bank” OR “food pantry” OR “emergency food” OR “food relief” OR “food

assistance” AND “food policy” OR “nutrition policy” OR “nutrition guidelines” OR “nutrition quality.” The MeSH (medical subject heading) terms “food assistance,” “food policy,” and “nutrition policy” were included in the MEDLINE (Ovid) search. The CAB Thesaurus word “nutrition policy” was included in the Global Health (Ovid) search. Key words were searched with the “(Title)” and “(Abstract)” in MEDLINE (Ovid), Global Health (Ovid), and Scopus, and “NOFT” (Anywhere except full text) in ProQuest. S.M. conducted backwards citation searching to identify other relevant studies from eligible articles to ensure the widest scope of literature possible. A gray literature search was also conducted using a Google Advanced Search, using the search terms listed in Table 1 in 4 unique searches. Gray literature searches, utilizing Google often require several search strategies containing multiple search combinations.³⁸

Screening

Results were exported into EndNote (Clarivate Analytics) and combined, before uploading to Covidence[®] systematic review software and removing duplicates. Each title and abstract were screened by S.M., and then full texts were screened against the eligibility criteria (Table 2). All articles (title/abstract and full text) were double screened by C.E.P., and any identified discrepancies were discussed and resolved by the 2 reviewers, with C.M.P. confirming decisions.

Gray literature search results from the first 10 pages of each Google Advanced search were reviewed against the eligibility criteria in Table 2, but there were also criteria that specified the document types to be included (guidelines, policy, toolkit, or report published by a government or nongovernment agency) or excluded (newsletters, news releases, blog posts). The most current version or a rescinded version that hadn't been replaced with an updated version were included. Ten pages captured the most relevant hits and was a feasible amount to screen. Screen shots were taken of the results on each page of all searches, and for all results, the title, organization, year, and URL were entered into a Microsoft Excel (2019, version 16.58) spreadsheet for title and short text description review by S.M. R.G. double screened 10 of the 39 potentially relevant results.

Data extraction and synthesis

Data extracted included author(s), year of publication, title of paper, geographical location, funding source, type of study/document, aims and objectives, setting (food bank/pantry/shelf), methodology, definition of

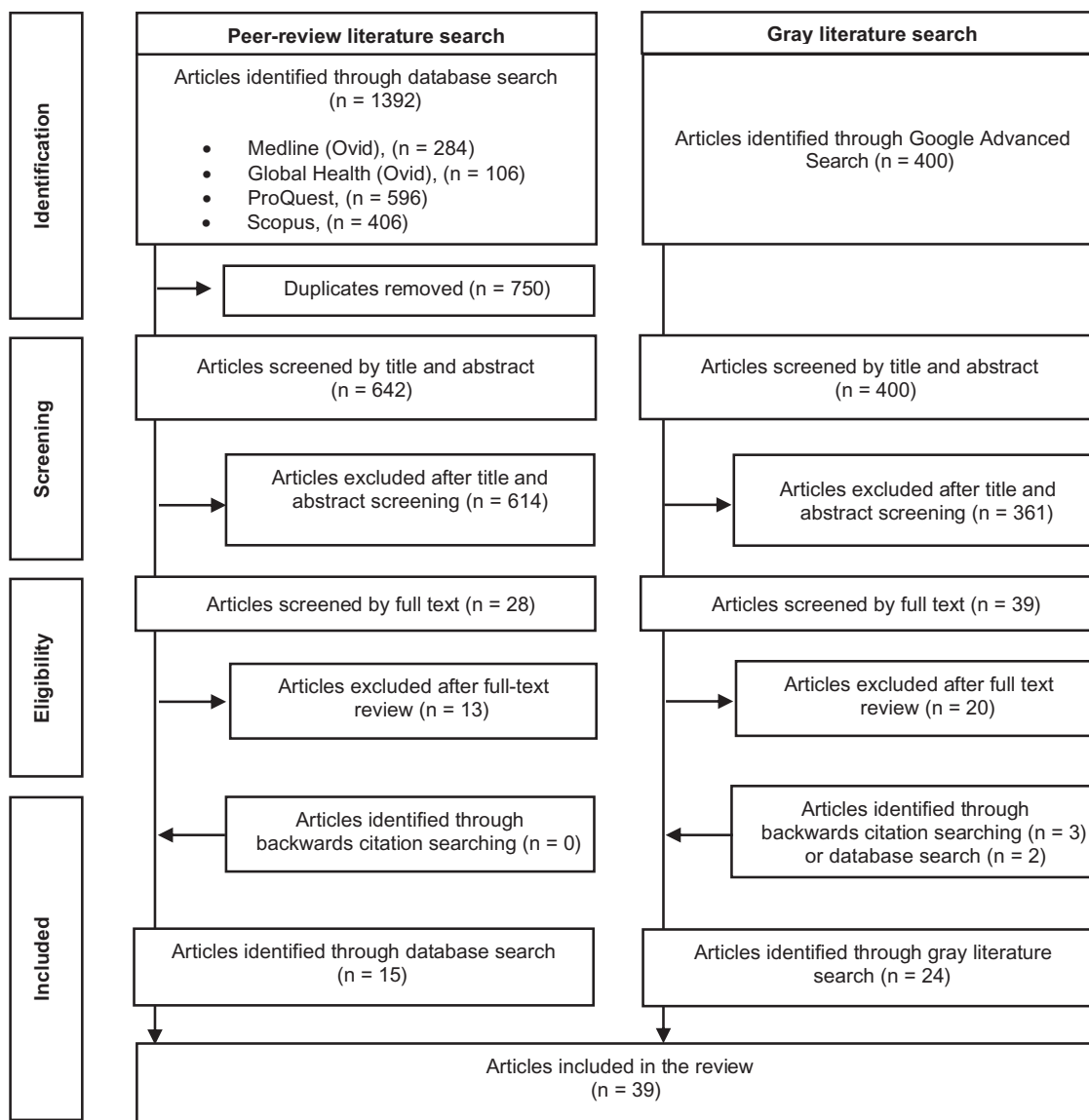


Figure 1 Flow diagram of the literature selection process.

NFFB, approach to NFFB (guidelines/policy), and outcomes of interest.

A number of models and frameworks were considered by the authors to guide data extraction, such as the Michie et al (2011) Behaviour Change Wheel,³⁹ the Hebinck et al (2021) Sustainability Compass,⁴⁰ and the Downs et al (2020) Food Environment Framework.⁴¹ Ultimately, the components outlined in the Sengul Orgut et al (2015) Iron Triangle of Hunger Relief²³ were used as the theoretical framework. With the provision of nutritious foods consistent with dietary guidelines at its center, this model illustrates the balancing act performed by food banks daily as they attempt to optimize the often conflicting objectives of equity, efficiency, and effectiveness, which are challenged by supply and demand constraints, and capacity limitations.²³

Originally developed for the supply chain setting, the contextual factors in the model provide a useful framework outlining potential factors influencing the introduction of nutrition policy (policy initiation). Articles and documents were assessed for reference to any aspect of the Iron Triangle of Hunger Relief, and findings were recorded.

As part of the iterative scoping review process, it became apparent that, in addition to the factors outlined by Sengul Orgut,²³ there were a number of organizational factors that affect policy initiation and implementation. They are defined in Campbell et al's (2013) conceptual framework, which profiles the organizational factors (culture, capacity, and practice) that influence the nutritional quality of food acquired by food banks.¹⁴ Used together, these models provided a

Table 1 Gray literature search strategy

Search #		Search box: Exact word or phrase	Search box: Any of these words	Site or domain	File type
1	Search terms	"food bank"	food policy	.org	PDF
2		"food bank"	nutrition policy	.gov	
3		"food pantry"	nutrition guidelines	.org	
4		"food pantry"		.gov	
1-4	Additional limits		Language: English		

Table 2 Eligibility criteria for database search

	Inclusion criterion	Exclusion criterion
Language	Published in English	All other languages
Year	2000—current	<2000
Country	Set in high-income countries	Set in low or middle-income countries
Setting	Charitable food system: food bank, pantry or shelf	<ul style="list-style-type: none"> Any other charitable food relief services too dissimilar to food banks (food stamps, soup kitchens, food rescue organizations) Government-funded programs such as SNAP and WIC Other setting—schools, retail food environments
Outcomes of interest	Describes the development or application of food or nutrition policy, frameworks or guidelines to improve the nutritional quality of food banks, food pantries or food shelf offerings or inventory	<ul style="list-style-type: none"> Describes approaches, initiatives, strategies or interventions <i>other than</i> policies or guidelines to improve the nutritional quality of food banks or food pantries offering or inventory (e.g. nutrition profiling systems, visual color-coded approaches) User perspectives of food bank experience Only describes individual dietary intake or quality

robust framework with which to explore the factors that influence nutrition policy within the charitable food system.

RESULTS

The total number of papers identified in this scoping review was 39. The peer-reviewed literature summary identified 15 papers, and the gray literature search identified 24 documents.

The peer-reviewed literature yielded 28 potentially relevant articles, but 13 were excluded for the following reasons: (i) did not describe a policy related to nutritional quality; (ii) did not describe a food bank/pantry/shelf; (iii) described an alternate type of charitable food relief that was too dissimilar to food banks, (iv) was an editorial or discussion paper, or (v) was considered gray literature.

The gray literature search resulted in 39 potentially relevant documents, but 20 were excluded as they were either: (i) duplicates of the database search or gray literature; (ii) other document types (eg, presentations or brochures); (iii) did not reference nutrition policy; (iv) were not charitable programs; (v) directly related to government-funded programs, eg, the Supplemental Nutrition Assistance Program (SNAP) or the Special Supplemental Nutrition Program for Women, Infants

and Children (WIC); or (vi) did not provide further detail on policy. Three additional documents⁴²⁻⁴⁴ were identified during the full-text screening through backwards citation searching. Two theses^{20,45} were identified during the database search; however, these types of documents are typically considered gray literature, so are included in these results.

Summary of included peer-reviewed literature

Table 3^{14,22,46-58} summarizes the characteristics of the 15 peer-reviewed articles included in the review.^{14,22,46-58} Publication dates were from 2011 to 2021. Most papers were from the United States,^{14,22,47-58} but 1 was from Israel.⁴⁶ Food banks,^{14,22,46,48,49,57} food pantries,^{47,50,52-56} and food shelves^{51,58} were the main settings. One study⁵⁸ explored the policy process of ordering foods from food banks by food shelves.

