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July 27, 2011

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# **A Healthy Makeover: Nutrition-based Initiatives at Feeding America Food Banks in the United States**

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Feeding America Food Banks in the United States

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An abstract of

A thesis submitted to the Faculty of the  
Rollins School of Public Health of Emory University

In partial fulfillment of the requirements for the

Degree of Master of Public Health in

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## Abstract

### A Healthy Makeover: Nutrition-based Initiatives at Feeding America Food Banks in the United States

By Becky Handforth

Food banks form the foundation of the United States' emergency food system under the umbrella organization, Feeding America. The predominant mission of food banks is to alleviate food insecurity, which was experienced in 2009 by 17.4 million households in the United States. To achieve their mission, food banks historically did not differentiate between donations based on nutritional value. However, given the prominence of obesity and diet-related diseases among food insecure populations in the United States, some food banks have shifted their operational strategies to emphasize the distribution of nutritious products. This exploratory qualitative study assessed the role of nutrition at food banks, specifically focusing on nutrition profiling systems, nutrition policies and fresh produce distribution in this paper. In-depth interviews were conducted with 20 Feeding America food banks from June to October 2010. Transcribed recordings were analyzed using MAXQDA<sup>10</sup>. Results show that nutrition policies to eliminate products, such as soda and candy, were more controversial than nutrition profiling systems to evaluate the quality of products. Most food banks showed a concerted effort to allocate more fresh produce to communities through an assortment of activities. Notable concerns related to these initiatives included: reducing the food options available to food insecure populations; jeopardizing donor relationships; and partner agency resource limitations. The nutrition paradigm shift undoubtedly provides improved access to nutritious products for those living in food insecure households, but the extent of its impact on nutritional status deserves greater attention in the future.

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## ACKNOWLEDGEMENTS

My work with Cooking Matters at the Capital Area Food Bank in Washington D.C. changed the trajectory of my future and directed me towards this Master of Public Health degree. Thank you to every one of my D.C. colleagues for your inspiration, support, and friendship over the past six years. My gratitude goes out to Dr. Marlene Schwartz, Deputy Director of the Yale Rudd Center for Food Policy and Obesity, for recognizing my interests and giving me the opportunity to explore nutrition at Feeding America food banks throughout the United States. I could not have asked for a more fitting thesis topic. I'm grateful for the guidance and feedback provided by Dr. Monique Hennink throughout my tenure at Emory University and for opening my eyes to the world of qualitative research. Thank you to my parents for their encouragement throughout this process and for taking an interest in my work. Finally, my deepest appreciation goes out to the 25 individuals who generously set aside time from their busy schedules to take part in this study.

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## CHAPTER 1: INTRODUCTION

Over 200 food banks form the foundation of the United States' emergency food system under the national hunger-relief charity, Feeding America.<sup>1</sup> The predominant mission of food banks is to alleviate food insecurity, which occurs when households are unable to access or have uncertainties about their ability to access sufficient amounts of food that are safe to eat and nutritionally adequate "without resorting to emergency food supplies, scavenging, or stealing".<sup>2</sup> Food banks procure donations from individuals, the food industry and the United States Department of Agriculture (USDA) to distribute to partner agencies, such as soup kitchens and food pantries. Soup kitchens provide prepared meals to individuals in need of food while food pantries supply food insecure individuals with groceries and household goods. Soup kitchens are often accessed by homeless individuals or those in unstable living situations while food pantries typically serve those who have the means to cook and store food. In addition, food banks provide food to non-emergency programs, such as senior centers, residential rehabilitation centers and after-school programs that serve predominantly low-income populations. In 2009, 76% of those served by Feeding America were considered food insecure using the nationally recognized Household Food Security Survey Module (HFSSM).<sup>1</sup>

Since 1995, the HFSSM has collected data about food insecurity in the United States using a nationally representative sample.<sup>3</sup> The proportion of households affected by food insecurity hovered around 11% from 2005-2007 before a noticeable jump to 14.6% in 2008.<sup>4</sup> The following year, another incremental increase to 14.7% occurred.<sup>4</sup> This equates to 17.4 million households affected by food insecurity in 2009.<sup>3</sup> At no other time in the history of the HFSSM has the prevalence of food insecurity in the United States reached this level.<sup>3</sup>

In 2009, just over 4.8% of households (5.5 million) sought assistance from food pantries. This was an increase from 4.1% in 2008.<sup>3</sup> Of those using food pantries, 25% stated that obtaining food from pantries was a monthly occurrence, and 31% said they needed to seek assistance a few months out of the year.<sup>3</sup> However, the address-based survey recruitment method assuredly leads



to an underrepresentation of some societal sectors.<sup>3</sup> For instance, homeless individuals and those living in tenuous housing situations likely rely on emergency food sources but probably do not have stable addresses<sup>3</sup> Despite the fact that the United States is one of the wealthiest countries in the world, food insecurity remains a stark reality for millions of Americans.

As the United States is confronted with this high prevalence of food insecurity, it is also enduring an obesity epidemic. In 2010, the Food and Research Action Center claimed that two-thirds of adults and one-third of school aged children in the United States were either overweight or obese.<sup>5</sup> In 2009, one in seven low-income preschoolers was considered obese.<sup>6</sup> Studies have shown that food insecurity and obesity are directly related among women.<sup>7-10</sup> Evidence of this association lacks consistent statistical strength among adult males, but more studies are needed.<sup>7, 8</sup> Studies of children and adolescents point to no significant association between food insecurity and obesity among these populations.<sup>11-13</sup> However, a few studies have concluded that children living in food insecure or low-income households are less likely to be obese than their respective counterparts.<sup>11, 14, 15</sup>

Low-income individuals are more susceptible to food insecurity than those with higher incomes, and obesity often coexists with food insecurity.<sup>3</sup> Given that many obesity risk factors are characteristic of low-income communities, they therefore impact a high proportion of food insecure households as well.<sup>5</sup> Fast food restaurants and convenience stores are pervasive in low-income communities; these same areas often lack mainstream grocery stores.<sup>5, 16, 17</sup> The structure of the food industry in low-income communities leads to a scarcity of affordable and healthy food choices.<sup>5, 17-19</sup> If criminal activity is common in a community, individuals are more apt to remain indoors instead of risking their safety.<sup>20</sup> This discourages physical activity, especially for children. Assessments have shown that low-income neighborhoods have limited amenities that promote physical activity, such as playgrounds, recreation centers and bike paths.<sup>5, 21, 22</sup> Low-income individuals are also at a high risk for chronic stress due to possible food insecurity, financial problems, lack of health care, neighborhood concerns, or extensive work commitments.<sup>5</sup> Stress

can lead to weight gain via related hormonal activity or unhealthy eating patterns.<sup>5</sup> Additionally, food insecure populations often go through periods of overindulgence when food is available and food restriction when finances are scarce.<sup>5, 23, 24</sup> These cyclical eating patterns have been shown to promote body fat and a faster weight gain when normal consumption returns.<sup>25</sup>

Historically, food banks did not differentiate between donations based on nutritional quality. However, concerns about obesity and related chronic diseases are causing some food banks to rethink their operational strategies. One of the first food banks to intentionally focus its resources on the procurement and distribution of healthy foods was the Food Bank of Central New York. In 2004, this food bank also made a significant decision to eliminate soda and candy from its inventory.<sup>26</sup> As this nutrition paradigm shift evolves, it is essential to document its progress, initiatives, stakeholders, influences, and perceived barriers in order to elucidate areas for research, inform advocacy efforts and provide examples for partner food banks that have yet to adopt the nutrition mentality. To assist with those efforts, the following study addresses these questions:

1. How have Feeding America food banks integrated nutrition-based initiatives into their operational strategies?
2. What factors influence nutrition-based initiatives at Feeding America food banks?
3. What barriers deter Feeding America food banks from introducing nutrition-based initiatives?

## CHAPTER 2: LITERATURE REVIEW

### FOOD INSECURITY IN THE UNITED STATES

Food security is defined as “access by all people at all times to enough food for an active healthy life”.<sup>2</sup> Food insecurity arises when households have limited or uncertain access to sufficient amounts of food that are deemed safe to eat and nutritionally adequate “without resorting to emergency food supplies, scavenging, or stealing”.<sup>2</sup> Hunger, an involuntary “uneasy or painful sensation” resulting from insufficient food consumption, may be a consequence of food insecurity.<sup>27</sup> If hunger is recurrent, it can eventually lead to malnutrition.<sup>27</sup>

Establishing an efficient, reliable tool to measure food insecurity in a population requires extensive research, time and collaboration. For years, the United States Government recognized the existence of food insecurity, but lacked the means by which to quantitatively evaluate the situation. Without sound evidence for the extent of the problem, devising effective solutions was challenging. However, in 1984, one report prompted efforts to build a tool for assessing the true plight of the food insecurity in the United States.

### CREATION OF THE U.S HOUSEHOLD FOOD SECURITY SURVEY MODULE

The *Report of the President's Task Force on Food Assistance* was published in 1984 under the Reagan administration. While acknowledging the existence of food insecurity in the United States, the report conceded that tools to measure the prevalence of food insecurity were not available.

*There is no official "hunger count" to estimate the number of hungry people, and so there are no hard data available to estimate the extent of hunger directly. .... We regret our inability to document the degree of hunger caused by income limitations, for such lack of definitive, quantitative proof contributes to a climate in which policy discussions become unhelpfully heated and unsubstantiated assertions are then substituted for hard information.*<sup>28</sup>

The report motivated private-sector researchers to focus on developing an effective tool to measure food insecurity among the United States' population. An Expert Panel on Core Indicators of Nutritional State for Difficult-to-Sample Populations was formed to review

methodologies for measuring food insecurity. In 1990, the findings of the Expert Panel, which included individuals with experience in survey design, nutritional status, medical conditions related to nutrition, public policy and food security, was published in *The Journal of Nutrition*.<sup>2</sup> During the same year, the United States' Congress established the *Nutrition Monitoring and Related Research Act of 1990*, which emphasized the need for regular monitoring of the population's nutrition status.<sup>29</sup> The subsequent Ten-Year Comprehensive Plan included the creation of a national measure for food security and hunger.<sup>29</sup> In 1992, a federal interagency working group called The Food Security Measurement Project was formed to act upon the goals of the Ten-Year Comprehensive Plan.<sup>29</sup> A main objective of the group was to ensure that the final measure could be incorporated simply into state and local food-security survey initiatives.<sup>29</sup>

### **Core Module**

The resulting core model survey questionnaire takes roughly 4 minutes to administer to an individual and is able to distinguish between the various stages of the food security scale, which will be described later.<sup>29</sup> The core module consists of 18 questions that are used to assess a household's food security status over a 12-month period contingent upon economic conditions. Questions review the following topics: anxiety about food availability; substituting cheaper foods for what is normally purchased; running out of food without money to purchase more; altering eating patterns due to lack of food (adults and/or children); and physical reactions, such as hunger and weight loss.<sup>29</sup> Nutritional quality of the food, food safety and "socially acceptable" ways of obtaining food are not captured by the core module questions.<sup>29</sup> The core module in its entirety can be viewed in Appendix A. On a national level, the core module is incorporated as the Household Food Security Survey Module (HFSSM) into the Food Security Supplement of the Current Population Survey.<sup>27</sup> Acknowledging that time is a limiting factor for research, a 6-question subset questionnaire was created from the core module and is frequently utilized at state and local levels. Both tools are considered robust and reliable for measuring household food security among the United States' population.<sup>29</sup>

## Household Food Security Scale

For years following the initiation of the measurement tool in 1995, the term hunger was utilized as part of the food security scale. For instance, households in 2002 were classified as one of the following:<sup>29</sup>

1. Food secure-no or only minor indications of food insecurity
2. Food insecure without hunger-evidence of food insecurity is marked by concerns about food supply and altered patterns of food management, including reducing quality of food purchased.
3. Food insecure with hunger-adult food intake is jeopardized to the point where repeated sensations of hunger occur. However in most households, similar food constraints among children are not observed.

In 2006, the United States Department of Agriculture (USDA) changed its position on the term *hunger* based on conclusions from the Committee on National Statistics of the National Academies. According to the Committee, while *hunger* should be reviewed in the context of food insecurity and may be a consequence of food insecurity, it is best determined at the *individual level* not at the household level.<sup>27</sup> The resulting revised food security scale is as follows, and definitions can be reviewed in Figure 1.<sup>30</sup>

1. High food security
2. Marginal food security
3. Low food security
4. Very low food security

In the United States, very low food security may reoccur within a household but is more often episodic instead of a chronic situation.<sup>3</sup> These episodes may be due to job loss, medical bills, increasing rent costs, adding a household member or losing federal nutrition assistance benefits.

**Figure 1: USDA's revised labels for food security**

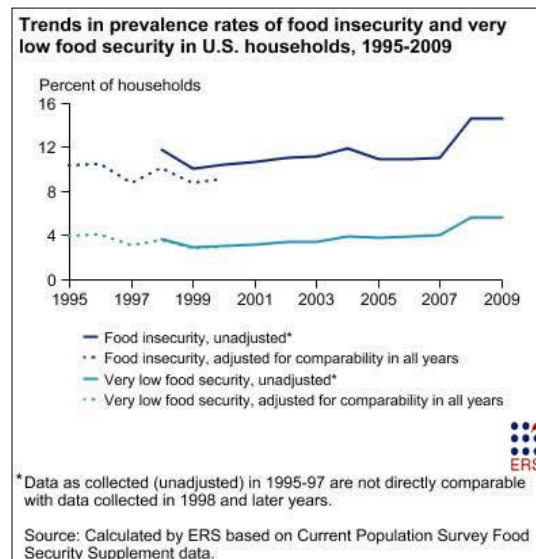
General categories (old and new labels are the same)	Detailed categories		
	Old label	New label	Description of conditions in the household
Food security	Food security	<b>High food security</b>	No reported indications of food-access problems or limitations
		<b>Marginal food security</b>	One or two reported indications—typically of anxiety over food sufficiency or shortage of food in the house. Little or no indication of changes in diets or food intake
Food insecurity	Food insecurity without hunger	<b>Low food security</b>	Reports of reduced quality, variety, or desirability of diet. Little or no indication of reduced food intake
	Food insecurity with hunger	<b>Very low food security</b>	Reports of multiple indications of disrupted eating patterns and reduced food intake

Source: United States Department of Agriculture: Economic Research Service.  
<http://www.ers.usda.gov/Briefing/FoodSecurity/labels.htm>

## HOUSEHOLD FOOD SECURITY MODULE RESULTS

The HFSSM is conducted annually using a nationally representative sample of the population.<sup>3</sup> Figure 2 displays food insecurity trends since the inception of HFSSM in 1995. Notably, food insecurity held steady at around 11% from 2005 to 2007 but suddenly rose to 14.6% in 2008 and then again to 14.7% the following year.<sup>4</sup> More households were categorized as food insecure in 2009 (17.4 million) than during any other year since the survey was first implemented.<sup>4</sup> Nearly a third of food insecure households from the 2009 HSSFM were classified as having very low food security, meaning some members had to reduce or disrupt normal eating patterns and reduce food intake based on limited resources. This equates to roughly 6.8 million households.<sup>3</sup> Estimations suggest that 0.9% to 1.2% (1.1-1.4 million households) were chronically in a state of very low food security whereas the rest experienced very low food insecurity episodically.<sup>3</sup>

**Figure 2: Prevalence of Food Insecurity in the United States 1995-2009**



Source: United States Department of Agriculture: Economic Research Service.  
[http://www.ers.usda.gov/Briefing/FoodSecurity/stats\\_graphs.htm](http://www.ers.usda.gov/Briefing/FoodSecurity/stats_graphs.htm)

As expected, food insecurity was notably higher than the national average of 14.7% among those households that lived at or below the federal poverty line.<sup>3</sup> In 2009, the poverty line for a family of 4 was of \$22,050.<sup>31</sup> Additionally, certain demographic groups were disproportionately impacted by food insecurity: Nearly 25% of black households and 27% of Hispanic households surveyed were considered food insecure.<sup>3</sup> Prevalence of food insecurity was greater among single-parent households headed by women (36.6%) than by those headed by men (27.8%).<sup>3</sup> Despite the fact that many households classified as food insecure in 2009 were eligible for federal nutrition assistance programs, many did not take advantage of them. One month prior to taking the HFSSM, only 57 percent of eligible food insecure households had participated in the Supplemental Nutrition Assistance Program (SNAP), Special Supplemental Nutrition Program for Women, Infants and Children (WIC) or the National School Lunch Program.<sup>3</sup> SNAP, formerly known as the Food Stamp Program, is the mainstay of the federal food assistance programs. It is designed to help low-income households purchase food via electronic benefits that are disbursed monthly.<sup>32</sup> Low-income households may not participate in SNAP if they do not know about the

program; do not feel food insecure; are embarrassed to ask for assistance; or think that the application process is too arduous.

## **THE FOOD INSECURITY-OBESITY PARADOX**

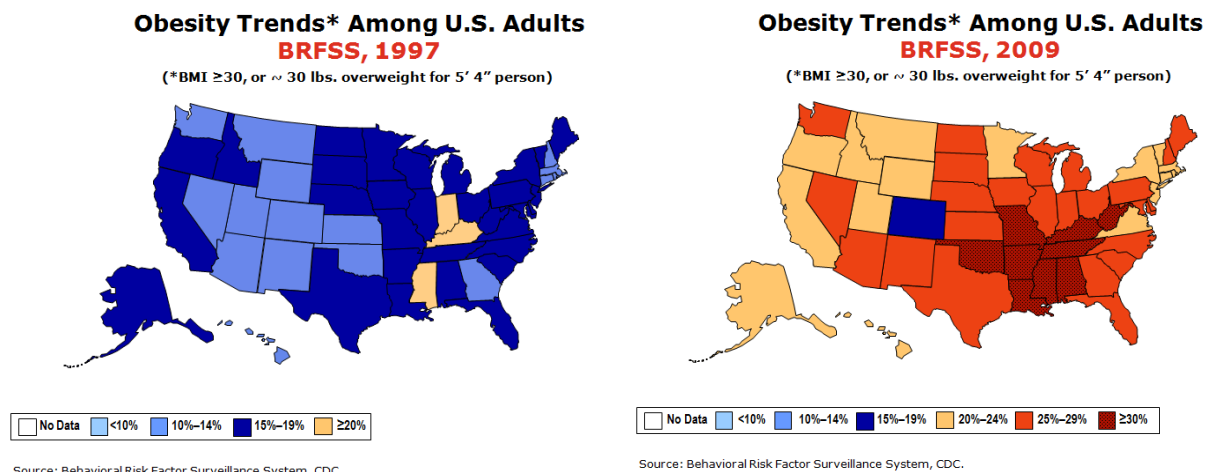
In 1995, while working at the Tufts University School of Medicine, William Dietz wrote a discussion piece which hypothesized that hunger may cause obesity.<sup>25</sup> At this time, his thesis was not concurrent with popular belief. Hunger suggests inadequate food supplies whereas obesity suggests overconsumption of energy (calories).<sup>25</sup> While the phrase hunger-obesity paradox was commonly used for many years to indicate what Dietz had proposed, the decision to distinguish hunger from food insecurity in the United States has caused a subsequent shift in terminology. Today, the phrase food insecurity-obesity paradox is often preferred.

According to the Centers for Disease Control and Prevention, adults are considered overweight if they have a body mass index (BMI) of at least 25 kg/m<sup>2</sup> and less than 30 kg/m<sup>2</sup>.<sup>33</sup> Obese adults have a BMI of 30 kg/m<sup>2</sup> or greater.<sup>33</sup> For children and teens, BMI is translated into percentiles. Those falling between the 85<sup>th</sup> and 95<sup>th</sup> percentile for their age group and sex are considered overweight.<sup>33</sup> Obese children and teens have a BMI that places them at or above the 95<sup>th</sup> percentile for their age and sex.<sup>33</sup>

In 1997, Alabama, Kentucky and Indiana were the first states to have a prevalence of obesity among adults over 20%.<sup>34</sup> By 2009, the entire United States, except for Colorado and Washington D.C., had an adult obesity prevalence over 20%.<sup>34</sup> This stark contrast is depicted in Figure 3. According to the Food and Action Research Center, two-thirds of adults and a third of school-age children in the United States were either overweight or obese in 2010.<sup>5</sup>



**Figure 3: Obesity among Adults in the United States**



Source: United States Centers for Disease Control  
<http://www.cdc.gov/obesity/data/trends.html>

Food insecurity and obesity often exist in the same household, and low-income individuals are those most susceptible to food insecurity.<sup>3</sup> Many obesity risk factors are characteristic of low-income communities and therefore impact a high proportion of food insecure households as well. Low-income communities are prone to a dearth of supermarkets, leaving inhabitants (especially those without reliable transportation) to utilize convenience stores, corner stores and fast food restaurants as the main sources of food provisions.<sup>5, 16, 35, 36</sup> These entities are less likely than conventional supermarkets to carry fresh food, and the products they do carry are prone to higher prices.<sup>16, 17, 19, 37</sup> Regardless of where an individual shops for food, nutrient dense items, such as fresh produce and whole grains, tend to cost more than energy dense foods, such as candy bars, macaroni and cheese and snacks, on a calorie by calorie basis.<sup>18, 25, 38</sup> If finances become scarce, households may sacrifice the quality of food in order to maintain the quantity.<sup>35, 39,</sup>

<sup>40</sup> This reality was reiterated by the Director General of the World Health Organization in 2008. “Food choices are highly sensitive to price. The first items to drop out of the diet are usually healthy foods-fruit, vegetables and high-quality sources of protein...nutrient poor staples are often the cheapest way to fill hungry stomachs”.<sup>41</sup> A study by Mello and colleagues in 2010 found that food insecure individuals had a significantly higher fat intake than those who were

considered food secure ( $P < 0.05$ ).<sup>42</sup> A study by Kendall, Olson and Frongillo of 193 women from a rural county in New York concluded that food insecure participants consumed significantly fewer fruits and vegetables than food secure women.<sup>43</sup> As such, the participants also had significantly lower potassium and fiber intakes and were less likely to consume the Recommended Daily Allowance of vitamin C.<sup>43</sup> Poor food consumption habits promote weight gain and can lead to a lack of nutrients necessary for maintaining a healthy body.<sup>44</sup>

In the United States, households struggling with food insecurity often go through periods when food is plentiful and other times when it is difficult to access.<sup>23, 24</sup> Research suggests the SNAP disbursement schedule promotes this resource variability, which in turn alters eating habits. Households that receive SNAP benefits may go through a period of feasting when disbursements become available each month followed by restricted eating towards the end of each month if benefits run out.<sup>45</sup> During periods of abundance, individuals may consume more than necessary<sup>5, 25, 39</sup> perhaps because they are not certain when food will become scarce and how long that period will last. Cyclical eating patterns have been associated with a rise in body fat and decrease in lean muscle mass along with faster weight gain when normal consumption resumes.<sup>25</sup> Mothers are especially vulnerable to cyclical food restriction. They may limit their own consumption to increase the amount of food available for their children.<sup>5, 39, 46</sup>

Households living in tenuous situations, such as on the streets or in shelters, may not have access to the appliances and utensils necessary to cook and store food.<sup>35</sup> Individuals enduring this type of lifestyle will likely resort to food that is cheap and requires little preparation time. In general, these food items contain higher fat, sugar and salt contents than fresh items and lack essential nutrients. A study by Valera and colleagues said women living in homeless shelters felt that eating out “was more of a necessity than a choice”.<sup>35</sup>

Violence and limited community amenities in low-income neighborhoods may also impact physical activity levels, thus increasing the risk for weight gain. In areas where gang and other criminal activities are prevalent, families may spend more sedentary time indoors rather than risk

their safety playing outside or exercising together.<sup>20</sup> Low-income neighborhoods often have fewer resources that promote physical activity, such as bike paths, parks, and recreation centers, than areas where the average income is higher.<sup>5, 21, 22</sup> In addition, low-income individuals are at a high risk for chronic stress due to possible food insecurity, financial problems, lack of health care, neighborhood concerns, unfulfilling jobs, or extensive work commitments. Stress can lead to weight gain via related hormonal activity or unhealthy eating patterns.<sup>5</sup>

### THE FOOD INSECURITY-OBESITY PARADOX AMONGST ADULTS:

As obesity rose towards epidemic levels in the United States, researchers began to question whether or not Dietz's hunger (food insecurity) obesity paradox was indeed valid. Links between food insecurity and obesity can be partially explained by the scenarios above; however, researchers wanted to understand the intricacies behind this growing concern. To date, findings about the association between food insecurity and obesity among adults are inconsistent.<sup>45</sup> According to many studies, women who struggle with food insecurity are more likely to be overweight or obese than women who are considered food secure.<sup>7, 8, 10, 39</sup> Research regarding this paradox among males is not as prevalent, and such studies often find a weak association or no significant association between food insecurity and obesity.<sup>7, 8</sup>

A study conducted by Townsend and colleagues using data from the 1994-1996 Continuing Survey of Food Intakes by Individuals found that food insecurity was associated with overweight status ( $BMI \geq 27.3 \text{ kg/m}^2$ ) in women ( $P < 0.0001$ ) but not in men ( $p = 0.44$ ) when conducting bivariate analyses.<sup>7</sup> Significance remained in women ( $p < 0.01$ ) after controlling for potential confounders, such as age, ethnicity, income, education and occupation.<sup>7</sup> A study by Hanson, Sobal and Frongillo found that in comparison to food secure men, marginally food secure men tended to be more overweight ( $p = 0.06$ ) and men classified as having low food security were less likely to be overweight ( $p < 0.05$ ).<sup>10</sup> On the other hand, women classified as having low food security were more likely than food secure women to be obese ( $p < 0.01$ ).<sup>10</sup>

Adams, Grummer-Strawn and Chavez studied the association between food security and obesity among California women who participated in the 1998 and 1999 California Women's Health Survey. Weight and height were self-reported. Food security was assessed using a set of four questions adapted from the HFSSM. Among Asian, Black and Hispanic women, obesity became more prevalent as food security status worsened, suggesting a dose-response effect. However, this was not the case for White, non Hispanic (WNH) women.<sup>9</sup> In this group, obesity prevalence was greater among women classified as food insecure without hunger than women classified as food insecure with hunger.<sup>9</sup> After controlling for all other variables in the logistic model, WNH women who were food insecure without hunger were 36% more likely to be obese ( $p<0.05$ ) but there was no increased likelihood of obesity among WNH women who were food insecure with hunger.<sup>9</sup> Among the other ethnic groups, food insecurity with hunger more than doubled the likelihood of obesity and women who were food insecure without hunger had a 47% greater likelihood of being obese ( $p<0.05$ ).<sup>9</sup>