Methodologies utilized included surveys (n = 6), in-depth interviews (n = 5), case studies (n = 2), intervention profiles (n = 2), and a stakeholder convention (n = 1). Surveys were administered to those in leadership positions of food banks,¹⁴ or pantries,⁵³⁻⁵⁵ managers of food shelves,⁵¹ or food pantry personnel.⁴⁷ Five studies undertook qualitative interviews: 4 with senior food bank personnel^{22,48,57} and 1 with food pantry directors.⁵⁶ Cureton (2017) profiled an intervention

Table 3 Characteristics of included peer-reviewed studies highlighting nutrition-focused policy approaches in the charitable food relief sector, 2011 to 2021

Reference	Country	Setting	Methodology
Campbell et al 2013 ¹⁴	United States	Food bank	Online survey of senior food bank personnel (n = 137); semistructured interviews with senior food bank personnel (n = 6)
Cureton et al 2017 ⁵⁸	United States	Food bank and food shelf	Baseline analysis that examined whether providing feedback on the nutritional quality of food in recent food bank orders to those responsible for food shelf ordering decisions would improve the nutritional quality of food in subsequent orders
Handforth et al 2013 ⁵⁷	United States	Food bank	Semistructured interviews with directors, CEOs, and staff (n = 20) in charge of nutrition, programs, and procurement
Helmick et al 2019 ⁵⁵	United States	Food pantry	Online survey of food pantry directors (n = 1539)
Helmick et al 2021 ⁵⁶	United States	Food pantry	Semistructured interviews with food pantry directors (n = 10) to understand factors related to implementation of nutrition policies
Joly et al 2020 ⁵⁴	United States	Food pantry	Survey of food pantry directors (n = 189) to learn about the operational features, existing capacity and resources, food availability, nutrition policies, and the role, tenure, and nutrition-related perceptions of pantry directors
Long et al 2019 ⁵²	United States	Food pantry	Intervention to support pantries to develop and implement policy, systems, and environmental (PSE) changes
Long et al 2019 ⁵³	United States	Food pantry	Online survey of food agency staff (n = 357) to assess the food pantries' organizational and food distribution characteristics
Philip et al 2017 ⁴⁶	Israel	Food bank	Case study (n = 1) profiling an Israeli food bank that uses an effective large-scale logistical model for the rescue and redistribution of perishable food
Rochester et al 2011 ⁵¹	United States	Food shelf	Online survey of food shelf managers (n = 58)
Rowland et al 2018 ⁵⁰	United States	Food pantry	Case study to document the implementation of policy, systems, and environmental (PSE) changes
Shimada et al 2013 ⁴⁹	United States	Food bank	Conceptual framework of the influences acting on and exerted by emergency food network stakeholders that determines the nutritional quality of emergency food
Wetherill et al 2019c ⁴⁷	United States	Food pantry	Personnel and organizational surveys to describe readiness to provide nutrition-focused client services
Wetherill et al 2019a ²²	United States	Food bank	Semistructured qualitative interviews of food bank executive leaders to elicit information about the nutrition-focused food banking practices and processes being employed by US food banks
Wetherill et al 2019b ⁴⁸	United States	Food bank	Semistructured qualitative interviews of food bank executive leaders on how they view the role of their organizations as agents in community health

involving the use of an algorithm,⁵⁸ and Long (2019) undertook an intervention across 3 food pantries.⁵² Shimada (2013)⁴⁹ presented a conceptual framework. Campbell (2013)¹⁴ included 2 qualitative methodologies.

Summary of included gray literature documents

There were 24 gray literature documents included, as shown in Table 4.^{20,24,42-45,59-76} They were published by government,^{59,60} nongovernment agencies,^{24,42,61-73} tertiary institutions,^{43,44,74} a collaboration between organizations,^{75,76} or as part of postgraduate course requirements.^{20,45} Publication dates ranged from 2009 to 2021. All documents were from the United States, except for 1 from Canada.⁶² They included resources targeted at, about, or written by food banks,^{20,24,42-45,62,65-69,74} or written for food pantries,^{59-61,63,70,71,73,75,76} for a food

shelf,⁶⁴ or for the charitable food sector in general.⁷² Roth's (2020) in-depth interviews spanned a broad mix of stakeholders,²⁰ while Castleberry (2017) undertook an analysis of interviews conducted with food bank executive directors. There were reports,^{24,74,75} theses,^{20,45} guides,^{61-64,76} and toolkits.^{42-44,59} In terms of policy, there were examples of nutrition guidelines,^{65,72} nutrition policy,⁶⁶⁻⁷¹ breastfeeding guidelines,⁷³ and service standards.⁶⁰

Key themes were identified as part of this review from all sources (both peer-review and gray literature), and the results are presented accordingly. Descriptions and definitions of NFFB were examined, as well as the presence and content of nutrition policy within the charitable food system. These elements provided important contextual information before reviewing the factors influencing nutrition policy, such as supply, demand, capacity, and outcome metrics. The Iron Triangle of

Table 4 Characteristics of included gray literature documents highlighting nutrition-focused policy approaches in the charitable food relief sector, 2009 to 2020

Reference	Country	Setting	Type of document	Summary
MAZON (A Tipping Point) 2018 ²⁴	United States	Food banks	Report	Results of 2017 national survey, which described the landscape of how and to what extent nutrition is being addressed by food banks
Los Angeles County Department of Public Health, HUMANist Consulting (Exploring the Feasibility of Implementing Healthy Food Pantries in Los Angeles County) 2019 ⁷⁵	United States	Food pantries	Report	The purpose of the report was to determine the feasibility of implementing nutrition standards in food pantries in LA County
University of California at Berkeley (The Food Bank of Central New York (FBCNY): An Evaluation of the “No Soda and No Candy” Donation Policy and Guests’ Food Preferences) 2009 ⁷⁴	United States	Food banks	Report	Provides an overview of: the evaluation of the impact of FBCNY’s “No Soda and No Candy” policy; the assessment of Emergency Food Program (EFP) guests’ food preferences, and the assessment of EFP directors’ perceptions of guests’ perceptions
Castleberry (“It’s Our Responsibility” A Qualitative Analysis of Executive Directors’ Perspectives on Providing Fresh Produce Through the Feeding America Network) 2017 ⁴⁵	United States	Food banks	Thesis	Secondary analysis of Feeding America qualitative study: semistructured interviews of food bank executive directors (n = 33)
Roth. (Do Nutrition Policies Matter? Assessing the Determinants of Nutritional Quality of Inventory at Food Banks) 2020 ²⁰	United States	Food banks	Thesis	Examination of organizational and contextual factors associated with nutrition policy and procedure adoption among food banks using 2017 MAZON Survey and US Census Bureau database Case study (n = 2) to explore how organizations within the charitable food system have responded to recent trends to improve the nutritional quality of food bank inventory
New York Common Pantry (Healthy Food Resource Guide) 2013 ⁶¹	United States	Food pantries	Guide	Healthy Food Resource Guide: sources for funding, food donations, wholesale purchasing options, nutrition workshops and classes, and limiting the distribution of less nutritious food through the creation of policy
Community Food Centres Canada—CFCC: Beyond the Emergency: How to evolve your food bank into a force for change) 2018 ⁶²	Canada	Food banks	Guide	Resource to help food banks discuss the opportunities and challenges that arise when moving from the charity model to one informed by anti-poverty, food justice, and the social determinants of health
Indy Hunger Network (Manual of Best Practices for Food Pantries) 2020 ⁶³	United States	Food pantries	Guide	A collection of ideas and resources that works towards the mission of a system that ensures anyone who is hungry can access the nutritious food they need
Washington State University, Thurston County Food Bank and Washington State Dept. of Health (Healthy Food Pantry Guide) 2016 ⁷⁶	United States	Food pantries	Guide	Provides strategies to create a healthy food pantry
Military Family Advisory Network (Promising Practices for Creating Nutrition-Focused Food Shelves and Meal Programs) 2010 ⁶⁴	United States	Food shelf	Guide	The “Promising Practices for Creating Nutrition-Focused Food Shelves and Meal Programs” provide a roadmap to help organizations create a healthier food environment for their clients

(continued)

Table 4 Continued

Reference	Country	Setting	Type of document	Summary
Feeding America (Nutrition in Food Banking Toolkit) 2021 ⁴²	United States	Food banks	Toolkit	A resource to help the charitable food sector better understand and meet nutrition needs of our neighbors experiencing food insecurity
Tri-County Health Department (Healthy Food Pantry Toolkit) 2017 ⁵⁹	United States	Food pantries	Toolkit	The toolkit provided a range of resources for food pantries to support their efforts in offering healthy foods to people visiting their food pantry
University of California at Berkeley Center for Weight and Health (Guide to Drafting a Food Bank Nutrition Policy) 2015 ⁴⁴	United States	Food banks	Toolkit	A resource for working groups to use in drafting food bank nutrition policies for submission
University of California at Berkeley Center for Weight and Health (Guide to Convening a Working Group for a Food Bank Nutrition Policy) 2014 ⁴³	United States	Food banks	Toolkit	This guide is intended to help food banks in the process of developing a nutrition policy, particularly on how to convene a group of stakeholders to develop and refine a nutrition policy.
Healthy Eating Research and Robert Wood Johnson Foundation (Nutrition Guidelines for the Charitable Food System) 2020 ⁷²	United States	Charitable food sector	Example guidelines	Provide charitable food system staff, volunteers, donors, users, and other stakeholders with a common metric for identifying foods that are more and less highly desirable for distribution based on their nutritional quality
Colorado Breastfeeding Coalition (Guidelines for the Breastfeeding Friendly Food Pantry) 2020 ⁷³	United States	Food pantries	Example guidelines	Recommendations and best practice for food pantries to fully support breastfeeding families
Food Bank Coalition of San Luis Obispo (SLO) ⁶⁵ (Nutrition Guidelines) 2019	United States	Food bank	Example guidelines	The nutrition guidelines seek to ensure the procurement and distribution of foods of high nutritional quality.
Central Texas Food Bank (Nutrition Policy) 2016 ⁶⁶	United States	Food bank	Example policy	The purpose of the nutrition policy is to support and guide food purchasing, procurement, and distribution decisions to ensure we [Central Texas Food Bank] distribute foods that will improve community health and significantly reduce food insecurity
Blue Ridge Food Bank (Nutrition Policy Guiding Food Procurement) 2018 ⁶⁷	United States	Food bank	Example policy	The policy to procure and distribute foods of high nutritional quality demonstrates to the community that we [Blue Ridge] take our role and responsibility [to our community] seriously
Food Bank For New York City (Food and Nutrition Policy) 2010 ⁶⁸	United States	Food bank	Example policy	Food and Nutrition Policy stating sugar-sweetened beverages and candy will no longer be accepted or distributed to our network of food pantries and soup kitchens throughout the 5 boroughs
San Francisco-Marin Food Bank (Food Sourcing Policy) 2018 ⁶⁹	United States	Food bank	Example policy	Used as a guide for food sourcing decisions, including the consistent acquisition of nutritious foods for distribution
The Other Way Ministries (Healthy Food Policy) 2017 ⁷⁰	United States	Food pantry	Example policy	Outlines practices, guidelines and goals for the foods received, purchased, and distributed
Lincoln Park Food Pantry (Nutrition Policy) 2019 ⁷¹	United States	Food pantry	Example policy	Policy to promote clients' health and wellness by avoiding foods that are high in calories and have a low nutrition density
State of Nevada Aging and Disability Services Division (Service Specifications—Food Pantry) 2015 ⁶⁰	United States	Food pantry	Service specifications	Provision of nonperishable food items to older individuals on a monthly basis to assist in meeting nutritional needs

Hunger Relief²³ provided a useful framework for exploring the factors affecting nutrition policy initiation from a supply chain perspective, while the Campbell et al (2013) framework¹⁴ was a helpful structure for examining organizational factors.