A longitudinal study by Wilde and Peterman indicated that women living as either marginally food secure or food insecure without hunger were more likely than food secure women to be obese ( $p<0.05$ ) and also more likely to increase their weight by 5 pounds over a year ( $p<0.05$ ).<sup>8</sup> The logistic regression analyses used to come to these conclusions controlled for race/ethnicity, income, education and current health care status. Conducting the same analyses for women categorized as food insecure with hunger did not produce significant results, suggesting that persistent food insecurity may in fact decrease energy consumption.<sup>8</sup> Other longitudinal female-based studies found only weak evidence for a positive relationship between food insecurity and obesity or no significant association at all.<sup>47, 48</sup>

Despite the presupposition that food insecurity occurs prior to obesity, some researchers suggest that the opposite may be true. The confluence of the perceived need for larger quantities of food along with the critical role food plays in the lives of many obese individuals may in fact lead to food insecurity among obese populations.<sup>10</sup> A study conducted by Olson and

Strawderman assessed the association between BMI and food security status by utilizing data collected during early pregnancy and 2 years postpartum.<sup>49</sup> Chi square analyses showed women who were obese during early pregnancy were more likely to become food insecure by 2 years postpartum ( $p=0.001$ ).<sup>49</sup> Those who were food insecure on the outset of the study were not likely to become obese by two years postpartum ( $p=0.48$ ).<sup>49</sup> A regression model, which controlled for confounders, also indicated that obesity during early pregnancy significantly predicted food insecurity postpartum (OR 2.45 [95% CI 1.21-4.95]).<sup>49</sup>

### THE FOOD INSECURITY-OBESITY PARADOX AMONGST CHILDREN AND ADOLESCENTS:

While assessments of the food insecurity-obesity paradox among children and adolescents remain inconclusive, studies point towards a few key issues. First, obesity does not appear to disproportionately impact food insecure girls to the extent that it does women. Second, study results often find no significant association between food insecurity and obesity among children. However, a few studies concluded that a possible inverse relationship between food insecurity or low-income status and obesity may exist.

A study by Babey et al. using self-reported weight and height data for California adolescents found that overall obesity prevalence was not statistically different throughout the four years.<sup>50</sup> However, obesity prevalence significantly increased among lower income adolescents,<sup>50</sup> which may be indicative of food insecure populations as well. Male adolescents were significantly more likely to be obese than females ( $p<0.001$ ). Males and females of African American ( $p <0.001$ ) or Latino ( $p <0.001$ ) descent were significantly more likely than White adolescents to be obese.<sup>50</sup>

A cross sectional study by Buscemi, Beech and Relya on Latino children concluded that 63% of the participants were either overweight or obese.<sup>14</sup> However, children of food insecure households were less likely to be classified as either category based on a t-test to compare mean BMI percentiles of food secure and food insecure families ( $p=0.022$ ).<sup>14</sup> Using Marin's Short

Acculturation Scale for Hispanics, families that were more acculturated were also more food secure than their those with less acculturation.<sup>14</sup> Acculturation was a significant moderating variable for the association between food insecurity and BMI. This suggests that families who were more acculturated and more food secure would have children with higher BMI percentiles than their food secure counterparts.<sup>14</sup>

Other studies also conclude that children in low-income families or in households struggling with food insecurity are less likely to be overweight than those living above the poverty level or in food secure households. In a predominantly Hispanic population of 5<sup>th</sup> graders, Matheson, Varady and Varady noticed that the mean BMI for children of food secure households was significantly greater than that of children from food insecure households ( $p=0.04$ ).<sup>15</sup> There was no interaction found between food security and sex in relation to BMI.<sup>15</sup> In addition, children from the most food insecure households reduced their caloric intakes and meat consumption as payday neared.<sup>15</sup>

A study conducted by Rose and Bodor among kindergarten students concluded that positive risk factors for overweight status in this population included: black or Latino ethnicity, low-income status and low physical activity.<sup>11</sup> However, food insecurity was not associated with obesity. Those living in food insecure households were 20% less likely to be overweight when compared to those students living in food secure situations ( $p=0.027$ ).<sup>11</sup>

A study by Alaimo, Olson and Frongillo reviewed the relationship between food insufficiency and weight status of non-Hispanic black, non-Hispanic white and Mexican American children in two age groups, younger (ages 2-7) and older (ages 8-16). Children were considered food insufficient if the family “sometimes” or “often” did not have enough food to cover the family’s needs. Using logistic regression, the researchers concluded that food insufficiency is only positively associated with overweight status in non-Hispanic white females from the 8-16 year-old age group ( $p<0.10$ ).<sup>51</sup> For all other groups, food insufficiency was not

significantly related to overweight status.<sup>51</sup> Two additional studies concluded similar findings, but using food insecurity as the marker instead of food insufficiency.<sup>12, 13</sup>

Given that parents can vastly influence food consumption habits of their children, Martin and Ferris conducted a study to examine whether or not a parent's obesity status was a possible risk factor for his/her child's BMI. The study also examined whether or not food insecurity was a risk factor for obesity. Having an obese parent significantly increased a child's risk of being overweight (OR=2.55 [95% CI=1.19,5.43]), and girls were more likely to be overweight than boys (OR=2.86[95% CI=1.32,6.02]).<sup>52</sup> Food insecurity was not significantly associated with childhood overweight status.<sup>52</sup> Children living below 100% of the poverty level were significantly less likely to be overweight compared to those living with higher incomes (OR=0.40 [95% CI=0.18,0.92]).<sup>52</sup>

Research findings point to a differential relationship between food insecurity and obesity among various sectors of the United States population. Food insecurity seems to be directly related to obesity in women, though the causal effect is not known. Women who alter their own eating habits when food is scarce in order to provide for their children and families may be increasing their risk for subsequent weight gain. Studies about food insecurity and obesity among men are not prevalent and provide conflicting results. Research about the relationship between food insecurity and obesity among children is not assumed to be conclusive but does point to a predominant non-significant association. Preliminary findings show that acculturation and a parental obesity may play a role in childhood overweight and obesity.

### LIMITATIONS FROM PREVIOUS RESEARCH

Despite the proliferation of research related to obesity among food-insecure populations, three main limitations exist: cross-sectional study designs, self-reported weight and height, and the methods for measuring food insecurity. The predominant design used to measure the relationship between food insecurity and obesity is cross-sectional. Unfortunately, this makes the cause and effect relationship between the two factors difficult to determine. In addition, cross-

sectional studies do not have the capacity to reveal how food insecurity impacts weight status over time. More longitudinal studies should be conducted in the future.

Another limitation of studies assessing the relationship between food insecurity and obesity is the use of self-reported weight and height, which may be biased representations of the true anthropometric measurements.<sup>53</sup> A study from Canada assessed the relationship between BMI and food security status using self-reported weight and height and measured weight and height for individuals age twelve and older. Utilizing self-reported figures with a dimensional model for food security, obesity prevalence was significantly greater among food insecure populations.<sup>54</sup> However, no significant difference was detected when the researchers implemented measured anthropometric data with the same food security tool<sup>54</sup>

The HFSSM is a reliable tool for measuring food security at the national, state and local levels in the United States and Canada.<sup>29</sup> The majority of researchers do utilize the HFSSM. However, some choose to ask only a few of the questions to reduce participant burden<sup>49</sup> while others employ a variety of tools to measure food security. Inconsistent measures for food security may create difficulties when trying to compare studies in order to draw conclusions about the relationship between food security status and obesity. Lyons, Park and Nelson found that statistical significance for the relationship between food insecurity and obesity varied depending on the system used to measure food security.<sup>54</sup> Another study reviewing the relationship between food insecurity and obesity in Latino women found that the choice of instrument influenced statistical significance between the two variables.<sup>55</sup>

## **ROLE OF FOOD BANKS: ASSISTING FOOD INSECURE HOUSEHOLDS AND PROVIDING NUTRITIOUS FOOD**

### OVERVIEW OF FOOD BANKS

The concept of food banks started in 1967 when John van Hengel, a volunteer at St. Vincent de Paul Charity, was informed that grocery stores commonly disposed of dented cans

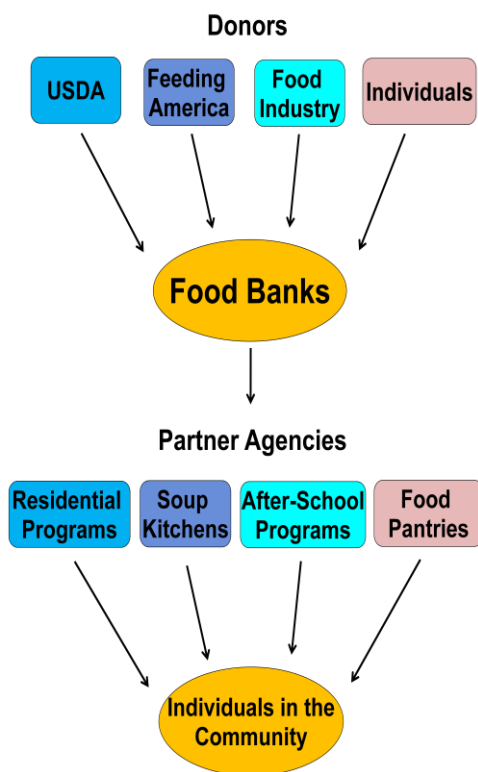


and products nearing their expiration dates. He solicited donations from area food vendors with the notion that companies could provide “deposits” to a bank, which would then be “withdrawn” by partner agencies to serve food insecure individuals in the community.<sup>56</sup> What started out as a 250,000 pound distribution in its first year, grew into St. Mary’s Food Bank Alliance. Today St. Mary’s is the largest food bank in the United States—a 72 million pound annual operation.<sup>56</sup>

In 1976, a grant provided by the federal government to John van Hengel’s food bank spurred development of other similar programs in the United States.<sup>57</sup> In 1979, food bank efforts were incorporated under an umbrella organization called America’s Second Harvest.<sup>57</sup> In 2000, America’s Second Harvest merged with Foodchain, which was the largest food rescue organization at the time.<sup>57</sup> America’s Second Harvest decided to change its name in 2008 to reflect its mission—Feeding America.<sup>57</sup>

Food banks rely heavily on donations from the USDA the food industry and individuals. Few food banks act as direct service providers. Rather, they coordinate with partner agencies that work on the community level to serve those living in food insecure situations. While food banks provide products to after-school programs, senior centers and transitional housing programs, food pantries and soup kitchens are more commonly discussed as providers of emergency resources. Soup kitchens prepare meals while food pantries supply groceries and household goods. Soup kitchens are often accessed by homeless individuals or those in unstable living situations while food pantries are a sensible option for those who have the means to cook and store food. Figure 4 generally depicts the supply and distribution chain for the United States emergency food system.

**Figure 4: The United States Emergency Food System**



Food banks are designed to provide food and other valued household products, such as toilet paper and soap, to individuals during episodic periods of food insecurity. However, reports show that households source food from the emergency food system throughout the year. Of the 5.5 million households that sought assistance from food pantries in 2009, 25 percent stated that obtaining food from pantries was a monthly occurrence and 31 percent said they needed to seek assistance “some months but not every month”.<sup>3</sup> The fact that food pantries have become a continuous source of food for even a small proportion of the United States population is a concern for food banks. Therefore, some members of the Feeding America network now play an extra role. They strive to address the root causes of hunger through advocacy, innovative programming efforts and by conducting SNAP outreach in their communities. An employee from the Oregon Food Bank said, “We are filling the need of today and yet at the same time we hope that in the future we won’t be around. We are trying to work ourselves out of a job”.<sup>58</sup>

## FOOD QUALITY

While food banks are stereotypically known for distributing the leftovers from family pantries or grocery store shelves, many food banks are becoming concerned with the quality of their food.<sup>59</sup> One food bank employee stated, “We need to become more aware-even among educated people- that being overweight is actually a symptom of nutrient poor foods which come from being food insecure...There’s a difference between being well-fed and having a well-fueled body.”<sup>58</sup>

The Food Bank for Central New York has long voiced the need for a stronger emphasis on nutrition at food banks and set an example in 2004 by initiating the first “No Soda and No Candy” donation policy.<sup>26</sup> While the majority of the United States population does not rely on food pantries or soup kitchens throughout the year, for the sector of society that does seek assistance from these sources, food banks can play an important role in their well-being. The “Need for Nutrition at Food Banks”, written in 2009 by the Food Bank of Central New York, states that nutrition should be considered when sourcing food.<sup>60</sup> By providing healthier options, food banks can fill a gap for individuals who may not be able to access these items otherwise.<sup>60</sup> The state of New York financially supports the Food Bank for Central New York with its efforts via the Hunger Prevention Nutrition Assistance Program (established 1984). This program offers guidelines for meal components and requires the food bank to spend 5% of funds on fresh produce and 2% of funds on liquid 1% or skim milk.<sup>60</sup> In addition, funding is provided to help the food bank acquire a nutrition expert to assess food quality and offer nutrition education to clients of member agencies.<sup>60</sup>

Two studies have evaluated food bank inventories using food groups. While there are varying degrees of nutritional quality represented within each food group, this exercise helps food banks ascertain how they can improve their inventories to follow the USDA’s MyPlate ([www.choosemyplate.gov](http://www.choosemyplate.gov)) serving suggestion guidelines. The Food Bank of Delaware reviewed its inventory over a 4-month period to find out the number of people it could serve if it gave

every individual the minimum recommended servings from each food group as defined by the Food Guide Pyramid (now MyPlate).<sup>61</sup> The results showed that the least number of people could be served the minimum recommended serving suggestion for the dairy and grain groups and the most people could be provided with the minimum recommended serving suggestion for the vegetable group.<sup>61</sup>

A study to evaluate the offerings from the Oregon Food Bank over a one-year period found that 66% of the pounds collected fell into one of the five key food groups—grains, fruit, vegetables, meat/beans, and milk.<sup>62</sup> The remainder was composed of combination foods, condiments, snacks, desserts and miscellaneous goods. The goal was to figure out how many MyPyramid (now MyPlate) Days the food bank was able to fulfill given its inventory. One MyPyramid Day consisted of 6oz/oz-equivalents of grains, 2 cups/cup-equivalents of fruit, 2.5 cup/cup-equivalents vegetables, 3 cups/cup equivalents milk and 5.5 oz/oz-equivalents meat/beans.<sup>62</sup> Results showed that the Oregon food bank was able to provide fewer MyPyramid Days for the fruit (5.85 million) and milk groups (5.95 million) than the grain (10.02 million, vegetable (10.25 million) and meat/beans (9.99 million) groups.<sup>62</sup> In both cases, the food banks were able to provide significant quantities of vegetables compared to other food groups. It is not known, however, if these vegetables were canned, frozen or fresh.

At the national level, fresh produce has become an important focus for Feeding America. In 2010, the organization created a long-term strategic plan designed to increase fresh produce procurement significantly. Knowing that roughly six billion pounds of produce is left in the fields or unsold each year, Feeding America has set a goal to procure at least 1 billion pounds of produce by 2015.<sup>63</sup> The organization has also committed to seek philanthropic assistance that will enable food banks and partner agencies to update the storage and distribution infrastructure necessary for fresh products.<sup>63</sup>

## NUTRITION PROFILING

Since 1990, United States law has required food manufacturers in the United States to disclose nutrition information on product packages.<sup>64</sup> Despite efforts to make nutrition labels understandable and relevant to consumers, studies reveal that the labels remain confusing.<sup>64</sup> In an effort to simplify shopping for conscientious consumers, food companies and grocery stores have implemented a variety of profiling systems. At this time, nutrition profiling is not regulated by the national government, so methods for evaluating the nutritional quality of food varies.<sup>65</sup> Profiling systems may use beneficial nutrients (i.e.: vitamin C and fiber), nutrients to limit (i.e.: fat and added sugar) or a combination of the two to assess products.<sup>65</sup> Additionally, profiling systems can be either threshold-based or continuous. A threshold system compares the nutrient quantity of a certain product against established threshold values.<sup>66</sup> This results in claims, such as “high fiber” and “low sodium”. A continuous system calculates a score for every product based on nutritional content and then hierarchically ranks products.<sup>66</sup> These systems may rank products separately within food groups or across the whole spectrum of foods available.

Many food manufacturers use threshold-based systems. They place the symbol that denotes a product’s nutritional value on the front of food packages. The first of such labels was revealed in 1995 by the American Heart Association.<sup>64</sup> Since then, companies, such as PepsiCo, General Mills, Kraft, Unilever and Kellogg’s have all developed their own symbols.<sup>64</sup>

In 2006, Guiding Stars was released as the first retail-based profiling system.<sup>64</sup> Products are credited for their vitamin, mineral and whole grain content but debited for their quantity of saturated fat, trans-fat, cholesterol, added sugar and added salt.<sup>64</sup> Foods are ranked based on the nutrient content of a 100-calorie portion.<sup>64</sup> The resulting ranks are then depicted as stars at on shelf tags at supermarkets. One star means the product is “good”, two stars means the product is “better” and three stars signifies the “best” option.<sup>64</sup> Other prominent retail-based profiling systems include NuVal and nutrition iQ.

While nutrient profiling systems are gaining attention from researchers, food manufacturers and consumers, scholars have conducted few studies to ascertain whether or not consumers are reacting positively to the systems available. One such study, conducted by Sutherland, Kaley and Fischer, assessed consumer purchasing habits from 2006-2008 at 168 northern New England and New York grocery stores that use the Guiding Stars profiling system.<sup>67</sup> The research found that even though the number of products given star ratings did not increase significantly over the study period, the proportion of products purchased with stars increased from 24.5% in 2006 to 25.89% in 2008 for the same representative period of January through August.<sup>67</sup> Though this appears to be a small percentage, it equates to nearly 2.9 million more starred items purchased on a monthly basis.<sup>67</sup> More specifically, comparing data for the same 4 week period in October 2007 and 2008, ready-to-eat-cereal purchases changed significantly. There was a 1.67% ( $P > .0001$ ) increase in sales of cereals with stars and a 2.21% ( $> .0001$ ) decrease in sales of cereals without stars.<sup>67</sup>

### NUTRITION POLICIES AT FOOD BANKS

Nutrition policies are not common at food banks, and as described in detail later, their sheer existence remains controversial. Among food banks that have established a policy against products with minimal nutritional value, candy and soda are the main targets. As previously mentioned, the Food Bank of Central New York was the first food bank to create a “No Soda and No Candy” policy designed to improve the quality of food distributed by the organization. In light of the increasing obesity rates in the country, the food bank wanted to focus its efforts on procuring and distributing products that many low-income families cannot easily access, such as fruits and vegetables.<sup>26</sup> In partnership with the University of California at Berkeley’s Center for Weight and Health, two studies were conducted to assess the impact of the policy and food pantry client preferences. The Impact Study focused on the change in pounds for various categories of products from 2003-2006. The policy was implemented in February 2004. From

February 2003 to January 2006, snack foods dropped from comprising 12% of total poundage to only 4%.<sup>26</sup> Soda decreased from 4% of total pounds in the second year to just 1% by the third year.<sup>26</sup> This equates to roughly 65,000 pounds of sweetened beverage averted.<sup>26</sup> While there was an increase in pounds of vegetables between the 2003/04 and 2004/05, a substantial reduction took place in the third year.<sup>26</sup> It is not understood whether this is due to procurement practices or typical variations based on what is available as donations year to year.<sup>26</sup>

The Food Preferences study was conducted throughout May and June 2009. All guests who attended one of fifteen randomly selected food pantries during their hours of operation on one predetermined day were invited to participate in an interviewer-administered questionnaire.<sup>68</sup> The 116 participants were asked to rank sixteen items based on preference, with 1 representing the food they would most like to receive. Meat/poultry/fish had the highest mean rank (3.70), followed by vegetables (4.28), fruit (4.52).<sup>68</sup> Seventy-two percent preferred to receive fresh fruit and 51% preferred to receive fresh vegetables over frozen or canned options.<sup>68</sup> The items least preferred by participants included: snacks (12.81), soda (14.42) and candy (14.77). Deducing from this study, it appears that the Food Bank of Central New York's "No Soda and No Candy" donation policy reflects client choice and could act as a model for nutrition policies at food banks throughout the United States.

### FOOD BANK DONORS

Many food banks have initiated purchasing programs to help supplement donations, but they continue to rely heavily on what is provided by the food industry and individuals from the community.<sup>62</sup> Though food banks and food pantries have separate operational strategies, one can surmise that the quality of food provided by individuals to both entities is similar. In a study that utilized focus groups to identify attitudes and behaviors of individual donors, researchers found a variety of factors that influenced what products donors provided to food pantries in Minnesota. Those who gave from what they had at home felt this manner of providing food allowed them to

save time and dispose of food they were not likely to use otherwise.<sup>69</sup> Individuals who purchased food to donate to the food pantries chose their donations based on low prices or a list of suggested items needed by the organization.<sup>69</sup> Some individuals also liked to give things kids would enjoy. Nutrition was not a common factor in the decision to purchase a certain product.<sup>69</sup> In fact, “treats” for children were popular donation items.<sup>69</sup> The focus group participants did not feel equipped to purchase products that were culturally appropriate for certain ethnicities.<sup>69</sup>

Corporate donors, such as large food companies and supermarkets, receive an enhanced tax deduction when they provide products to food banks. Corporations often donate products that have slight flaws, such as cases of peanut butter with misplaced labels. Supermarkets may provide products that are slightly dented and close to their expiration or sell-by dates. In order to receive the tax deduction, the donor must be a “C Corporation”<sup>70</sup>, which means shareholders hold ownership and a board governs the business.<sup>71</sup> This type of entity also pays corporate taxes and if the business declares bankruptcy, the shareholders personal assets are protected.<sup>71</sup> The deduction offered is cost plus half the difference between the cost and the market share value (i.e.: profit). The deduction cannot surpass double the cost base. For example, if an item costs \$10.00 in the store and has a base cost of \$3.25, then its gross profit would be \$6.75.<sup>70</sup> Half of that gross profit would be \$3.38, making the total enhanced tax deduction \$6.50 (because it cannot exceed two times the base cost).<sup>70</sup> While the tax deduction is obviously a strong incentive for donors, it is important to note that nutritional content is not considered in the deduction. The formula holds true for soda, yogurt and apples.

Donations provided by the food industry often consist of bakery items, sugary drinks, candy and other highly processed convenience items.<sup>59</sup> Distribution of these foods is a source of growing debate among food bank staff. While there is a concern that these items only exacerbate the obesity problem, some food banks question whether or not rejection of unhealthy products will jeopardize relationships with donors who also provide nutritious items.<sup>59</sup> One CEO that has provided more than 44 million pounds of mainly bakery goods to food banks suggested that



requesting select products is asking too much.<sup>59</sup> When a reporter asked General Mills if the company would be less likely to work with food banks if they refused certain items, the spokesperson said, “All our products are considered desirable”.<sup>59</sup>

## FOOD PANTRY DISTRIBUTION METHODS

There are two dominant types of food pantries: those that utilize a traditional box method for distributing products and those that have adopted the client choice method. The traditional box method uses a predetermined set of products that are packaged for food insecure households prior to their arrival at the food pantry. This method is difficult for food banks because they feel pressure to keep certain products in stock for those food pantries.<sup>72</sup> A stereotypical box will have cereal, canned tuna, peanut butter, powdered or boxed milk, pasta, canned fruit and vegetables and a snack or dessert item.<sup>72</sup> The box method promotes dissatisfaction and waste because no two individuals have the same preferences or needs.<sup>72</sup> Here are a few examples:

1. A man receives numerous canned products in his box. No one cares that he is living out of a car and has no can opener.
2. A young woman receives peanut butter in her box. She can't have it in the house because her child has peanut allergies.
3. An older woman is given wheat crackers in her box. Her teeth are in such poor health that she prefers to eat only soft foods.

The client choice model is an emerging phenomenon in the emergency food system. Pantries that follow the client choice model offer clients an experience similar to that of shopping in a market and the variety of foods available is extensive. Volunteers interact with the guests and help them choose items if they request assistance. Client choice pantries utilize a variety of systems for allocating food. For example, clients may be provided with a certain number of

points each month to “buy” products in the pantry.<sup>72</sup> The higher the cost or demand for the product, the higher the point price.<sup>72</sup> Some food pantries offer clients a specified number of foods or pounds of food to be collected from each of the core food groups. Though this version does not offer clients a free range of choices, they are able to choose which items they prefer within each category.<sup>73</sup> By allowing clients to choose food according to their specific needs, these pantries reduce waste and invite clients to try new foods they would otherwise not purchase on their limited budgets.<sup>73</sup>

## **SIGNIFICANCE OF THIS STUDY**

Food banks are well-established sources of emergency food commodities and other household goods that support an increasing proportion of the United States population. They operate in all 50 states, the District of Columbia and Puerto Rico.<sup>63</sup> In 2010, food banks provided 3 billion pounds of food to their service areas.<sup>63</sup> In 2008, 350 million pounds of produce were distributed<sup>74</sup>; this number should continue to grow in line with Feeding America’s strategic plan. Food pantries, soup kitchens, after-school programs and transitional housing programs are just some of the community partners that source products from the Feeding America network of food banks.

Since 1967, Feeding America food banks have actively expanded their efforts to meet the needs of food insecure households. They collectively form the foundation of the emergency food system in the United States and have a network of connections throughout the country. While food banks are commonly highlighted in the media, they are rarely the focus of scholarly literature. Instead, studies about the United States emergency food system tend to assess the quality of food provided by food pantries, characteristics of food pantry clients and experiences those clients have utilizing the emergency food system.<sup>75-80</sup>

Though it is apparent that Feeding America and its network of food banks have started to place a stronger emphasis on the distribution of healthy products, few examples and details

related to this paradigm shift exist. To elucidate the current nutrition environment at Feeding America food banks, the following questions will be utilized:

1. How have Feeding America food banks integrated nutrition-based initiatives into their operational strategies?
2. What factors influence nutrition-based initiatives at Feeding America food banks?
3. What barriers deter Feeding America food banks from introducing nutrition-based initiatives

This study will add valuable data to the small body of literature available about the United States emergency food system and is the first believed to assess the role nutrition plays in guiding operational strategies at Feeding America food banks on a nation-wide level. If indeed food insecurity impacts food consumption habits, nutrient levels and obesity status as research suggests, individuals who utilize food bank products and services may greatly benefit from high quality nutrition education and a solid commitment to providing healthy products. In addition, this study serves to enlighten Feeding America and food bank staff about the influences, concerns, processes and preliminary outcomes related to prioritizing nutrition at partner food banks.