Descriptions of NFFB. Wetherill et al (2019a) defined NFFB as the “organizational and programmatic efforts to address nutrition-related health disparities among charitable food clients”.²² Nine papers^{14,20,45,48,49,54–57} asserted that the charitable food system, through intentional efforts,^{55,56} has the opportunity to promote healthy eating and prevent diet-related disease,²⁰ and is uniquely suited to do this through the provision of and access to more healthful foods.⁴⁵ Wetherill et al (2019b) acknowledged the shift from the emphasis on hunger alleviation to leveraging assets to promote health.⁴⁸ This theme was echoed in other documents^{24,42,43,72,75} which deemed the shift towards nutrition an opportunity,⁴³ despite the ongoing challenges of managing unhealthy food within the sector.²⁴ Others supported this more directly,^{62,64,65,67} affirming their organization’s “important role”⁶⁴ and “responsibility”^{65,67,74} in the provision of and access to healthy foods for vulnerable clients. This was articulated in other ways too: “We have to be a little more thoughtful about the food we are providing”⁶¹ and the “need to play a leadership role in nourishing, not just feeding our community”,⁶⁶ and “this [policy] is just an evolution of food banking.”⁷⁴

Policies exist, but are not formalized. Nutrition policies were described in food banks,^{14,20,22,45,47–49,57} food pantries,^{53–56} and food shelves,^{51,58} including those in a planning^{54,57} or evaluative^{50,52} phase. There was a broad acknowledgment that policies were unlikely to be formalized as written documents.^{14,20,22,47,51,54,55,58} There was no consistent definition of what constituted a formal or an informal policy. Nutrition guidelines were utilized as an alternative to policy by 2 studies,^{47,53} and these were also likely to be informal.⁵³

This mirrors the Wetherill et al (2019a) observation of the persistent hesitancy among food banks to explicitly institutionalize nutrition into their organizational bylaws.²²

The Feeding America Toolkit (2021) reported that the presence of an informal policy resulted in confusion among staff: “We had an informal policy . . . but when we went around and talked to staff, we found everyone had a different idea about what that [sourcing of more nutritious foods] meant. We decided we needed a formal written policy.”⁴² The Colorado Breastfeeding Coalition (CBC) noted that written policies help good practices and good intentions become part of the organization’s culture.⁷³

Content of nutrition policy. Policy content typically incorporated food sourcing practices, including the refusal of unhealthful donations,^{22,45,46,48–50} active encouragement of healthy donations,^{22,48–51} or only using inventory purchasing dollars for healthful foods.^{22,48,51} Policy examples in the gray literature embodied the themes of procurement, acquisition, and distribution of more nutritious foods.^{66–71} The State of Nevada’s Aging and Disability Services Division⁶⁰ specified the provision of nonperishable food items by food pantries to older individuals on a monthly basis, to assist in meeting nutritional needs as an operational directive. Three policy examples specified that high-calorie, low-nutrient-dense foods would be avoided⁷¹ or no longer accepted.^{68,74} The CBC Guidelines⁷³ specifically addressed how to manage infant formula donations. The Community Food Centres Canada (CFCC) report⁶² noted that food banks already have basic guidelines for sorting foods (eg, discarding opened food or dented cans), so a nutrition policy builds on this process. Tools to assess existing efforts to build a healthy food pantry and identify opportunities for improvement were included in 3 food pantry resources.^{59,63,76} Helmick et al noted that directive language, whether restrictive or encouraging, enables a consistent message about the commitment to supply healthy foods.⁵⁵ This idea was reinforced in 2 resources that recommended the use of positive, client-focused language to say “no” to unhealthy donations.^{42,64}

Theoretical frameworks. The Iron Triangle of Hunger Relief²³ provided a useful framework with which to explore the factors affecting nutrition policy initiation from a supply chain perspective. The challenges relating to supply (uncertain material supply, uncertain monetary supply, limited supply, perishability, and donor constraints on supply), demand (uncertain demand and limited demand visibility) constraints, and capacity (storage, transportation, workforce, and budget) limitations were relevant.

The review identified a number of organizational factors that also play a key role in the introduction of nutrition policy in the charitable food system, consistent with those described in the Campbell et al (2013) simplified conceptual framework of organizational factors that influence the nutritional quality of foods acquired by food banks.¹⁴ The framework identified 3 groups of food bank organizational factors (culture, capacity, and practices) that indicated commitment and intent to increase the nutritional quality of emergency food.¹⁴ Some of these factors were identified during the analysis of the papers.

Figure 2 shows the adapted theoretical framework that resulted from merging Sengul Orgut et al's (2015) Iron Triangle of Hunger Relief²³ with Campbell et al's (2013) framework of organizational factors¹⁴ (Campbell et al's Figure 4). The adapted model illustrates the supply chain and the organizational factors that must be considered when introducing nutrition policy in the charitable food system to achieve the triad of effectiveness, equity, and efficiency. The adapted framework largely incorporates additional factors under capacity. Factors relating to the workforce, already considered as a key capacity limitation by Sengul Orgut,²³ were expanded to include factors related to expertise and training, attitudes and beliefs, and collaboration. In

addition to these attributes, executive support and external stakeholders were also included in the model – these additional factors were previously identified in the Campbell et al framework.¹⁴ In relation to supply, relationships with donors were identified as a key factor across almost all sources, and this characteristic had not been defined by either model previously. Client choice and wastage were additional characteristics of demand that were added to the original model; the latter was reported in Sengul Orgut (2015),²³ but made more explicit in the adapted model.

In relation to initiating nutrition policy, at least 1 factor related to food supply, demand, and capacity was cited in almost all sources,^{14,20,22,24,42–58,60–67,69,70,72–76}

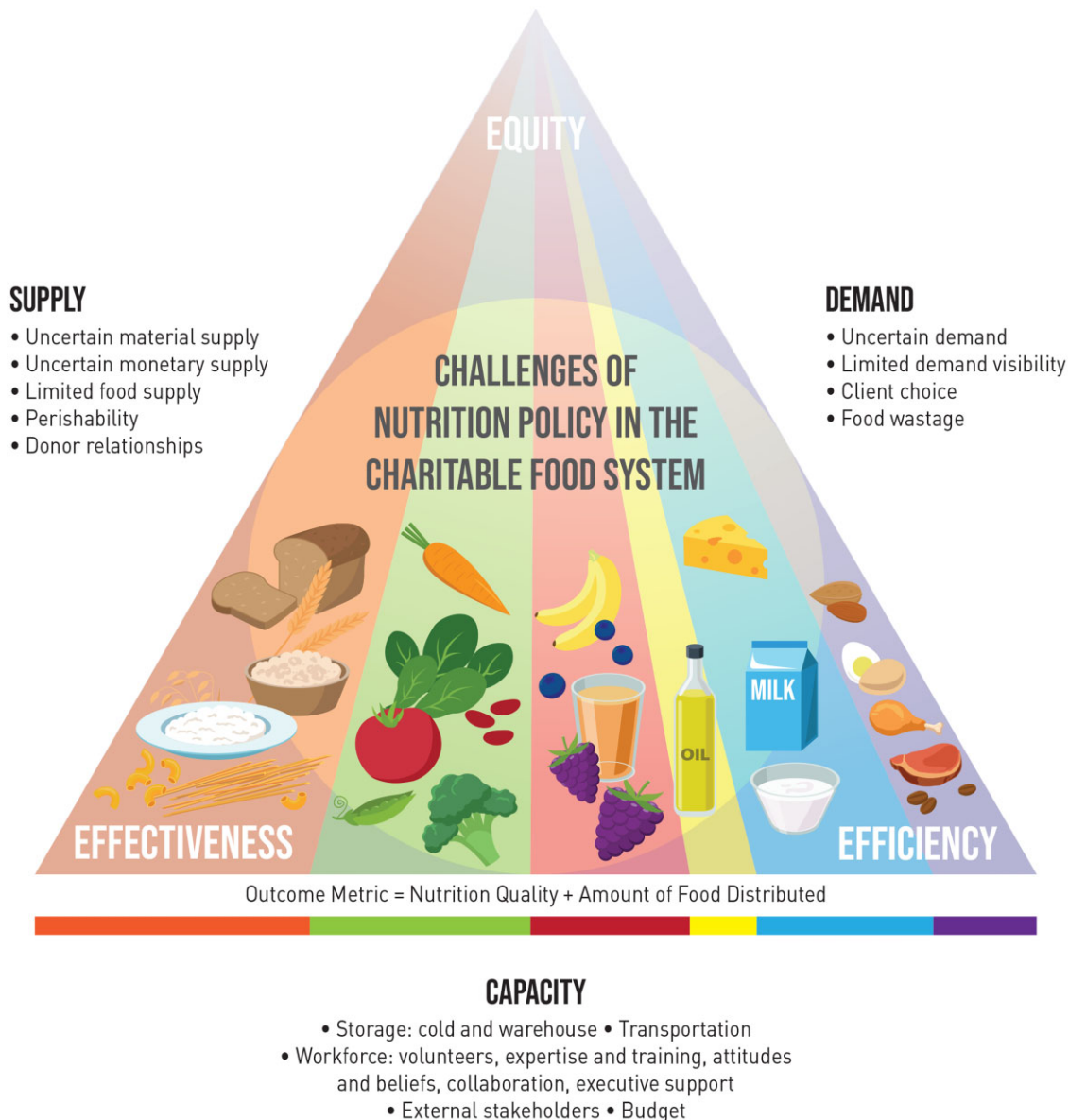


Figure 2 Adapted framework of supply chain and organizational factors affecting the initiation of nutrition policy in the charitable food system. Adapted from the work of Campbell, Ross and Webb,¹⁴ and Sengul Orgut, Brock III, Davis et al.²³

see Table 5.^{14,20,22,24,42–76} Relationships with donors and limited demand visibility were the factors most often described as impacting supply and demand, respectively. Cold storage was commonly described as a limitation in relation to capacity, with the volunteer workforce also often being identified as a limitation.