## CHAPTER 3: MANUSCRIPT

## **A Healthy Makeover: Nutrition-based Initiatives at Feeding America Food Banks in the United States**

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## **STUDENT CONTRIBUTION**

The student was responsible for all aspects of the study: development of the interview guide, participant recruitment, interview facilitation, verbatim transcription, code creation and analysis. Dr. Monique Hennink provided guidance on qualitative methods, analysis and scientific writing throughout the entire project. Dr. Marlene Schwartz generously offered the idea for the study and supplied her advice and expertise during the data collection phase.

## ABSTRACT

Food banks form the foundation of the United States' emergency food system under the umbrella organization, Feeding America. The predominant mission of food banks is to alleviate food insecurity, which was experienced in 2009 by 17.4 million households in the United States. To achieve their mission, food banks historically did not differentiate between donations based on nutritional value. However, given the prominence of obesity and diet-related diseases among food insecure populations in the United States, some food banks have shifted their operational strategies to emphasize the distribution of nutritious products. This exploratory qualitative study assessed the role of nutrition at food banks, specifically focusing on nutrition profiling systems, nutrition policies and fresh produce distribution in this paper. In-depth interviews were conducted with 20 Feeding America food banks from June to October 2010. Transcribed recordings were analyzed using MAXQDA<sup>10</sup>. Results show that nutrition policies to eliminate products, such as soda and candy, were more controversial than nutrition profiling systems to evaluate the quality of products. Most food banks showed a concerted effort to allocate more fresh produce to communities through an assortment of activities. Notable concerns related to these initiatives included: reducing the food options available to food insecure populations; jeopardizing donor relationships; and partner agency resource limitations. The nutrition paradigm shift undoubtedly provides improved access to nutritious products for those living in food insecure households, but the extent of its impact on nutritional status deserves greater attention in the future.

## INTRODUCTION

Food security is defined as “access by all people at all times to enough food for an active healthy life”.<sup>2</sup> Food insecurity occurs when households have limited or uncertain access to sufficient amounts of food that are deemed safe to eat and nutritionally adequate “without resorting to emergency food supplies, scavenging, or stealing”.<sup>2</sup> In the United States, the Household Food Security Survey Module (HFSSM) annually collects data about the prevalence of food insecurity using a nationally representative sample.<sup>3</sup> Households that participate in the (HFSSM) are categorized as having high food security, marginal food security, low food security or very low food security.<sup>30</sup> The first two denote a state of food security while the later indicate food insecurity.<sup>30</sup> The HFSSM data collection began in 1995.<sup>3</sup> In 2009, the United States had its highest prevalence of food insecurity since the inception of the measurement tool, affecting 14.7% of households (17.4 million).<sup>3</sup>

Low-income households are at a greater risk for food insecurity than those with a higher economic status.<sup>3</sup> In 2009, households that fell below 185% of the poverty line were more than four times as likely to be food insecure than those living above 185% of the poverty line.<sup>3</sup> Food insecurity can lead to hunger<sup>27</sup>, malnutrition<sup>27</sup> and has been directly associated with obesity. When resources first become scarce, food insecure populations may reduce the quality of food consumed in order to maintain the quantity of food they have available to eat.<sup>29</sup> If this progresses, food insecure populations may be forced to reduce their intake as well.<sup>29</sup> Some suggest that the disbursement schedule for the Supplemental Nutrition Assistance Program (SNAP) can lead to a cyclical eating pattern whereby households overindulge at the beginning of the month and then restrict eating during the last week of the month after resources have largely been depleted.<sup>23</sup> Such eating habits increase one’s risk for weight gain.<sup>25</sup> The predominance of fast food restaurants and convenience stores in low-income neighborhoods coupled with the lack of mainstream supermarkets, make it difficult for individuals to access healthy foods that are also reasonably priced.<sup>16, 19, 36, 37</sup> This phenomenon is exacerbated if households do not have reliable



access to transportation.<sup>36, 37</sup> Violence<sup>20</sup>, chronic stress<sup>5</sup> and limited recreational areas<sup>6</sup>, characteristics of many low-income neighborhoods, also directly or indirectly promote weight gain.

Studies show that food insecure women are disproportionately at risk for overweight and obesity.<sup>7, 8, 10, 39</sup> However, a positive association between food insecurity and obesity lacks consistent statistical strength among male populations.<sup>7, 10</sup> Studies of children and adolescents point to no significant association between food insecurity and obesity among these populations.<sup>11-13</sup> However, a few studies have concluded that children living in food insecure or low-income households are less likely to be obese than their respective counterparts.<sup>11, 14, 15</sup>

In the United States, Feeding America's over 200 member food banks are the mainstay of the emergency food system, assisting predominantly food insecure households.<sup>1</sup> Food banks serve as central collection points for donations of food and household goods supplied by the United States Department of Agriculture (USDA), individuals and the food industry. Rather than provide food directly to food insecure households, food banks typically work through partner agencies to allocate products to those in need. The most common partner agencies are soup kitchens and food pantries, which respectively provide prepared meals and groceries to food insecure households.

Historically, food banks did not differentiate between donations based on nutritional quality. However, given the obesity epidemic in the United States and the pervasiveness of convenience foods in low-income communities, food banks are taking steps to change their operational strategies and evaluate the quality of food they allocate.<sup>59, 60</sup> In 2004, the Food Bank of Central New York made a significant decision to eliminate soda and candy from its inventory, in order to focus its resources on procuring nutritious options that promote health.<sup>26</sup> A study about the food bank's "No Soda No Candy" policy suggests, "The role of food banks as major food suppliers to the chronically food insecure and nutritionally vulnerable necessitates consideration of the nutritional impact of their food donation and distribution policies and practices."<sup>68</sup>

Notably, a food preferences survey of food bank recipients in New York found that food insecure households prefer meat, fresh produce and milk to a much larger extent than they do soda or candy.<sup>68</sup>

Two studies have assessed food bank inventories using the five core food groups-milk, fruit, vegetables, grains and meat/beans.<sup>61, 62</sup> Additionally, they estimated how many people could be served each food group based on consumption guidelines from the Food Guide Pyramid or MyPyramid.<sup>61, 62</sup> Both studies found that food banks were able to provide the greatest number of people with the recommended portion of vegetables. Neither study differentiated between fresh, frozen or canned vegetables, which could have nutrition implications.

On a national level, Feeding America has prioritized the procurement of fresh produce with the understanding that this category of food is a largely untapped resource. In the 2010 Annual Report, Feeding America noted its commitment to obtain 1 billion pounds of produce by 2015.<sup>63</sup>

Food banks are serving an increasing proportion of the population during a time when obesity is rampant. In 2010, the Food and Research Action Center said two-thirds of adults and one-third of school-aged children in the United States were either overweight or obese.<sup>5</sup> In 2009, one in seven low-income preschoolers was considered obese.<sup>6</sup> Food banks have not forgotten their key mission to provide food to food insecure households, but they are increasingly focused on challenging themselves and their donors to emphasize nutritious products that will improve the consumption habits of food insecure populations. As this movement evolves, it is essential to document its progress, initiatives, stakeholders, influences, and perceived barriers in order to elucidate areas for research, inform advocacy efforts and provide examples for partner food banks that have yet to adopt the nutrition mentality. To assist with those efforts, the following study addresses these questions:

1. How have Feeding America food banks integrated nutrition-based initiatives into their operational strategies?

2. What factors influence nutrition-based initiatives at Feeding America food banks?
3. What barriers deter Feeding America food banks from introducing nutrition-based initiatives?

## METHODOLOGY

### PARTICIPANT SELECTION

The study focused on Feeding America food banks due to the organization's long history and prominence in the United States' emergency food system. Food banks under this umbrella organization were identified from the Feeding America website and selected purposively to ensure variability in participant characteristics. Three characteristics used to choose a diverse range of food banks for this study included:

1. Geographic location (based on United States Census region)
  - a. Northeast (Pennsylvania, New York, New Jersey, Connecticut, Rhode Island, Massachusetts, Vermont, New Hampshire, Maine)
  - b. South (Texas, Oklahoma, Arkansas, Louisiana, Mississippi, Alabama, Tennessee, Kentucky, West Virginia, Maryland, Washington D.C. Virginia, North Carolina, South Carolina, Georgia, Florida)
  - c. Midwest (North Dakota, South Dakota, Nebraska, Kansas, Minnesota, Iowa, Missouri, Wisconsin, Illinois, Indiana, Michigan, Ohio)
  - d. West (Washington, Oregon, California, Nevada, Idaho, Wyoming, Utah, Colorado, Arizona, New Mexico, Hawaii, Alaska)
2. Size of food bank (based on pounds (lbs) distributed in 2009)
  - a. Small (<10 million lbs/yr)
  - b. Medium (10-20 million lbs/yr)
  - c. Large (>20 million lbs/yr)
3. Known nutrition-based initiatives
  - a. Knowledge about the use of nutrition profiling systems or policies

b. No known use of nutrition profiling systems or policies

Invitations to participate were sent by email to food bank presidents, chief executive officers or nutrition department staff who worked at food banks representing the spectrum of characteristics listed above. During the interview process, participants were asked about their knowledge of other food banks that had instituted nutrition profiling systems or policies. Employees from some of these food banks were also invited to interview, keeping in mind the diversity of food bank size and location desired in the overall study. All individuals were given the option to defer the interview to another staff member with more food bank experience or expertise about the nutrition-based initiatives. Four individuals chose to have a different staff member participate in their place while five others invited another staff member to join them in the interview.

DATA COLLECTION METHODS:

This study was initiated by the Yale Rudd Center for Food Policy and Obesity in New Haven, Connecticut. Data were collected using in-depth interviews with 25 participants working at 20 Feeding America food banks around the United States. It was expected that this proportion, roughly 10% of Feeding America food banks, would adequately capture the diverse characteristics of nutrition-based initiatives along with their motivating factors and perceived barriers.

Data collection took place between June and October 2010. The minimal existence of empirical research about the role of nutrition at food banks meant a strong formative foundation for the study was not available. Therefore, utilizing a survey instrument would not have been a practical or effective method for data collection. Instead, in-depth interviews were chosen to encourage participants to raise issues and concerns on their own in an iterative manner. Additionally, in-depth interviews allowed the researcher to gain extensive details and depth of

knowledge related to the processes and experiences of implementing nutrition-based initiatives at Feeding America food banks.

The original interview guide included the following topics related to nutrition profiling systems and nutrition policies: current use; influences; and donor, staff, client and partner agency perceptions. Following a pilot interview, questions related to nutrition education, the food bank's responsibility to provide healthy food and the relationship between hunger and obesity were added. A final interview guide can be viewed in Appendix B. The results about nutrition education will not be elaborated upon here.

The Yale University Internal Review Board (protocol #1006006898) certified that this study did not constitute human subject research (See Appendix C). Two interviews were conducted face-to-face at the participants' respective food banks. The remaining interviews were completed over the telephone using an Olympus TP7 earpiece for recording purposes. Prior to each interview, verbal consent and permission to record were granted by each interviewee. Interviews ranged from 30 minutes to 2 hours. Participants were given a \$25 gift card to Amazon to thank them for their participation.

## **ANALYSIS**

Recorded interviews were transcribed verbatim by the lead author and deidentified to ensure participant confidentiality. Following transcription, participants were contacted for follow-up questions or to request a document mentioned in the interview. Transcriptions were read to identify key issues which subsequently became data codes. A code book of 85 inductive and deductive codes was developed and entered into MAXQDA<sup>10</sup> software (VERBI GmbH, Marburg, Germany). Using a portion of the data, inter-coder reliability was assessed by comparing code development between the researcher and a colleague to ensure reliability and consistency in data analysis. Code definitions were refined as needed prior to continuing the coding process on other transcripts.

MAXQDA<sup>10</sup> was utilized to manipulate searches and organize data for codes relevant to each research question. A detailed reading of all retrieved transcription segments was conducted and main topics were identified. A thematic analysis of the main topics included cross-case comparisons and comparisons between the following subgroups: food banks that utilized nutrition profiling systems, food banks that utilized nutrition policies and those that had not implemented either initiative-to reveal patterns in practices and perceptions. The main topics, such as obesity, client choice, donors, partner agencies and fresh produce were described and utilized as the foundation of the results. Throughout the writing process, the researcher verified findings by returning to the data multiple times in order to reduce potential interpretation bias and to ensure that findings were grounded in the data. In addition, some food banks were contacted to clarify issues that were valuable for the results.

## **RESULTS**

The original focus of this study was to gain a holistic understanding about nutrition education, nutrition profiling systems and nutrition policies used by Feeding America food banks in the United States. As previously mentioned, nutrition education will not be elaborated upon in this paper. Throughout the analysis process, it became apparent that activities related to fresh produce distribution were clear priorities for many food banks. The extensive efforts and resources involved with providing more fresh produce to food insecure communities suggested that amplifying fresh produce distribution was a nutrition initiative in its own accord. Therefore, fresh produce activities, influences and perceived barriers will be included in the results alongside the findings related to nutrition profiling systems and policies.

Study findings will be exhibited in the following manner. The basic characteristics, uses, and geographic distribution of nutrition-based initiatives will be elucidated first. This will be followed by a section regarding the various influential factors that lead food banks to implement nutrition profiling systems, institute nutrition policies and intentionally boost fresh produce

distribution. Finally, perceived barriers to implementing nutrition-based initiatives will be explained along with feedback from food banks that have made strides in addressing these hindrances.

### NUTRITION-BASED INITIATIVES

Food banks have not always considered nutrition when procuring and distributing products to alleviate food insecurity in their respective communities. Two participants said some food banks did not even seek out fresh produce during the initial years due to constraints of the distribution system. Another participant noted that the nutrition focus now apparent in the Feeding America network is a revelation of the past decade. “We were here to take donations in and get it out without distinguishing whether it was nutritious or not. The focus on nutrition, I think, is something that has been going on more heavily in the past maybe 5-8 years and it has really gained some traction and momentum.”

Though the nutritional quality of food is an important consideration for a growing number of food banks, the extent to which food banks prioritize nutrition varies. This study made it clear that two extremes exist among food banks—those that prohibit specified products of poor nutritional quality and those that accept every donation offered to them regardless of nutritional value. In this assessment, both extremes utilized nutrition profiling systems. While some food banks gravitate towards either end of the spectrum, others prefer to stay neutral. This third group of food banks accepts virtually all donations but is discretionary regarding the quantity of certain items.

#### **Nutrition Policies**

Based on the findings of this study, few food banks in the Feeding America network have created or plan to implement an explicit policy to restrict specified categories of food. Due to a city-wide ban, a food bank in the Northeast restricts bulk packaged items containing trans-fat. In the South, one food bank does not permit energy drinks, such as Red Bull, because it does not

have the capacity to ensure the product is not provided to children. Four food banks have imposed a ban on soda and two prohibit candy as well. It is important that food banks define the categories of food restricted by policies to avoid misunderstandings about which items should not be accepted or purchased. At one Northeast food bank, the *candy* category includes: hard candy, soft candy, gum, and chocolate bars. Hard candy is further defined with examples, such as Jolly Ranchers and lollipops, while soft candy includes caramel, taffy and licorice.

### **Nutrition Profiling Systems**

In total, five of the food banks interviewed use nutrition profiling systems to address the nutritional content of food. Four other food banks were actively pursuing nutrition profiling as an operational strategy. One of these food banks had partnered with a university to provide expertise for creating a type of profiling system which ranks products based on nutritional quality. The other three food banks expressed a desire to utilize a well-known ranking system developed by a food bank in the Northeast. According to the food bank that designed this well-known system, Feeding America is interested in making the program available to the entire network of food banks. “We’re getting to the point where we’re working on releasing the nutrition ranking system nationally. We’ve written a manual to go with it, and I would say I’ve had dozens of inquiries from food banks, who are sort of chopping at the bit...”

Profiling systems have no set standard, so current practices vary widely. They are designed to impact food acquisition, evaluate the nutritional quality of a food bank’s inventory, and educate partner agencies. Prior to purchasing an item, three participants said their food bank acquisition teams request a product’s nutrition facts label in order to evaluate its nutritional quality. However, profiling systems are not meant to eliminate any category of products completely. One food bank in the Northeast talked about its relationship with a candy company that makes generous donations. “When we get those products, we don’t say ‘No, we’re not going



to take them'. We can rank them. We can guide our agencies in the proportionality that they make available."

### Ranking Systems

The most common form of profiling reported was a ranking system, used by four food banks. During the development stages, this type of system is supported by nutritionists or dietitians due to its complex nature. Ranking systems are designed to evaluate the nutritional quality of products by inputting data from nutrition facts labels into an analysis tool. Three food banks use the aforementioned well-known ranking system, or a slight variation of it. Food is evaluated within predetermined categories, such as fruit or grains, using key nutrients and main ingredients of each product. Items are ranked by number (1, 2, or 3) or color (green, yellow, or red) based on nutritional quality. Essentially, the categories respectively denote the following recommendations: eat regularly, eat moderately, and eat occasionally. Foods that *minimally contribute* calories and nutrients to a person's overall diet are ranked MC.

Another food bank relies on a statistical algorithm to rank products and provide a relative value for each pound of food with the notion that not all pounds should be weighted equally. The factors taken into consideration for the ranking process include: nutritional value, availability, economic worth and client preference. Items are ranked 1-10, with 10 being the highest quality. Each rank is then provided a score, which either enhances or discounts each pound of the product. After a predetermined period of time, the food bank's acquisition staff reviews the ratio of quality adjusted pounds to actual pounds as a way to assess the overall value of products being delivered by the food bank to the community. Though nutrition is considered in this ranking system, it is important to remember that nutrition is not the sole factor used. Figure 3 provides examples of how various products are ranked under the two systems. For the purposes of the figure, the well-known ranking system is marked A. and the other system used by only one food bank is marked B.

Figure 3: Ranking System Examples

A.		B.	
<u>Food Product</u>	<u>Rank (1-3)</u>	<u>Food Product</u>	<u>Rank (10-1)</u>
Eggs	1	Eggs	10
Toasted oats cereal	1	Condensed soup	7
USDA cranberry juice	2	Shelf stable apple juice	6
Tomato soup	3	Pudding	3
Barbeque sauce	MC	Soft drinks	1

Some food banks use ranking systems to evaluate the overall quality of their inventories and assess proposed goals. One participant noted that her food bank aims to have 72% of its inventory listed as 1s and 2s. However, due to constant fluctuations, the food bank was at 82% nutritious product at the time of the interview. A few food banks also use their ranking system externally by posting the ranks on the menus used by partner agencies to order food. Since most partner agencies order online, they cannot actually see the food product. Ranks are posted next to each product description as a way to inform the agencies about the nutritional quality of each food. Additionally, two food banks collect data regarding the purchases made by partner agencies in order to target those which could benefit from nutritional guidance.

### Nutrient Assessment System

Another type of profiling system analyzes a food bank's ability to provide key nutrients to food insecure households on a broad scale. At one food bank, the staff worked with a local university to create a profiling system which tracks the distribution of 7 key nutrients, including iron, calcium and vitamin C. The goal is to make sure the total distribution of each nutrient equals that which is necessary to supply the daily recommended intake for the total population receiving products from the food bank over a selected period of time. This system is used for internal purposes only and is not designed to ensure *each individual* is consuming the daily recommended intake. Realistically, once products leave the food bank, the organization has no way to track what each client obtains from a partner agency. The system revealed that this food bank does not lack protein, which was a concern for some food banks. However, the food bank

had trouble distributing target levels of fiber and vitamin A. Vitamin C levels were seasonally influenced. In the future, the food bank may start to review the sugar and fat contents of products as well.

### **Food Bank Characteristics**

Nutrition-based initiatives, especially policies, are most prevalent amongst food banks located in the Northeast and the Western regions. In the Midwest, no participating food bank had established either a nutrition profiling system or policy. However, one was in the planning stages for a profiling system. Of the five food banks included from the South, two were actively moving towards nutrition profiling. Table 1 details the use of nutrition profiling systems and policies in relation to food bank size and location for this study. Given that participants were not selected with the goal of obtaining a representative sample, the findings below cannot be generalized to each region.

**Table 1: Food Bank Use of Nutrition Profiling and Policies**

Location	Size	Nutrition-based Initiatives
Northeast	2 Large	2 profiling with policies (no energy drinks; no bulk trans-fat items)
	3 Medium	1 profiling
		2 policies (no soda; no soda and candy)
	2 Small	1 planning to profile
1 none		
South	3 Large	2 planning to profile
		1 none
	2 Medium	2 none
Midwest	2 Large	2 none
	2 Small	1 planning to profile
		1 none
West	2 Large	1 profiling with policy (no soda and candy)
		1 none
	2 Medium	1 profiling
		1 policy (no soda and sugar-dense drinks)

Food Bank Size	Annual Distribution
Small	< 10 million lbs/yr
Medium	10-20 million lbs/yr
Large	>20 million lbs/yr

### Fresh Produce Procurement and Distribution

Fresh produce distribution was a largely inductive theme in this study and its pervasiveness throughout the interviews necessitates attention. This study indicated that there were marked efforts to increase the quantity of fresh produce procured by food banks through Feeding America and local food industries. Some food banks had even formed relationships with farms or farmers markets to obtain fresh produce. “We started going to the local farmers market at the end of the market and picking up anything that the farmers don’t think that they will want to hold onto...We have a community kitchen. They can get in there and utilize that food right away, or if it’s something that lasts a little longer, we can put it out in regular distribution.”

The move to distribute more produce was clearly not a passive take on donations, but

rather one that required extra effort and resources on the part of food banks. A food bank in the South was engaged in a campaign to make half of its annual distribution weight fresh produce. Another food bank in the Midwest had outlined a 5-year strategic plan which included raising fresh produce distribution by 5%. To help with this objective, the food bank expected to add a fresh produce processing area that would increase its ability to salvage donated produce. The participant noted that the completed processing area would include a wash station, prep and cut area, vacuum-seal technology and enable the food bank to freeze produce for later use.

Based on the data provided by participants, food banks no longer rely solely on their partner agencies to distribute fresh produce. They also conduct mobile pantries to meet the needs of communities that may lack significant agency involvement; tend to their own gardens; teach others how to prepare garden plots or raise potted plants; and provide farmers market vouchers to food insecure families. Throughout the interviews, participants expressed pride about the activities related to fresh produce because this category of food is one of the most difficult for food insecure communities to access.

## INFLUENCES ON NUTRITION-BASED INITIATIVES

Influences that led food banks to shift their operational strategies towards the purposeful procurement and distribution of healthy foods were diverse. Concerns about obesity and related requests from partner agencies for nutritious products were key influences. However, mission statements, leadership values, regional policies, donor buy-in, and the estimated availability of fresh produce also provided the impetus to discuss nutrition-based initiatives. These influences are described below.

### **Obesity Epidemic**

For many food banks, the increasing prevalence of obesity in the United States sparked discussions about improving the quality of food. One participant from the South asked her

director when he started to care about nutrition. "He said, 'probably about 4 years ago...when they realized all the stuff about obesity and the state of our country's health and when they started linking food insecurity to obesity.'" Another participant noted, "You've heard about the obesity epidemic. It's very prevalent among school children in the region. There's a lot of folks having health-related issues concerning their diet...Things have just been coming together nationally and locally" to fuel these conversations. In addition, a participant from the Northeast talked about how difficult it is to eat healthfully if the environment in which one lives does not accommodate that lifestyle. "...How do you make behavior changes? Well it's obviously wanting to do it, but it's also having the environment to do it. If the environment isn't there, then it's not possible to make the change. So we thought...what's in our control? Well, our inventory's in our control, so let's look at our inventory and change the environment."

Given the oft discussed notion that hunger and obesity are linked, participants were asked about their views on that supposition. While some felt that the lack of home cooked meals and healthy role models contribute to obesity among food insecure populations, others noted that access is a key influencer. Access was talked about in relation to proximity and cost. For instance, one participant noted that when Walmart moved into the region, all the mom and pop stores in a 40-mile radius went out of business. The people who could not afford to drive that distance were out of luck. Another participant suggested price is a key factor; "Orange drink is less expensive than a gallon of orange juice. A lot of it comes down to finances". Two participants clued into cyclical eating patterns whereby food insecure households will go through periods of plenty and periods of hunger. They said that this type of consumption may alter the body's fat storage response and impact weight gain. The variety of opinions offered by participants suggests that the confluence of many factors contributes to obesity among food insecure populations.

## Partner Agency Feedback

Partner agencies that cater to individuals with chronic diseases and food recipients living with these diseases started to push food banks to improve the quality of their offerings. One participant remarked about a day when she received a frantic call from a partner agency. The woman on the other end of the line exclaimed, ““You’re killing our folks!”” This comment was based on the fact that towards the end of the month, when clients sourced food from the pantry, their blood pressure readings also increased. At another food bank, the commitment made by a key partner agency to source healthy food motivated the food bank to think about its own operational strategies. That partner agency decided to alter its procurement practices because a client could not find products suitable for her health needs. This same issue was discussed by another food bank as well.

In response to requests for healthy options, especially foods that are commonly used in meal preparation, food banks have taken action. For example, brown rice is now actively procured by some food banks. Others are committed to keeping core items, such as cereal, milk, tuna and peanut butter, on hand at all times.

## Mission Statements

Of the 20 participating food banks, 5 organizational mission statements include nutrition-related goals. All these food banks remain faithful to their mission statements through the active use of nutrition profiling, nutrition policies or nutrition education. However, one participant explained that while the food bank’s mission statement says, *provide access to nutritious food*, staff didn’t really know the essence of nutrition until recently. While discussing the food bank’s annual distribution goal with the board, one member stated, ““Okay...so what if that’s 14 million pounds of Twinkies, what have we done?”” His comment catalyzed a nutrition-based review of food bank’s inventory.

## Leadership Values

Prioritizing nutrition at food banks is contingent on leadership values and concerns. Nutrition-based initiatives definitely require the support of food bank leadership to be successful. However, in some instances these leaders, including board members, actually initiate the conversations. In the Northeast, a board member with a PhD in nutrition started the dialogue among food bank leadership about creating a no soda policy. In the South, a campaign to drastically increase fresh produce procurement was brought forward by the chief financial officer. Other informants noted that leaders who encourage innovation and new programming inherently foster the environment necessary for productive nutrition discussions.

In contrast, one participant explained how the lack of leadership support impacted policy implementation. “The food bank leadership is not for it. I have sort of investigated their thoughts and feelings on that, and it is not something that they’re interested in. They want us to accept everything that’s offered.”