Supply. The implications of uncertain material (food) supply – the unpredictability and variability in frequency, type, and volume of donated food – were evident,^{20,24,46,47,51,54–56,75} and a barrier to either stocking inventory or providing healthy foods to clients. Nutritious food supply constraints persist, as food banks rely on donations, offering them little autonomy over distributed foods.²⁰ Food bank directors report inconsistent availability as the greatest barrier to providing fresh fruits and vegetables.⁷⁴ With nearly 60% of food bank inventory coming from donated food,²⁴ there are subsequent sporadic supply issues as captured by a US pantry director: “I never know from week to week or from day to day what I’m going to get . . . and in fact [the food bank] has been not that great in getting a lot of good food available to us.”⁵⁶ There were challenges accessing culturally relevant and diet-specific foods, and even if accessed, these foods were only available intermittently to clients.⁷⁵

Uncertain monetary supply and inconsistent or variable funding was a concern, with financial issues more often raised in the context of overall budgetary capacity than in relation to the cost of healthy food.^{46,54} The LA County Feasibility Report⁷⁵ cited funding as a barrier to an agency’s ability to implement comprehensive healthy food pantry strategies, and the Healthy Food Pantry Guide⁷⁶ included a distinct strategy for sourcing funding for capacity-related projects.

Limited food supply had a direct bearing on food availability; despite large amounts of donated food, there was insufficient supply to meet daily demand.²³ An Executive Director of a US food bank aptly noted: “Part of our struggle is, to have a nutrition policy, a policy without product isn’t much good”.⁴⁵ Most food pantry directors agreed that nutrition was important, but many stated that their pantry’s top priority was making sure families received enough food, regardless of nutritional value.⁵⁴ A study of Minnesota food shelves described how healthy food, in general, was not available; when it was, there was not enough.⁵¹ One pantry guide stated “having enough food to fill pantry bags every week can be difficult, let alone filling them with healthy products.”⁶¹

Donation of highly perishable food presents additional supply challenges.^{14,20,22,24,51} Fresh foods have a shorter shelf life, so need to be distributed more quickly,²⁰ and coupled with uncertain demand, it’s

difficult to predict “when we will be busy and when we will be slow, therefore fresh foods often spoil”.⁵¹ The greatest shift in food banking practices stemmed from the inability of food pantries to move perishable food out to clients in a timely way,¹⁴ and food banks sought partnerships and solutions to logistical challenges associated with perishable foods.²⁴ Various approaches were described, including: immediate pick-up; fostering direct links between agency and perishable food donors, and making fruit and vegetables visible and readily available for agencies to immediately add on to their order at pick-up.²²

There was no mention of large community donors placing restrictions on who could receive food,²³ but the factor that received the most attention within supply was relationships with donors. The challenges of managing relationships with donors when introducing a nutrition policy were described,^{14,20,45,48–50,57} as food banks’ reliance on donors shapes inventory quality, which in turn affects the willingness and ability of food banks to reduce unhealthy inventory for fear of losing donors.²⁰ Policies were described as “controversial” by some, due to the perception that they could jeopardize relationships with donors,⁵⁷ which brings uncertainty⁴⁹; for example, “There’s a nervousness [about not accepting certain foods].”²² Concerns about “alienating long-standing donors” were cited.^{24,42,43,62,72,75} Even among food banks that had banned distribution of certain unhealthy items, the pressure to accept these banned items remained strong.²⁴

There was strong support for food bank nutrition objectives and policies by senior food bank staff, but few thought that all food donors would be supportive.¹⁴ Handforth et al (2013) challenged this notion: “We’ve lost a lot of donors, but we’ve also gained a lot of new ones that have more of the nutritious stuff we’re looking for.”⁵⁷ Food banks reported that most donors still donated their healthier products, because they still wished to donate and receive tax deductions⁴³ and the MAZON report indicated that nutrition policies and guidelines did not negatively impact annual food donations or total pounds of food distributed.²⁴

The review provided insights into how charitable organizations have facilitated positive interactions with donors. Castleberry (2015) described the importance of being proactive when nutrition guidelines were implemented “ . . . we reached out, talked with the organizations so they understand.”⁴⁵ Echoed by Wetherill et al’s (2019b) Executive Director’s statement: “I think we also believe that if you do the right thing and if you communicate to people why you’re doing that thing [not accepting certain foods], they will respect you.”⁴⁸ The Healthy Food Resource Guide described how to best “frame” the conversation with donors, stating that “the

Table 5 References to factors affecting the introduction of nutrition policy in the charitable food system

Reference	Supply						Demand					Capacity								
	Uncertain material supply	Uncertain monetary supply	Limited supply	Perishability	Donor constraints	Donor relationships	Uncertain demand	Limited demand visibility	Client choice	Wastage	Cold storage	Warehouse storage	Transportation	Workforce: volunteers	Workforce: expertise and training	Workforce: attitudes and beliefs	Workforce: collaboration	Executive support	External stakeholders	Budget
Campbell et al (2013) ¹⁴	-	-	-	X	-	X	-	-	-	-	X	X	X	X	-	-	-	X	X	-
Cureton et al (2017) ⁵⁸	-	-	-	-	-	-	-	-	-	-	X	-	-	-	-	X	-	-	-	-
Handforth et al (2013) ⁵⁷	-	-	-	-	-	X	-	-	X	-	X	-	X	-	-	-	-	X	-	X
Helmick et al (2019) ⁵⁵	X	-	-	-	-	-	-	X	-	-	X	-	-	-	X	X	-	X	-	X
Helmick et al (2021) ⁵⁶	X	-	-	-	-	-	-	-	-	-	-	-	-	X	X	X	-	-	-	-
Joly et al (2020) ⁵⁴	X	X	X	-	-	-	-	X	-	-	X	X	X	-	-	-	-	X	-	X
Long et al (2019) ⁵²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-
Long et al (2019) ⁵³	-	-	-	-	-	X	-	-	X	-	X	-	-	-	-	-	-	-	-	-
Philip et al (2017) ⁴⁶	X	X	X	-	-	-	-	-	-	X	-	-	-	X	X	-	-	-	X	X
Rochester et al (2011) ⁵¹	X	-	X	X	-	-	X	-	-	X	-	-	-	X	X	X	-	-	X	X
Rowland et al (2018) ⁵⁰	-	-	-	-	-	X	-	-	X	X	-	-	-	-	-	-	-	X	X	-
Shimada et al (2013) ⁴⁹	-	-	-	-	-	X	-	X	-	X	-	-	-	X	-	-	-	-	-	-
Wetherill et al (2019c) ⁴⁷	X	-	X	-	-	-	-	X	-	-	X	-	-	-	X	-	-	-	-	-
Wetherill et al (2019a) ²²	-	-	-	X	-	-	-	-	-	-	X	X	-	X	X	-	-	-	X	-
Wetherill et al (2019b) ⁴⁸	-	-	X	-	-	X	-	-	-	-	-	-	-	-	-	-	-	X	-	-
Gray literature:																				
MAZON Report (2018) ²⁴	X	-	-	X	-	X	-	-	X	-	-	-	-	-	-	-	X	X	-	-
LA County Report (2019) ⁷⁵	X	-	-	-	-	X	-	X	X	-	X	X	-	-	X	-	X	X	X	-
FBCNY Evaluation Report (2009) ⁷⁴	X	-	-	-	-	X	-	X	-	-	X	-	-	X	X	X	X	X	X	X
Castleberry (2015) ⁴⁵	-	-	X	-	-	X	-	X	-	X	-	-	X	-	-	X	X	X	X	-
Roth (2020) ²⁰	X	-	-	X	-	X	-	X	-	X	-	X	X	-	-	X	-	X	-	X
New York Common Pantry Guide (2013) ⁶¹	-	-	X	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
CFCC Guide (2018) ⁶²	-	-	-	-	-	X	-	X	X	X	X	-	X	-	-	-	-	X	-	X
Indy Hunger Network Manual (2020) ⁶³	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X
Washington State University, TSFB, DOHWA Guide (2016) ⁷⁶	-	X	-	-	-	X	-	X	X	-	-	-	-	X	X	-	X	-	X	-
Military Family Advisory Network Guide (2010) ⁶⁴	-	-	-	-	-	X	-	X	-	-	X	-	-	-	X	-	-	-	-	-

(continued)

Table 5 Continued

Peer- reviewed papers:																				
Reference	Supply						Demand					Capacity								
	Uncertain material supply	Uncertain monetary supply	Limited supply	Perishability	Donor constraints	Donor relationships	Uncertain demand	Limited demand visibility	Client choice	Wastage	Cold storage	Warehouse storage	Transportation	Workforce: volunteers	Workforce: expertise and training	Workforce: attitudes and beliefs	Workforce: collaboration	Executive support	External stakeholders	Budget
Feeding America Toolkit (2021) ⁴²	-	-	-	-	-	X	-	X	-	-	-	-	-	-	-	-	X	-	-	-
Tri-County Health Department Toolkit (2017) ⁵⁹	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
UC Berkeley Center for Weight and Health Guide to Drafting a Nutrition Policy (2015) ⁴⁴	-	-	-	-	-	-	-	X	-	-	-	-	-	X	-	X	X	X	-	X
UC Berkeley Center for Weight and Health Guide to Convening a Working Group (2014) ⁴³	-	-	-	-	-	X	-	X	-	-	-	-	-	X	-	-	-	-	X	-
Healthy Eating Research Guidelines (2020) ⁷²	-	-	-	-	-	X	-	X	-	-	X	-	-	X	X	-	-	-	-	X
Colorado Breastfeeding Coalition Guidelines (2020) ⁷³	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-	X	-	-	-
SLO Food Bank Guidelines (2019) ⁶⁵	-	-	-	-	-	X	-	-	-	-	-	-	-	X	X	-	X	-	-	-
Central Texas Food Bank Policy (2016) ⁶⁶	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-
Blue Ridge Food Bank Policy (2018) ⁶⁷	-	-	-	-	-	X	-	X	-	-	-	-	-	X	X	-	X	X	-	-
Food Bank For New York City Policy (2010) ⁶⁸	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Francisco-Marin Food Bank Policy (2018) ⁶⁹	-	-	-	-	-	-	-	X	-	-	-	-	-	X	-	-	X	X	-	-
The Other Way Ministries Policy (2017) ⁷⁰	-	-	-	-	-	-	-	X	-	-	-	-	-	-	-	-	-	-	-	-
Lincoln Park Food Pantry Policy (2019) ⁷¹	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
State of Nevada Aging and Disability Services Division Standards (2015) ⁶⁰	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	X	-

first time you say no is the hardest.”⁶¹ Several food bankers said discussing nutrition policy with donors was easier than anticipated.⁴³ Providing better and more precise communication with food donors was recommended by key informants when asked what they would do differently in preparation for the implementation of the “No Candy and No Soda Donation Policy”.⁷⁴ Communicating and formalizing policy was featured in the Blue Ridge Food Bank Policy.⁶⁷ “Educating donors” about the importance of nutritious and healthy food donations was recommended in practice.^{24,52,57,61,62,65,74,76} Numerous strategies were suggested, from donation requests^{52,65} or wish lists^{64,65} to ensuring there is education about culturally appropriate foods.⁷⁶

Demand. Rochester et al (2011) described uncertain demand in the context of the challenges of matching donation availability with client need.⁵¹ Limited demand visibility occurs because food banks’ primary customers are partner agencies,^{20,23,45,49} so their clients’ desire for healthy foods is not directly communicated. Roth (2020) noted that pantry operator preferences do not always reflect client wants, and “sometimes people [clients] might miss out because it’s not available at the pantry.”²⁰ Clients’ demand was explored in 3 food pantry studies,^{47,54,55} with contradictory findings: healthy items were both a preference⁴⁷ and unpopular.⁵⁴ Client demand for healthy foods was evident in the gray literature,^{42,67,69,74} encapsulated by the statement “we recognize that food pantry clients have expressed a preference for nutritious foods.”⁶⁷ Clients ranked food high in sugar and/or fats low among their food preferences,⁴² and 94% prioritized staple items so that they could make family meals.⁷⁴

Contrary views from food relief providers were acknowledged.^{43,74,75} Some were concerned that clients who went home from the food pantry with only healthy food were letting down their families,⁷⁵ and the major criticism of the FBCNY’s “No Soda and No Candy” policy is that it limits food relief clients’ food choices.⁷⁴ MFAN (2010) stipulated that it is important to survey client feedback on preferred healthy foods.⁶⁴

Meeting demand for culturally appropriate foods was apparent, described as the need to source food that recognizes, respects, and reflects the diversity of cultural food preferences and the specific dietary or health needs of clients.^{42,62,69,70,72,75,76} The Feeding America Nutrition in Food Banking Toolkit included a section on intercultural competence, to ensure the needs of communities and people represented by various identities and histories are being met, and states that knowing the cultural preferences of the charitable food program’s

member population is essential to ensuring all people served are treated with dignity.⁴²

Demand is closely linked to choice, allowing clients to choose their own food, rather than handing out standard, prepackaged bags or boxes.⁵⁰ The LA Feasibility report⁷⁵ stated that the choice model created a better experience for clients, reduced food waste, and increased the amount of fresh produce distributed. Views were mixed regarding client choice and nutrition policy. Participants in the Handforth et al (2022) study believed that soda and candy were already more available than healthy products in low-income communities, so they should prioritize providing nutritious food.⁵⁷ Client choice “empowers their clients,”⁵⁰ and providing opportunities for choice creates a foundation of dignity and self-determination.⁶² The UC Berkeley Center for Weight and Health noted nutrition-focused food banking is client-centered food banking.⁴³

Food waste concerns were described at the food donor, bank, pantry, and client level.^{20,24,49,50,62} Rejecting certain foods meant discussing the politics of food waste and throwing out food.⁶² Food donors were concerned with having “zero waste” within their inventories, and this determined what products were donated to food banks.⁴⁹ Food banks were uncomfortable turning down nonnutritious food: “So, do we tell them to bury all of the brownies and cookies in landfill because we won’t distribute them?”²⁰ Accepting unwanted products wastes valuable staff and volunteer time, warehouse space, and results in disposal fees or transportation costs to redirect products.²⁴ Some substitutions have failed, for example, a switch to healthier items in a SnackPacks program (eg, wholegrain raisin bran cereal) was initially rejected and large quantities were returned).⁵⁰

Capacity. Cold storage, was a key consideration in the storage and distribution of food.^{14,20,22,45–47,51,53–55,57,58,62,72,74,75} Cold storage capacity was a major barrier to healthful food distribution,⁴⁵ as adequate space is needed to ensure the quality and shelf-life of fresh produce is maintained: “Well, there’s quite a few challenges . . . It’s [healthy food] finicky about storage.”²⁰ The LA County Feasibility and FBCNY reports noted the significant and costly changes associated with increasing refrigerated space.^{74,75} Food bank staff had not successfully met these organizational challenges at partner agencies (eg, dealing with limited storage space and obtaining refrigerated storage).¹⁴

When cold storage was adequate, food pantries were likely to report more frequently offering fruit and vegetables.⁵³ Food bank sponsorship of cold storage for partner agencies so they could provide fresh produce

and other perishable items was reported by Wetherill et al (2019a).²²

There was a strong positive relationship between annual order quantity and the Healthy Eating Index score, including factors such as food shelf infrastructure, eg, larger cooler and freezer space to better accommodate a greater diversity of foods.⁵⁸ Food shelves that successfully implemented nutrition policies were more likely to have access to adequate nutritious food and storage infrastructure.⁵¹ The Healthy Eating Research team⁷² noted access to cold storage affected the capacity of food banks and pantries to implement nutrition-ranking systems.

Conversely, warehouse storage was associated with limited capacity,¹⁴ with room for improvement⁵⁴ and recommendations to “increase”⁶⁴ and “obtain”⁶² food storage capacity. The LA County Feasibility specifically highlighted the need for additional space to unpack, sort, and display healthy foods.⁷⁵

To distribute more healthy foods requires financial investment in transportation,^{14,20,45,54,57} substantially increasing operational costs,²⁰ but is required for a reliable source of healthy food.⁵⁴ “We’ve had to go out and buy tote bins, refrigerated trucks, tractor trailers to take the food out as well as bring it back in.”¹⁴

The largely volunteer workforce central to the management and distribution of healthy food keeps food relief organizations economically feasible,⁴⁶ and workforce capacity was widely discussed.^{14,20,22,46,49,51,56} Food banks were challenged by the limited availability of labor and time to thoroughly classify inventory.⁴⁹ Further, lack of time for nutrition policy development was mentioned by multiple food pantry interviewees.⁵⁶ “Legitimate” staff concerns about the increase in workload to implement nutrition policy was evident.⁴³

Efforts to build staff and volunteer capacity at food banks and partner agencies to successfully procure and distribute healthy foods were described.^{14,22} Having a policy provides staff with a basis for clear, consistent decision-making about the types of food and beverages they should source, encourage, and prioritize,^{44,65,67,69} and makes it easier for them to know what to take off the food recovery truck.⁶² FBCNY recommended that a policy implementation plan needs to include how to best manage unsolicited donations when they arrive at the warehouse or form part of a mixed load.⁷⁴

Highly perishable food rescue and redistribution requires specialized knowledge,⁴⁶ and organizations need to provide education on the policy rationale and ideological shift.⁷⁴ The need for adequate training of staff and volunteers at partner agencies was evident.^{22,47,56,64,65,67,72–76} The lack of understanding about what constitutes healthy food,⁵⁵ why it is important,⁵¹ and the organization’s ability to implement strategies to

increase inventory and subsequent healthy food consumption was dependent on increasingly skilled staff and/or volunteers.⁷⁵ Food pantry personnel were perceived as ideal for delivering nutrition education.⁴⁷ Helmick et al (2021) noted that providing technical assistance, train-the-trainer models, and fidelity checklists can help pantries successfully implement nutrition policy.⁵⁶ Improving the knowledge and skills of agency leadership and volunteers through nutrition training indirectly increases the nutrition capacity of their partners.²² The need to train volunteers in nutrition, language and cultural needs, and policy implementation was described by the Military Family Advisory Network,⁶⁴ the Washington Healthy Food Pantry Guide collaboration,⁷⁶ and the Blue Ridge Area Food Bank.⁶⁷ The CBC suggested topics that help support breastfeeding and education to reinforce commitment, policy, and practices for welcoming breastfeeding.⁷³

Workforce attitudes and beliefs influence nutrition policy,^{20,45,51,55,56,58} with food bank staffs’ own food habits and culture influencing their focus on enacting nutrition policy.²⁰ Cureton et al (2017) found a strong association between the characteristics (eg, full-time paid staff who place a high priority on nutritional quality) of the person placing food bank orders and the healthfulness of the food ordered.⁵⁸ Volunteer resistance to nutrition policy was cited^{51,56}: “There has been some pushback”,⁵⁶ and 1 food pantry stated that volunteers left once the policy was enacted.⁵⁶ There was a “wilful disregard” of policy by some staff who did not agree with it, as described by Campbell et al (2009).⁷⁴ A policy review date provided a formal opportunity for staff to review their experience implementing the policy, after initial caution and resistance.⁴⁴

Collaboration among staff was a high priority,^{42,44,67,69,73–75} with recommendations to “invite volunteers to join in decision making”.⁷⁶ Policies developed solely by the nutrition department or health-conscious staff rarely succeeded without a buy-in process.⁴² Getting staff buy-in⁷⁴ was considered 1 of the greatest challenges to the implementation of the “No Soda and No Candy Policy” in the FB NYC. Castleberry (2015) described how a “produce team” was created to increase staff support for nutrition.⁴⁵

Nutrition policies ensure “organizational commitment” to distributing healthful/nutritious foods and are “part of institutional memory/practice.”^{65,67,69,76} This results in a living, evolving policy document that grows with the goals of the organizations,⁴² and formal policies help create buy-in among staff, volunteers, and other key stakeholders.²⁴

Executive support for policy was highlighted,^{14,20,45,48,50,54,57} as key decision-makers within the sector play an important role in developing,

implementing, and enforcing organizational policies.⁴⁸ Directors' perceptions provide insights into potential opportunities for expanding access to nutritious foods and interventions.⁵⁴ Leadership support for nutrition policies was essential,^{14,20,45,50,54} while lack of leadership hindered change.⁵⁷ Organizational leadership was key to the adoption and implementation of both formal and informal nutrition policies,⁷⁵ and support for policy and the resultant ideological shift by the executive director, "gave it [policy] the legs it needed to move forward".⁷⁴

Contrary leadership views noted by Helmick et al (2019)⁵⁵ included: "We are not comfortable dictating or restricting what types of food are donated" and "Giving out and serving more healthful foods is not a goal of our pantry."⁵⁵ The CCFC report⁶² noted that "a new focus on healthy food often comes with some hard choices and there is a need to address resistance from the public and from within." Nutrition policy serves as a tool for management and accountability,^{44,67,69} and conveys a commitment to change^{24,44} and a new, healthier direction.⁶²

Collaboration with external stakeholders in the development and implementation of nutrition policy was considered important, despite challenges in obtaining consensus on scope of policy.¹⁴ Rochester et al (2011) suggested that engagement with government, philanthropic, and business communities is necessary to support the adoption of healthy food policies by food shelves.⁵¹ Food donors were considered a key stakeholder,^{43,51,66} and, "working together all along ensured support during implementation".⁴³ The need to develop relationships with community partners (eg, schools, healthcare organizations, and local farms) was described.^{50,76} Engaging a dietitian or nutrition professional for guidance in nutrition policy development was noted.^{22,45,46,60,74,75} Dietitians were considered "champions" who helped push the policy through, because they helped educate staff, introduced the concept of measuring donations by quality, and followed up with issues throughout implementation.⁷⁴ Lastly, the sharing of ideas (about where to source healthy foods) with other food relief agencies was identified by Long⁵² as a key component of an intervention that supported food pantries' efforts to increase healthy food access.