### **Regional Policies**

At times, regional policy decisions fueled nutrition considerations. In one state, a county’s movement towards enforcing a no-carbonated beverage policy on its contractors revitalized efforts to eliminate soda at the food bank. The food bank, which is a contractor of the county’s Social Security Administration, was mentored by public health officials throughout the process of implementing the policy. Another food bank was forced to cut back on trans-fat foods when a city-wide ban went into effect for food establishments. According to the city, individuals should have a choice about whether or not to consume trans-fat. When meals are eaten at food establishments, consumers do not see a label identifying what is in the food. This concept also holds true for items that are labeled for bulk-consumption but may be distributed by the food bank to individuals or soup kitchens. Thus, the food bank was forced to refuse donations of bulk-labeled trans-fat products while retaining the option to distribute household-size or single-serve items containing trans-fat (to food pantries only). In the Northeast, one state’s Department of



Health created guidelines which have effectively increased the prioritization of nutrition at food banks. For instance, a predetermined percentage of funding from the hunger prevention program within the state's Department of Health must be utilized to purchase fresh produce to enhance donated inventory. The guidelines also note that canned fruit must be packaged in 100% juice, water or light syrup only, and the food bank has to offer two lean meat options at all times.

### **Donor Buy-in**

Nutrition profiling was viewed by some participants as a way to make positive connections with food bank funders. In the Northeast, a food bank was spurred to create a profiling system because "A lot of funders want to know about that kind of stuff. We knew qualitatively that we carry a lot of healthy food, but you have to be able to show that to a funder." Another food bank stated its profiling system was particularly well-received by the marketing and development departments because "donors want to see...that we're bringing in high quality food." A food bank in the South suggested food donors may rethink their product allocation if they realize their donation will receive a low rating. This participant also suggested it may be beneficial to promote donors that provide healthy contributions on social media networks, at special events and in the food bank's warehouse. A food bank in the West actually had funders offer support for the creation of a profiling database and interface program because they were impressed with the food bank's plans.

### **Untapped Food Source**

Participants suggested that the traditional nonperishable dry food products provided by the food industry are diminishing as grocery stores and food processors become more efficient. Donations of this kind have dipped so low that some food banks are purchasing core meal components, such as peanut butter, spaghetti sauce and pasta, to keep them available for partner agencies. While food banks did not historically seek out produce, they now realize that this

largely untapped resource may be a valuable way to replenish their inventories and provide essential nutrients to households that may lack access to fresh produce otherwise. A participant from the Northeast said, “Everybody’s looking at their bottom line, zero waste. There’s not the same type of production over-runs, or mistakes, or mislabeling, the kind of things that were the bread and butter of food banks years ago. As they’re going away, we’re seeing that produce is a good potential [way] to make up for this other food that we’re losing access to.”

A Produce Task Force within Feeding America noted that the potential for expanding produce distribution is great and will grow as the network extends its capacity to handle and distribute the product. The abundance of produce was evidenced by an incidence at a food bank in the Midwest. By simply asking an apple growing organization what happens to the remaining crop at the end of the season, the food bank received 6 semi truckloads of apples to distribute to the community.

### BARRIERS TO NUTRITION-BASED INITIATIVE

Results show that concerns about a multitude of perceived barriers can deter food banks from creating nutrition-based initiatives. However, food banks that embraced a steadfast commitment for prioritizing nutrition found that these barriers were merely obstacles to be circumvented or overcome. No participant mentioned that a food bank had stopped utilizing a nutrition profiling system or policy after initiation. Given the prized status of fresh produce for food insecure households, food banks are almost unanimously driven to address barriers related to the distribution of this product category.

### **Client Choice**

Some food banks voiced strong opinions against the elimination of soda or candy because doing so compromises freedom of choice for the end-client. A participant from the Midwest shared, “People should have choices, and our job is to make sure they have healthy things to

choose from. Then, if they want to supplement it with pop, cookies or Cheetos, then that needs to be their choice.” Another individual from the Northeast felt that even though soda and sweets lack nutritional value, “there’s a need for it, especially for the underprivileged. Why should Johnny and Sally be able to have a candy bar when Ricky and Sue can’t?”

Participants periodically used the terms *nutrition police* or *food police* referring to those who limit client food choices. A food bank in the South that promotes healthy food but does not ban any products stated, “We are clearly not the food police. However, I feel very strongly and have for a number of years...that we have a moral responsibility to provide access to healthy nutritious food.”

It was also suggested that many people who utilize the emergency food system are going through a sudden lifestyle shock, such as a divorce or house foreclosure. According to a participant from the Midwest, these are inopportune times to “jerk em’ around about their food”; the focus of food banks should be to get these individuals back on their feet. In fact, this food bank is the opposite extreme of the policy implementers. It believes food banks with restrictions create their own food shortages by disregarding a sizeable amount of food available. The participant even felt that nutrition profiling systems were risky ventures because they encourage the mentality that food banks should censor what is provided and limit what products are handled. Instead, this food bank goes after everything that’s edible. By offering a wide range of choices, the food bank feels it reaches those with specific needs and leaves it to the cooperative extension and public health educators to “wag their fingers” at people about poor eating habits.

Two food banks initiated the idea of economic subsidy whereby any product offered by a food bank frees up money that end-clients can use for other necessities. Assuming food insecure households would buy soda and candy if not provided by food banks, this mindset would hold value. However, a participant in the Northeast suggested, “The less [soda] we give...the less that’s available. In some cases, people won’t utilize that product.” In the West, a similar point

was made. "There is potential I guess, if they have to buy it themselves, maybe they'll think about it before they buy it."

Food banks that had implemented nutrition policies acknowledged sentiments about choice but felt the high accessibility of soda and candy in low-income communities compared to healthy items supported the prioritization of nutritious resources. One participant suggested, "I think emergency food has become such a primary source for certain populations that there really should be more of a focus on acquiring nutritious product. And not to say that you can't offer other items, but our feeling is that there's access to those other non-nutritious products more regularly, especially for the low-income population." Another individual from a food bank in the West noted, "We're not eliminating it [candy] completely from anyone's diet, though I'm sure some people would say that. If they're going to get that sweet candy bar just because they feel like they want a sweet candy bar, well at least we gave them the fruits and vegetables for their week."

### **Donor Relationships**

Participants noted that discussions about nutrition profiling systems and policies raised fears about offending donors and jeopardizing long-term relationships. These concerns were mainly voiced by those in charge of acquiring donations. However, some participants said they do not believe nutrition policies should be implemented for similar reasons. A participant from the Northeast said, "I think it's very important to foster relationships with say Coca Cola, for example, because through Coca Cola we've received Minute Maid juices, which are also important. So, in order to get the 100% juice, we also need to take some of the soda with that." Despite valuing nutritious products, a participant from the Midwest stated, "If we were at a stage where we had enough food that would fulfill 120% of anybody's needs, then we could be a little stricter on what ... to distribute, but right now we're barely putting a dent in people's needs, so we're saying yes to everything that's donated". On the contrary, a food bank in the South was

actually contemplating nutrition-based initiatives because it had outgrown its warehouse. The limited space gives this food bank's leadership staff the freedom to alter donation patterns and prioritize healthy products.

Some food banks that guide their procurement strategies with nutrition policies have seen an impact. "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." Other food banks, felt the policies did not affect rapport between donors and procurement staff. In fact, one food bank noted that it did not lose donors. However, due to soda's weight, it did lose pounds. To make up for this gap, the food bank allocated more money to purchasing core food products. A food bank from the Northeast received a call from Pepsi the same day the no soda policy was implemented. In response to the news, the representative from Pepsi said, "Then I'll just take you off the carbonated beverages. Do you still want tea and lemonade?" The participant from this food bank said that its annual distribution did drop initially, but the food bank has since been able to add back the pounds that were lost.

Donor education can be a powerful tool for encouraging the provision of healthy products. In fact, participants have noticed donors who offer both healthy and non-nutritious products are often willing to provide the options food banks desire. The following comes from a food bank guided by a strategic plan to drastically reduce junk food without any outright policies.

*For the mixed donors, I think it was having...our food resources staff be more proactive in terms of their conversations with the food donors...Again, you know, this wasn't all done overnight. Obviously we haven't eliminated it completely, but overall I think from those donors, they've embraced ... the message... but it took some effort in terms of making sure that our food resources staff pounded the pavement and went out to the field and had conversations with them about what direction we were moving in.*

### **Time Requirements and Methodological Complexities**

Staff time and expertise were two perceived barriers to implementing nutrition profiling systems. Food bank employees often play many roles. High-priority responsibilities and daily tasks take precedence over nutrition profiling, a worthy but not critical assignment. A participant

from the South noted that raising 7 million dollars for a community kitchen and expanding the kids Backpack Program took precedence over nutrition profiling.

Complexities involved with creating a matrix for profiling can be daunting. Without prompting, one participant opened up about her desire for Feeding America to spearhead a ranking system that all food banks can use. Devising a way to rank mixed foods, such as pizza, caused one food bank to halt discussions about creating a profiling system. A food bank without profiling experience suggested nutrition ranks may lack objectivity.

Though in-depth nutrition knowledge is important for creating a profiling system that evaluates nutritional value, users of such programs noted that computers handle the bulk of the work on a daily basis. Even those without a nutrition background can assist with maintaining the system. Staff assigned to address the daily profiling requirements ranged from chief operating officers to nutrition directors to warehouse receivers. A food bank from the Northeast noted that actually ranking the products takes seconds using the analysis tool. Having a systematic plan for getting the product to the person running the analyses and then back to the warehouse will cut down on time. Additionally, food banks can decide to automatically rank certain products to limit time restraints. For instance, one food bank ranks all 6-ounce yogurts as a 2s.

## **Pounds**

Annual distribution based on pounds is one key way food banks are evaluated. Given that soda weighs a substantial amount, eliminating the product may cause a temporary drop in distribution and raise a red flag for Feeding America or the community. One participant suggested, “We’re all kind of measured on how many pounds we move, and a smart but not necessary mission-driven food bank could move a lot of soda and move a lot of pounds. When we made a conscious decision to really cut the amount of soda we move, our pounds dropped, and we really had to explain to a lot of people, it’s soda that we stopped carrying.” At a food bank in the West, soda once comprised 10% of its distribution weight.

## Partner Agencies

Partner agencies aim to ensure people are fed, so they may feel uncomfortable explaining that a product is no longer available or limited due to low nutritional relevance. A participant from the West said, “I don’t think anyone doubts that nutritional things are good...They just want to give more things out to folks. I think they also don’t like telling people, no.” Another food bank mentioned that food pantries are caught between being excited about the healthy emphasis food banks are choosing and distributing products that food insecure households want. While some agency partners still have lingering concerns with nutrition-based initiatives, participants felt that most agencies either agreed with the decision at its inception or embraced the movement eventually. A participant from the Northeast stated, “There was no backlash from member agencies at all. Member agencies are really more concerned, as we are, with getting core product out there.”

In terms of distributing fresh produce, meat and dairy products, food pantries are one of the main limiting factors. One participant suggested that partner agencies can create a bottleneck in the food bank distribution system. It’s not uncommon to find partners without the capacity to handle perishable items. While two participants talked about helping select partner agencies obtain refrigerators, another participant explained that the increased energy costs associated with appliances makes organizations hesitant to use them. Another barrier to the distribution of healthy perishable items is related to staffing issues. One participant said that 68% of food pantries are staffed by volunteers, which leads to infrequent hours of operation. The limited schedule decreases a pantry’s ability to store and distribute fresh produce that may already be ripe or close to its sell-by date. A participant from the Northeast summed up these issues well. “What food banks across the country are finding in the last couple of years is that the agency network, which is traditionally-based, often volunteer run, generally resource poor, has a hard time moving large amounts of food, especially perishable food that needs to be refrigerated or

frozen. So where food used to be the limiting constraint, now sometimes it's the distribution system."

In an effort to circumvent some of these obstacles related to food pantries, food banks have invested in assistance programs for partner agencies. One participant from the West lamented that fresh produce historically went to waste because partner agencies did not have the capacity to handle it. In response, the food bank set up a mobile pantry unit that distributes perishable items from a parking lot to individuals in need. On a monthly basis, 55 mobile pantries are conducted. These days, the mobile pantry model is widely used by food banks across the country. "The idea was that they [partner agencies] can't handle it but they got the clientele that need it, so how do we work around this?" In the Midwest, a food bank works with its partners in the community to facilitate "just in time" deliveries of fresh produce. If the food bank knows a pantry is open for clients at ten in the morning, it will arrange for an on-site food drop off just before the organization opens for the day. This eliminates the need for refrigeration units to keep items fresh over longer periods of time.

### **Financial Constraints**

Given the greater availability of fresh produce and other perishables, a few food banks have outgrown their current space and need to relocate to a larger facility or expand the current capacity to store those items. One food bank talked about initial plans to set up direct connections between partner agencies and local produce donors to ease the storage and logistical burden on the warehouse. Fresh items also have a quick turn-around time that must be met to ensure quality. This has created a greater need for frequent contact between donors, especially grocery stores, and food banks. Food bank trucks are in greater demand and finances to fund those vehicles are necessary. These costs are in addition to the ones incurred when food banks run mobile pantries or equip their partner agencies with refrigeration. A participant in the Northeast spoke directly about the barrier of cost:



*The few source-strings of food that are left to grow are more expensive-like a food rescue program with a grocery store. There's always going to be meat and there's always going to be dairy that didn't sell, but it's more expensive to send a truck three times a week to Walmart to get that, then bring it back, sort it...and then get it back out to the agencies. That's much more expensive than when we used to get a tractor trailer of Progresso soup.*

Additionally, one food bank noted that it takes the equivalent of 24 full time employees in volunteer hours to process fresh produce for families and make it easier for partner agencies to distribute. Though the volunteers work for free, the food bank has hired more staff to train the volunteers and ensure they feel their time at the food bank is worthwhile.