In relation to budget, Roth (2020) noted perishable items that food banks have focused on in recent years present logistical challenges, requiring more money than traditional shelf-stable items.²⁰ Healthy food costs were considered prohibitive, "It costs too much to purchase more healthful foods,"⁵⁵ with budget seen as a barrier to a formal nutrition policy.⁵⁶ At the same time, there was a sense of responsibility to provide healthy food because of its relatively high retail price, and

concerns that food-insecure households might only consume fresh fruits and vegetables intermittently.⁵⁷ Food pantries are considered an important avenue by which to access healthful basic foods, which cost more to purchase than other foods.⁴⁴ FBNYC determined that the provision of preferred foods related to cost, and that they would focus on procurement and distribution of healthier foods because those foods are more difficult for their clients to access.⁷⁴ In the 2017 Indy Hunger Network survey⁶³ of food-insecure families, 80% said they couldn't afford nutritious foods, and a CFC member exclaimed, "I got more vegetables in today's lunch than I can afford to buy in a month."⁶² Budget was considered a constraint in implementing nutrition-ranking systems⁷² due to the cost of hiring staff to train the extra volunteers required to process perishable products.⁵⁷

Outcome metric. An additional theme, highlighted by numerous papers,^{14,20,24,45,49,57,72,74} is that a commonly used measure of food banking success is a weight-based metric that does not incorporate nutritional quality. Some studies described other outcome metrics, such as Healthy Eating Index (HEI)-scores⁵⁸ or the frequency of offering Foods to Encourage (F2E),⁵³ but this weight-based metric was the metric most often described.

Reporting quantity over quality overlooks the influential role food banks play in shaping the nutrition quality of the food supply for their clients.²⁰ Measuring food bank success exclusively by poundage is a procedure that is potentially a barrier to the provision of fresh produce,⁴⁵ and this outdated system discourages food banks from shifting efforts to the distribution of healthier foods.²⁴ The focus on weight penalizes food banks for choosing to eliminate heavy unhealthy products⁵⁷ such as soda, and there are calls to establish a metric that incorporates nutritional quality.⁴⁹

DISCUSSION

This scoping review provides a descriptive overview and identifies the challenges posed by introducing policy approaches to nutrition-focused food banking in the charitable food system in industrialized countries since 2000. All but 2 papers were from the United States, likely due to the long history of food banking in that country,⁷⁷ but the insights are relevant to other industrialized countries.^{10,12} Food banks started to connect hunger and health in the early 2000s,¹⁵ and nutrition policies emerged.⁷⁷ The timeline also reflects the 2008 restructure and refocus of the US Supplemental Nutrition Assistance Program (SNAP), which placed a greater emphasis on nutrition.⁷⁸ In addition, the charitable food system has evolved from an ad hoc collection of disparate charitable groups to a much larger and

more organized food distribution system, more capable of managing the increasing demand for food relief,²¹ termed the “institutionalization” of food charity.⁷⁹

The review has highlighted the support for the charitable food system to shift to leveraging assets to promote health⁴⁸ and play a leadership role in nourishing, not just feeding vulnerable communities.⁶⁶ The moral imperative to take action to ensure the provision of appropriate and nutritious food is due to the chronicity of food relief use and the well-established association between food insecurity and noncommunicable disease.¹⁹

Progress in evolving food banks toward a more systematic and thoughtful consideration of nutritional quality was observed.¹⁴ While nutrition policy approaches may be seen as “just an evolution of food banking,”⁷⁴ institutionalization of NFFB as the “norm rather than an exception”²⁰ is far from achieved, despite the first US “No Soda and No Candy” policy being adopted in 2004.⁷⁴ As the review found, nutrition policies are unlikely to be formalized as written documents, reflecting the persistent hesitancy among food banks to explicitly institutionalize nutrition into their organizational bylaws.²²

Policies to challenge and change the fundamental and complex aspects of food procurement and operations are not easily introduced,⁷⁴ especially when the performance of the existing system is measured by weight of food distributed. A priority action for the sector is to set and adopt a more meaningful outcome metric based on nutritional quality and appropriateness of food provided, rather than simply total pounds of foods.⁶ This is congruent with the widespread interest in “distributing not just any calorie, but in distributing nutritious calories”²⁰ and would support equity (the “fair” distribution of donated food to people who need it)⁸⁰ and better align with the broader concept of health equity.

With the current focus on food waste, which has become a powerful driver of surplus food redistribution,⁷⁹ the inventory of food banks needs to address the quality of food, and this needs to be governed by nutrition policy.

Incentivizing nutrition through formal policies across the system, with a collective focus on inventory quality and the provision of nutritious foods for clients, would help reframe relationships between food banks and donors, a key challenge identified in relation to supply. This may increase the willingness to introduce nutrition policy without fear of jeopardizing donor relationships or concerns of alienating long-standing donors.

Initiating nutrition policy specifying donations of basic, nutritious food, while strongly discouraging

unhealthy food donations needs to be underpinned by a common set of nutrition criteria, such as those in the Healthy Eating Research (HER) resource,⁷² which would better align with how the system defines and tracks the nutritional quality of food.⁶ If the types of donated foods are more tightly defined, this may reduce uncertain material supply, which was identified as significant barrier to either stocking inventory or providing healthy foods. A policy would also enable better capacity planning, by providing staff with a basis for clear and consistent decision-making about the types of foods and beverages they should source, encourage, and prioritize in their work.^{44,65,67,69} Staff could therefore avoid the tension between the desire to offer healthy food and the need to maintain inventory.⁸¹ Other key workforce considerations include the requirement for training, and ongoing collaboration with staff. Practical capacity considerations, such as storage and transportation, also need to be considered.

It should be noted that these recommendations are consistent with those outlined by Shimada et al (2013) and Campbell et al (2013) in the early to mid-2000s,^{15,49} with public policy to support NFFB (such as the revision of tax benefits to optimize the donation of healthy foods and eliminate unhealthful foods)^{6,49} also recommended. But the sector is slow to change. This is likely due to increasing demand as governments in industrialized countries continue to deflect, query, and debate the structural action on food poverty and hunger.³¹ It is acknowledged that policy to protect public health is highly contested due to competing and often conflicting commercial interest. Indeed, food banks in the United States have been criticized for primarily being interested in self-perpetuation and food system efficiency, and not equity.³¹

Through the lens of an adapted framework, the challenges associated with the introduction of nutrition policy in the charitable food system are apparent, particularly in relation to supply constraints and capacity limitations. This adapted framework can be used to guide future research or can be applied to real-world settings within the charitable food system to help identify factors affecting nutrition policy initiation and implementation. However, before these factors can be effectively addressed, the charitable food system must reframe its measure of success, to more readily balance equity, effectiveness, and efficiency, and contribute to the creation of food environments that promote health among the most disadvantaged in our communities.¹⁴

STRENGTHS AND LIMITATIONS

This review provided unique insights into the factors affecting the implementation of nutrition policy in the

charitable food system. The synthesis of data from both peer-reviewed and gray literature sources provided a rich overview of the evidence. Overlaying an adapted systems and organizational model provided a robust framework to consider the evidence and highlighted the complex and challenging position of the sector. There were some limitations, however. As this was a scoping review, studies were not assessed for quality, and it was challenging to combine heterogeneous qualitative and quantitative studies, but the adapted model did guide this process. The overwhelming majority of papers were from the United States; however, the insights gained are relevant to other industrialized countries.^{10,12} The scoping review focused on macro-level factors, the “upstream” policy, and environmental factors, as defined in the Ecological Framework by Story et al.³² Individual preferences were only gauged through the lens of charitable food relief providers, but this is an important, complementary area to focus on in future studies. Lastly, the inclusion of an additional search strategy for the gray literature, such as consultation with contact experts to identify additional documents for review, is recommended.

CONCLUSION

This scoping review highlighted the numerous challenges of NFFB and, specifically, the initiation of nutrition policy within the charitable food system. Given the vulnerable population groups serviced by this sector, there is a moral imperative to take action to ensure the provision of appropriate food for food-insecure clients. There is a clear, overwhelming opportunity for the charitable food system to shift the emphasis from hunger alleviation to leveraging assets to promote health⁴⁸ and to play a leadership role in nourishing, not just feeding, vulnerable communities.⁶⁶ A priority action is to set and adopt a more meaningful outcome metric that is based on nutritional quality, rather than the simple measure of total weight of food. Incentivizing nutrition across the system would help reframe relationships between food banks and donors, which in turn would aid the introduction of nutrition policy without fear of jeopardizing food bank – donor relationships. Nutrition policy serves as a tool for management and accountability,^{44,67,69} and conveys a commitment to change^{24,44} and a new, healthier direction.⁶² Specifying the donation of basic, nutritious food, while strongly discouraging unhealthy food donations, would likely reduce the uncertainty of material supply and enable better capacity planning. This would allow the charitable food system to more readily balance equity, effectiveness, and efficiency, thereby creating a food environment to “nourish, not just feed.”⁴⁵

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REFERENCES

1. Committee on World Food Security. *Coming to Terms with Terminology, Food Security, Nutrition Security, Food Security and Nutrition, Food and Nutrition Security*; 2012. Available at: <https://www.fao.org/3/mf115e/mf115e.pdf>. Accessed March 23, 2022.
2. Thomas MK, Lammert LJ, Beverly EA. Food insecurity and its impact on body weight, type 2 diabetes, cardiovascular disease, and mental health. *Curr Cardiovasc Risk Rep*. 2021;15:15–15. doi: [10.1007/s12170-021-00679-3](https://doi.org/10.1007/s12170-021-00679-3).
3. Pollard CM, Booth S. Food insecurity and hunger in rich countries: it is time for action against inequality. *Int J Environ Res Public Health*. 2019;16:1804. doi: [10.3390/ijerph16101804](https://doi.org/10.3390/ijerph16101804).
4. McKay F, Haines B, Dunn M. Measuring and understanding food insecurity in Australia: a systematic review. *Int J Environ Res Public Health*. 2019;16:476. doi: [10.3390/ijerph16030476](https://doi.org/10.3390/ijerph16030476).
5. Martin K, Xu R, Schwartz M. Food pantries select healthier foods after nutrition information is available on their Food bank's ordering platform. *Public Health Nutr*. 2021;24:5066–5073. doi: [10.1017/S1368980020004814](https://doi.org/10.1017/S1368980020004814).
6. Levi R, Schwartz M, Campbell E, et al. Nutrition standards for the charitable food system: challenges and opportunities. *BMC Public Health*. 2022;22:495. doi: [10.1186/s12889-022-12906-6](https://doi.org/10.1186/s12889-022-12906-6).
7. Wingrove K, Barbour L, Palermo C. Exploring nutrition capacity in Australia's charitable food sector. *Nutr Diet*. 2017;74:495–501. doi: [10.1111/1747-0080.12284](https://doi.org/10.1111/1747-0080.12284).
8. Tikka V. Charitable food aid in Finland: from a social issue to an environmental solution. *Agric Hum Values*. 2019;36:341–352. doi: [10.1007/s10460-019-09916-3](https://doi.org/10.1007/s10460-019-09916-3).
9. Wills B. Eating at the limits: barriers to the emergence of social enterprise initiatives in the Australian emergency food relief sector. *Food Policy*. 2017;70:62–70. doi: [10.1016/j.foodpol.2017.06.001](https://doi.org/10.1016/j.foodpol.2017.06.001).
10. Simmet A, Depa J, Tinnemann P, et al. The nutritional quality of food provided from food pantries: a systematic review of existing literature. *J Acad Nutr Diet*. 2017;117:577–588. doi: [10.1016/j.jand.2016.08.015](https://doi.org/10.1016/j.jand.2016.08.015).
11. Tinnemann P, Pastätter R, Willich SN, et al. Healthy action against poverty: a descriptive analysis of food redistribution charity clients in Berlin, Germany. *Eur J Public Health*. 2012;22:721–726. doi: [10.1093/eurpub/ckr095](https://doi.org/10.1093/eurpub/ckr095).
12. Lindberg R, Whelan J, Lawrence M, et al. Still serving hot soup? Two hundred years of a charitable food sector in Australia: a narrative review. *Aust N Z J Public Health*. 2015;39:358–365. doi: [10.1111/1753-6405.12311](https://doi.org/10.1111/1753-6405.12311).
13. Capodistrias P, Szulecka J, Corciolani M, et al. European food banks and COVID-19: resilience and innovation in times of crisis. *Socioecon Plann Sci*. 2022;82:101187. doi: [10.1016/j.seps.2021.101187](https://doi.org/10.1016/j.seps.2021.101187).
14. Campbell EC, Ross M, Webb KL. Improving the nutritional quality of emergency food: a study of food bank organizational culture, capacity, and practices. *J Hunger Environ Nutr*. 2013;8:261–280. doi: [10.1080/19320248.2013.816991](https://doi.org/10.1080/19320248.2013.816991).

15. Campbell E, Webb K, Ross M, et al. Nutrition-focused food banking. *NAM Perspectives*. Discussion Paper. Washington, DC: National Academy of Medicine; 2015. doi: [10.31478/201504a](https://doi.org/10.31478/201504a).
16. Popkin B, Adair L, Ng S. Global nutrition transition and the pandemic of obesity in developing countries. *Nutr Rev*. 2012;70:3–21. doi: [10.1111/j.1753-4887.2011.00456.x](https://doi.org/10.1111/j.1753-4887.2011.00456.x).
17. Kirkpatrick SI, Tarasuk V. Food insecurity is associated with nutrient inadequacies among Canadian adults and adolescents. *J Nutr*. 2008;138:604–612. doi: [10.1093/jn/138.3.604](https://doi.org/10.1093/jn/138.3.604).
18. Dietz WH. Does hunger cause obesity? *Pediatrics*. 1995;95:766–767. doi: [10.1542/peds.95.5.766](https://doi.org/10.1542/peds.95.5.766).
19. Booth S, Pollard CM. Food insecurity, food crimes and structural violence: an Australian perspective. *Aust N Z J Public Health*. 2020;44:87–88. doi: [10.1111/1753-6405.12977](https://doi.org/10.1111/1753-6405.12977).
20. Roth SE. *Do Nutrition Policies Matter? Assessing the Determinants of Nutritional Quality of Inventory at Food Banks* [PhD thesis]. Los Angeles: University of California; 2020.
21. Webb KL. Introduction—food banks of the future: organizations dedicated to improving food security and protecting the health of the people they serve. *J Hunger Environ Nutr*. 2013;8:257–260. doi: [10.1080/19320248.2013.817169](https://doi.org/10.1080/19320248.2013.817169).
22. Wetherill MS, White KC, Seligman HK. Nutrition-focused food banking in the United States: a qualitative study of healthy food distribution initiatives. *J Acad Nutr Diet*. 2019a;119:1653–1665. doi: [10.1016/j.jand.2019.04.023](https://doi.org/10.1016/j.jand.2019.04.023).
23. Sengul Orgut I, Brock LG III, Davis LB, et al. Achieving equity, effectiveness, and efficiency in food bank operations: strategies for feeding America with implications for global hunger relief. In: Zobel, CW, Altay N, Haselkom MP, eds. *Advances in Managing Humanitarian Operations*. Springer International Publishing; 2015:229–256.
24. Feldman M, Schwartz M. A tipping point: leveraging opportunities to improve the nutritional quality of food bank inventory. MAZON; 2018. Available at: <https://mazon.org/wp-content/uploads/MAZON-Report-TippingPoint.pdf>. Accessed December 8, 2021.
25. Nanney MS, Grannon KY, Cureton C, et al. Application of the Healthy Eating Index-2010 to the hunger relief system. *Public Health Nutr*. 2016;19:2906–2914. doi: [10.1017/S136898001600118X](https://doi.org/10.1017/S136898001600118X).
26. Caspi CE, Grannon KY, Wang Q, et al. Refining and implementing the Food Assortment Scoring Tool (FAST) in food pantries. *Public Health Nutr*. 2018;21:2548–2557. doi: [10.1017/S1368980018001362](https://doi.org/10.1017/S1368980018001362).
27. Seidel M, Laquatra IPRD, Woods MMS, et al. Applying a nutrient-rich foods index algorithm to address nutrient content of food bank food. *J Acad Nutr Diet*. 2015;115:695–700. doi: [10.1016/j.jand.2014.11.009](https://doi.org/10.1016/j.jand.2014.11.009).
28. Hesse M, Peachey A, Wang D. Establishing a three-tier color-coded approach to categorize the nutrient density of food bank foods. *SAGE Open*. 2019;9:215824401984438. doi: [10.1177/2158244019844384](https://doi.org/10.1177/2158244019844384).
29. Caspi CE, Canterbury M, Carlson S, et al. A behavioural economics approach to improving healthy food selection among food pantry clients. *Public Health Nutr*. 2019;22:2303–2313. doi: [10.1017/S1368980019000405](https://doi.org/10.1017/S1368980019000405).
30. Riches G. Food banks and food security: welfare reform, human rights and social policy. *Social Policy Adm*. 2002;36:648–663. doi: [10.1111/1467-9515.00309](https://doi.org/10.1111/1467-9515.00309).
31. Booth S, Whelan J. Hungry for change: the food banking industry in Australia. *Br Food J*. 2014;116:1392–1404. doi: [10.1108/BFJ-01-2014-0037](https://doi.org/10.1108/BFJ-01-2014-0037).
32. Story M, Kaphingst KM, Robinson-O'Brien R, et al. Creating healthy food and eating environments: policy and environmental approaches. *Annu Rev Public Health*. 2008;29:253–272. doi: [10.1146/annurev.publhealth.29.020907.090926](https://doi.org/10.1146/annurev.publhealth.29.020907.090926).
33. Mozaffarian D, Angell SY, Lang T, et al. Role of government policy in nutrition—barriers to and opportunities for healthier eating. *BMJ*. 2018;361:k2426. doi: [10.1136/bmj.k2426](https://doi.org/10.1136/bmj.k2426).
34. Arksey H, O'Malley L. Scoping studies: towards a methodological framework. *Int J Soc Res Methodol*. 2005;8:19–32. doi: [10.1080/1364557032000119616](https://doi.org/10.1080/1364557032000119616).
35. Pulker C, Trapp G, Scott J, et al. What are the position and power of supermarkets in the Australian food system, and the implications for public health? A systematic scoping review. *Obes Rev*. 2018;19:198–218. doi: [10.1111/obr.12635](https://doi.org/10.1111/obr.12635).
36. Peters MDJ, Marnie C, Tricco AC, et al. Updated methodological guidance for the conduct of scoping reviews. *JBIM Evid Synth*. 2020;18:2119–2126. doi: [10.11124/JBIES-20-00167](https://doi.org/10.11124/JBIES-20-00167).
37. Tricco AC, Lillie E, Zarin W, et al. PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. *Ann Intern Med*. 2018;169:467–473. doi: [10.7326/M18-0850](https://doi.org/10.7326/M18-0850).
38. Godin K, Stapleton J, Kirkpatrick SI, et al. Applying systematic review search methods to the grey literature: a case study examining guidelines for school-based breakfast programs in Canada. *Syst Rev*. 2015;4:138. doi: [10.1186/s13643-015-0125-0](https://doi.org/10.1186/s13643-015-0125-0).
39. Michie S, van Stralen MM, West R. The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implement Sci*. 2011;6:42–42. doi: [10.1186/1748-5908-6-42](https://doi.org/10.1186/1748-5908-6-42).
40. Hebinck A, Zurek M, Achterbosch T, et al. A sustainability compass for policy navigation to sustainable food systems. *Glob Food Sec*. 2021;29:100546. doi: [10.1016/j.gfs.2021.100546](https://doi.org/10.1016/j.gfs.2021.100546).
41. Downs SM, Ahmed S, Fanzo J, et al. Food environment typology: advancing an expanded definition, framework, and methodological approach for improved characterization of wild, cultivated, and built food environments toward sustainable diets. *Foods*. 2020;9:532. doi: [10.3390/foods9040532](https://doi.org/10.3390/foods9040532).
42. Feeding America. Nutrition in food banking toolkit. 2021. Available at: <https://hungerandhealth.feedingamerica.org/resource/nutrition-in-food-banking-toolkit/>. Accessed December 9, 2021.
43. University of California Berkeley Center for Weight and Health. Guide to convening a working group for a food bank nutrition policy. 2015. Available at: <https://canvas.instructure.com/courses/1735518/files/82430309/download?verifier=YF6Ref4SRL5uH697Oj8zcZ74A0hvtuMyhB7nlby&wrap=1>. Accessed December 8, 2021.
44. University of California Berkeley Center for Weight and Health. Guide to drafting a food bank nutrition policy. 2015. Available at: <https://www.myctb.org/wst/healthylawrence/livewell/HealthyFoodForAll/Healthy%20Pantries/Guide%20to%20Drafting%20a%20Food%20Bank%20Nutrition%20Policy.docx>. Accessed December 8, 2021.
45. Castleberry K. *It's Our Responsibility. A Qualitative Analysis of Executive Directors' Perspectives on Providing Fresh Produce through the Feeding America Network [Master of Public Health]*. Oklahoma: Oklahoma State University; 2017.
46. Philip D, Hod-Ovadia S, Troen AM. A technical and policy case study of large-scale rescue and redistribution of perishable foods by the “Leket Israel” food bank. *Food Nutr Bull*. 2017;38:226–239. doi: [10.1177/0379572117692440](https://doi.org/10.1177/0379572117692440).
47. Wetherill MS, Williams MB, White KC, et al. Food pantries as partners in population health: assessing organizational and personnel readiness for delivering nutrition-focused charitable food assistance. *J Hunger Environ Nutr*. 2019c;14:50–69. doi: [10.1080/19320248.2018.1512931](https://doi.org/10.1080/19320248.2018.1512931).
48. Wetherill MS, White KC, Seligman H. Charitable food as prevention: food bank leadership perspectives on food banks as agents in population health. *Community Dev*. 2019b;50:92–107. doi: [10.1080/15575330.2019.1570961](https://doi.org/10.1080/15575330.2019.1570961).
49. Shimada T, Ross M, Campbell EC, et al. A model to drive research-based policy change: improving the nutritional quality of emergency food. *J Hunger Environ Nutr*. 2013;8:281–293. doi: [10.1080/19320248.2013.821963](https://doi.org/10.1080/19320248.2013.821963).
50. Rowland B, Mayes K, Faitak B, et al. Improving health while alleviating hunger: best practices of a successful hunger relief organization. *Curr Dev Nutr*. 2018;2:nzy057. doi: [10.1093/cdn/nzy057](https://doi.org/10.1093/cdn/nzy057).
51. Rochester JS, Nanney MS, Story M. Assessing foodshelves' ability to distribute healthy foods to foodshelf clients. *J Hunger Environ Nutr*. 2011;6:10–26. doi: [10.1080/19320248.2011.549363](https://doi.org/10.1080/19320248.2011.549363).
52. Long CR, Rowland B, McElfish PA. Intervention to improve access to fresh fruits and vegetables among Arkansas food pantry clients. *Prev Chronic Dis*. 2019;16:E09. doi: [10.5888/pcd16.180155](https://doi.org/10.5888/pcd16.180155).
53. Long CR, Narcisse M-R, Rowland B, et al. Written nutrition guidelines, client choice distribution, and adequate refrigerator storage are positively associated with increased offerings of feeding America's Detailed Foods to Encourage (FZE) in a large sample of Arkansas food pantries. *J Acad Nutr Diet*. 2020;120:792–803.e5. doi: [10.1016/j.jand.2019.08.017](https://doi.org/10.1016/j.jand.2019.08.017).
54. Joly BM, Hansen A, Pratt J, et al. A descriptive study of food pantry characteristics and nutrition policies in Maine. *J Hunger Environ Nutr*. 2020;15:514–526. doi: [10.1080/19320248.2019.1675564](https://doi.org/10.1080/19320248.2019.1675564).
55. Helmick MJ, Yaroch AL, Parks CA, et al. Utilizing the RE-AIM framework to understand adoption of nutrition policies at food pantries across the USA. *Transl Behav Med*. 2019;9:1112–1121. doi: [10.1093/tbm/ibz036](https://doi.org/10.1093/tbm/ibz036).
56. Helmick M, Yaroch AL, Estabrooks PA, et al. A thematic analysis on the implementation of nutrition policies at food pantries using the RE-AIM framework. *Health Promot Pract*. 2021;22:899–910. doi: [10.1177/1524839920945250](https://doi.org/10.1177/1524839920945250).
57. Handforth B, Hennink M, Schwartz MB. A qualitative study of nutrition-based initiatives at selected food banks in the feeding America network. *J Acad Nutr Diet*. 2013;113:411–415. doi: [10.1016/j.jand.2012.11.001](https://doi.org/10.1016/j.jand.2012.11.001).
58. Cureton C, King R, Warren C, et al. Factors associated with the healthfulness of food shelf orders. *Food Policy*. 2017;71:124–131. doi: [10.1016/j.foodpol.2017.08.002](https://doi.org/10.1016/j.foodpol.2017.08.002).
59. Tri-County Health Department. Healthy Food Pantry Toolkit. 2017. Available at: <https://thewichub.sfo2.digitaloceanspaces.com/2017/12/TCHD-Healthy-Food-Pantry-Tool-Kit-copy.pdf>. Accessed December 8, 2021.
60. State of Nevada Aging and Disability Services Division. Service Specifications Food Pantry. 2015. Available at: <https://adsd.nv.gov/uploadedFiles/adsdnavgov/content/Programs/Grant/ServSpecs/FoodPantry.pdf>. Accessed December 9, 2021.
61. New York Common Pantry (NYCP). Healthy Food Resource Guide. 2013. Available at: <https://www1.nyc.gov/assets/doh/downloads/pdf/public/efp-resource-guide.pdf>. Accessed on 9, December 2021.
62. Community Food Centres Canada (CFCC). Beyond the emergency: how to evolve your food bank into a force for change. 2017. Available at: <https://www.dropbox.com/s/fwt3nvmpu6tu09n/CFCC%20Food%20Bank%20Manual%20-%20web%20version%202017.pdf?dl=0>. Accessed February 7, 2023.
63. Indy Hunger Network. Manual of Best Practices for Food Pantries. 2020. Available at: <https://www.indyhunger.org/wp-content/uploads/2020/07/Best-Practices-website-2020.pdf>. Accessed December 15, 2021.

64. Military Family Advisory Network (MFAN). Promising Practices for Creating Nutrition-Focused Food Shelves and Meal Programs. 2010. Available at: https://www.ramseycounty.us/sites/default/files/Health%20and%20Medical/Public%20Health%20Initiatives/Promising%20Practices%20for%20food%20shelves%20and%20meal%20programs%20combined%20version_final%20100815.pdf. Accessed December 9, 2021.
65. Food Bank Coalition of San Luis Obispo. Nutrition Guidelines. 2019. Available at: https://www.slofoodbank.org/wp-content/uploads/2019/12/Nutrition_Guidelines_October2019.pdf. Accessed December 25, 2021.
66. Central Texas Food Bank. Nutrition Policy. 2016. Available at: https://hungerandhealth.feedingamerica.org/wp-content/uploads/2017/09/Central-Texas-Food-Bank-Nutrition-Policy_FINAL-UPDATED_062916-.pdf. Accessed December 25, 2021.
67. Blue Ridge Area Food Bank. Nutrition Policy Guiding Food Procurement. 2018. Available at: <https://www.brafb.org/wp-content/uploads/2018/07/NUTRITION-POLICY-Final.pdf>. Accessed December 25, 2021.
68. Food Bank for New York City. Donated Food and Nutrition Policy. 2010. Available at: <https://www.foodbanknyc.org/wp-content/uploads/1-Page-Nutrition-Policy-Summary-Final.pdf>. Accessed December 25, 2021.
69. San Francisco-Marin Food Bank (SFMFB). Food Sourcing Policy. 2018. Available at: <https://www.sfmfoodbank.org/wp-content/uploads/2018/02/SFMFB-Food-Sourcing-Policy.pdf>. Accessed on 25, December 2021.
70. The Other Way Ministries Food Pantry. Healthy Food Policy. 2017. Available at: <https://theotherway.org/wp-content/uploads/2017/09/The-Other-Way-Ministries-Food-Pantry-Healthy-Food-Policy-2017.pdf>. Accessed December 15, 2021.
71. Lincoln Park Food Pantry. Nutrition Policy. 2019. Available at: <https://www.lincolnpark.org/DocumentCenter/View/4781/Nutrition-Policy-Lincoln-Park-Food-Pantry>. Accessed on December 8, 2021.
72. Healthy Eating Research. Nutrition Guidelines for the Charitable Food System. 2020. Available at: https://healthyeatingresearch.org/wp-content/uploads/2020/02/her-food-bank_FINAL.pdf. Accessed December 25, 2021.
73. Colorado Breastfeeding Coalition. Guidelines for the Breastfeeding Friendly Food Pantry. 2020. Available at: https://www.shawnee.k-state.edu/food_distribution_map/Guidelines-for-the-Breastfeeding-Friendly-Food-Pantry-Final.pdf. Accessed December 15, 2021.
74. Campbell E, Webb K, Crawford P. The Food Bank of Central New York: An Evaluation of the “No Soda and No Candy” Donation Policy and Guests’ Food Preferences. 2009. Available at: <https://ucanr.edu/sites/NewNutritionPolicyInstitute/files/344077.pdf>. Accessed March 24, 2022.
75. California Department of Public Health and HUMANist. Exploring the Feasibility of Implementing Healthy Food Pantries in Los Angeles County. 2019. Available at: http://publichealth.lacounty.gov/nut/Media/healthy-food-pantries-resources/Exploring_the_Feasibility_of_Implementing_Healthy_Food_Pantries_2019.pdf. Accessed December 9, 2021.
76. Washington State University, Thurston County Food Bank, Washington State Department of Health. Healthy Food Pantry Guide. 2016. Available at: <https://www.doh.wa.gov/Portals/1/Documents/8100/940-029-HealthyPantryGuideE16L-en-L.pdf>. Accessed December 24, 2021.
77. Martin KS. *Reinventing Food Banks and Pantries: New Tools to End Hunger*. Washington DC: Island Press; 2021.
78. SNAP to Health. The history of SNAP. 2022. Available at: <https://www.snaptohealth.org/snap/the-history-of-snap/>. Accessed January 27, 2022.
79. Riches G. *Food Bank Nations: Poverty, Corporate Charity and the Right to Food*. London: Milton Routledge; 2018.
80. Hasnain T, Sengul Orgut I, Ivy JS. Elicitation of preference among multiple criteria in food distribution by food banks. *Prod Oper Manag*. 2021;30:4475–4500. doi: 10.1111/poms.13551.
81. Chapnick M, Barnidge E, Sawicki M, et al. Healthy options in food pantries—a qualitative analysis of factors affecting the provision of healthy food items in St. Louis, Missouri. *J Hunger Environ Nutr*. 2019;14:262–280. doi: 10.1080/19320248.2017.1284027.