## DISCUSSION

The data offered by this study provide ample evidence that food banks are shifting from their original stereotype as places for unwanted, unsalable food items and empty calories to entities that are proactively seeking nutritious food regardless of perceived challenges. “Back then, food banking was more of let’s just get food out to low-income families. Now it’s more like, we’ve got the food, now let’s change up what they’re getting because we’re noticing a lot more low-income individuals suffering a lot more diseases and health disparities...” While some food banks continue to accept all donations given the notion that “an empty calorie is better than no calorie at all”, this research shows an increasing number of food banks acknowledge the provision of healthy food needs to be a priority. The commitments made by these food banks offset the poor food environments faced by many food insecure households.

Despite widespread unease about nutrition-based policies, this study challenges the notion that eliminating specified products from a food bank will lead to its demise. Food banks may lose some donors, but over time they will gain new support. Companies that produce both nutrient-dense and nutrient-poor products are often willing to fulfill requests for healthier products. However, donor education is a necessary component.

Distribution levels may dip when a policy is implemented due to the weight of soda. However, this occurrence should not raise a red flag because soda is void of essential nutrients. In the future, new ways for evaluating the progress and success of food banks should be implemented. For instance, a national ranking system would allow food banks to assess what proportion of its annual distribution is composed of “nutritious” products based on the definition put forth by the ranking system. These statistics could be tracked by Feeding America as an alternative way to monitor the achievements of food banks.

Interestingly, food banks that utilize a nutrition profiling system referred to it as an education tool for partner agencies and a means for guiding targeted procurement. Participants never mentioned that they use nutrition profiling to decipher which products should be limited. Perhaps that is a conscientious effort on the part of nutrition profilers to separate themselves from the critics that suggest profiling products will lead to product elimination. Food banks that limit item quantities due to nutritional content seemed to do so using general knowledge instead of an assessment tool.

As food banks make commitments to increase fresh produce distribution through a variety of activities, they take on greater financial and logistical responsibilities as well. The distribution limitations associated with partner agencies have caused food banks to gradually shift away from their traditional strategy for allocating products to food insecure households. However, despite the challenges associated with fresh produce distribution, most food banks did not seem deterred. Given the national attention focused on obesity and healthy eating in the United States at the present time, it is reasonable to believe that grantors and financial donors will support these positive endeavors related to fresh produce.

This study revealed that competing messages about client choice are a struggle for food banks. Opponents of nutrition policies argued that they limit client choice. However, this reasoning is ironic to a certain extent. Partner agencies are not limited to the food bank as the sole source of food. They can choose to obtain soda from an alternative donor or purchase it on their

own. Also, food banks do not dictate what products must be provided to food insecure individuals. Essentially, this means a partner agency can decide to eliminate soda on its own without repercussions from the food bank. Finally, the manner in which a food pantry distributes items is often at the discretion of each partner agency. Many pantries that were established when food banking was in its infancy continue to utilize a traditional method whereby a predetermined assortment of food is prepackaged in either a box or bag before the client arrives. These pantries are thus eliminating client choice as well. The only choice clients have is to throw or give away what is unwanted.

Despite their connection with one another as members of Feeding America, food banks vary by operational strategies and programming efforts. Food banks in one region of the country may lack knowledge about nutrition-based initiatives implemented elsewhere. Collaboration between food banks may ease some of the concerns expressed by those not currently using nutrition-based initiatives. Food banks that have instituted nutrition profiling systems or nutrition policies should share their methodologies and mentor staff at food banks that intend to implement similar strategies. It would also be beneficial for food banks to share best practices related to efficient fresh produce distribution.

This qualitative study is the first believed to assess the role nutrition plays in guiding operational strategies at Feeding America food banks on a nation-wide level. While it serves as a valuable addition to the minimal literature available about Feeding America food banks in the United States, it nonetheless has limitations. Though food banks of numerous sizes and locations were included in the data collection process, the smallest food banks did not participate (those that distributed <5 million pounds in 2009). Despite reaching out to these food banks, no responses were received. While phone interviews have inherent benefits, the inability to read physical and facial expressions may have inadvertently impacted the data collected. Finally, this study requested information related to nutrition and food acquisition/distribution strategies.

While nutrition profiling and policies require a cohesive effort by staff in programming and strategic operations, it is possible that the participants lacked expertise in one realm.

Given the exploratory nature of this study, it inherently fosters ideas for a variety of future research opportunities. This study suggested that food banks can implement nutrition policies without strong repercussions from donors. However, as more food banks follow suit, it will be important to monitor the reaction from the food industry. Perhaps there is a threshold level for what the food industry is willing to take before it decides to work with other organizations that will gladly handle all products. Though the client choice arguments were consistent throughout this study, it was beyond the scope of this research to unravel the intricacies behind the comments. It would be interesting to dissect the client choice theme during a subsequent study due to its divisive connotations. As food banks seek to distribute more food, including a greater proportion of perishable items, a review of different distribution methods, their effectiveness and costs would be valuable. Finally, from a public health standpoint, it would be beneficial to assess how the intentional provision of healthy food impacts the nutritional status of at least one specified population, such as children attending Kids Café After-School Programs.

## **CONCLUSION**

The commitment to prioritize nutrition commences a new era for Feeding America food banks. Instead of solely meeting an immediate need for food, food banks are working to fulfill that need in a manner which promotes long-term health. The desire to enable food insecure populations to access healthy food has led food banks to increase activities related to fresh produce distribution; implement nutrition profiling systems that evaluate the nutritional quality of their products and institute nutrition policies to eliminate products that are not nutritionally relevant. Despite the limiting factors related to distribution through partner agencies, participants indicated that fresh produce was a priority. Fresh produce not only provides essential nutrients; it is also prized by food insecure households. Nutrition policies were less

contentious than nutrition policies. However, the nutrition expertise required to conceptualize and implement a new nutrition profiling system was viewed as a deterrent. Feeding America should support the implementation and maintenance of a national nutrition profiling system, so every food bank that wants to engage with nutrition profiling will have the opportunity.

Nutrition policies were criticized for limiting client choice and also raised concerns about harming long-term donor relationships. However, food banks that had implemented such policies did not seem to regret their decision. As the nutrition paradigm shift continues to evolve, it is important to document the progress of the movement; support related research efforts; advocate for the cause and create a mentorship network for food banks that want to implement similar strategies.

## CHAPTER 4: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

The United States emergency food system is at a crossroads and the path marked *nutrition* is becoming a popular thoroughfare. When food banks were initiated in the 1970's, their mission was simple: take food that was unsalable through the food industry but perfectly acceptable to eat and provide it to those who needed food provisions. However, the health profile of the United States has changed and obesity, chronic disease and food insecurity are pervasive throughout the nation. Given that food insecurity and obesity often coexist, food banks should no longer feel complacent with the status quo. Many food banks have decided to take action because they recognize the health predicament in the United States is not acceptable and can be addressed. By and large, food banks are shifting their operational strategies to promote nutrition and occasionally dissuade consumption of non-nutritious foods as well. For households dealing with very low food security, one may argue that any calorie is worthwhile. However, for the majority of food insecure households, food banks provide a better service by offering healthy foods to supplement what is not accessible.

Despite the operational obstacles created by the purposeful procurement of fresh produce, the majority of study participants felt that this was a positive undertaking. Due to the relatively high cost of fresh produce, consumption of these foods is the exception for many food insecure households instead of an everyday occurrence. Additionally, food insecure households living in communities that lack mainstream grocery stores may simply not be able to find fresh produce near their homes. By increasing the amount of fresh produce offered to food insecure households, food banks are taking the step to fill nutritional gaps that put food insecure individuals at risk for low productivity, depression and health-related diseases.

Food banks that choose to discontinue the distribution of candy and soda are often criticized for being paternalistic or the "nutrition police". However, this study suggests food banks that have instituted a nutrition policy are not intending to eliminate these products from

anyone's diet. Rather, they feel these items are abundantly available at a low cost, making them easily accessible to low income individuals. Soda and candy are not essential for any diet given their virtual lack of nutritional value. Additionally, their high sugar and fat contents make them contributors to obesity in the United States. Food preference studies conducted by food banks show that food insecure families want core foods, such as meat, fresh produce, bread, and milk over junk food. Food banks that prioritize nutrition and focus their efforts on obtaining core foods are responding to client demand and improving the consumption habits of food insecure populations by creating healthier food environments. If a partner agency promotes healthy eating through nutrition education, cooking demonstrations and recipe handouts in addition to offering improved food options, the overall eating habits of food insecure recipients is expected to improve.

Feeding America serves thousands of children through the Kids Café After-School Program, the Backpack Program and the Summer Food Service Program. The move to source and distribute healthy products will have a substantial impact on program participants given their recurring use of the programs over an extended period of time. Encouraging healthy eating at a young age shapes consumption patterns and food preferences that will remain with the children throughout their lives. Regular intake of a well-balanced diet may also contribute to improved behavior and attention span. In addition, food banks that commit to providing nutritious options for young children inherently foster proper growth and development.

Women should be a target population for all nutrition efforts implemented by food banks given their disproportionate risk for obesity and their influential familial role. If women know food pantries consistently provide healthy, desirable products that are otherwise hard to access, they will be more likely to visit one when the need arises. Instead of depleting the quality of food as financial resources become limited, sourcing food from a pantry may be a more appealing option. Applying knowledge about preparing low-cost healthy meals and food budgeting from nutrition education courses can help women disrupt the cyclical eating patterns that have been

linked to weight gain. As women are empowered to eat better and provide for their families, everyone in the household stands to benefit.

The extent to which food banks can impact food insecure populations is largely based on the efficiency and effectiveness of partner agencies that work directly with those in need. As food banks move forward in their efforts to distribute larger quantities of food and healthier options, partner agencies with limited resources become the bottleneck in the distribution system. While some food banks have equipped selected partner agencies with refrigeration units, other food banks have started mobile pantries and fresh produce drop offs to distribute items with a quick turn-around period. Many food banks feel working through partner agencies is a necessary and mutually beneficial component to the emergency food system. However, others feel their efforts are stymied by the inefficiencies of their partner agencies. If working through partner agencies to reach food insecure communities slows down the distribution system; limits the type of food that can be offered; or requires more resources than direct distribution, operational strategies should be evaluated. A review of different distribution methods along with their associated costs and benefits is necessary.

The allocation of healthier products has positively affected the millions of individuals who receive food distributed by the Feeding America network. However, the degree to which prioritizing nutrition impacts the nutritional status of food insecure populations is hard to determine. One main reason is that the extent to which food insecure households rely on food bank products for their dietary consumption habits is not documented extensively. Some populations, such as children that partake in the Kids Café After-School Program, may eat food bank products on an almost daily basis while other households will obtain food distributed by food banks episodically throughout the year.

This qualitative study reveals the means by which food banks are effectively altering their operational strategies to address concerns about obesity, chronic disease and malnutrition in the United States. It provides a broad base of information about the role of nutrition at food banks, a



subject with limited attention. From a bird's eye view, the shift to prioritize nutrition at food banks in the United States undoubtedly provides food insecure households with healthier options and improves food environments around the country. However, the complex intricacies of the emergency food system make it difficult to assess the impact of this movement on nutritional status. Given the key position of Feeding America food banks in the United States emergency food system, the nutrition paradigm shift deserves greater recognition and support. The momentum of this movement should be monitored, and increased advocacy efforts and research are recommended.

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## APPENDIX A

**U.S. HOUSEHOLD FOOD SECURITY SURVEY MODULE:  
THREE-STAGE DESIGN, WITH SCREENERS Economic  
Research Service, USDA  
July 2008**

**Revision Notes:** The food security questions are essentially unchanged from those in the original module first implemented in 1995 and described previously in this document.

***July 2008:***

- Wording of resource constraint in AD2 was corrected to, "...because there wasn't enough money for food" to be consistent with the intention of the September 2006 revision.
- Corrected errors in "Coding Responses" Section

***September 2006:***

- Minor changes were introduced to standardize wording of the resource constraint in most questions to read, "...because there wasn't enough money for food."
- Question order was changed to group the child-referenced questions following the household- and adult-referenced questions. The Committee on National Statistics panel that reviewed the food security measurement methods in 2004-06 recommended this change to reduce cognitive burden on respondents. Conforming changes in screening specifications were also made. NOTE: Question numbers were revised to reflect the new question order.
- Follow up questions to the food sufficiency question (HH1) that were included in earlier versions of the module have been omitted.
- User notes following the questionnaire have been revised to be consistent with current practice and with new labels for ranges of food security and food insecurity introduced by USDA in 2006.

**Transition into Module (administered to all households):**

These next questions are about the food eaten in your household in the last 12 months, since (current month) of last year and whether you were able to afford the food you need.

**Optional USDA Food Sufficiency Question/Screeners: Question HH1 (This question is optional. It is not used to calculate any of the food security scales. It may be used in conjunction with income as a preliminary screener to reduce respondent burden for high income households).**

HH1. [IF ONE PERSON IN HOUSEHOLD, USE "I" IN PARENTHEICALS, OTHERWISE, USE "WE."]

Which of these statements best describes the food eaten in your household in the last 12 months: —enough of the kinds of food (I/we) want to eat; —enough, but not always the kinds of food (I/we) want; —sometimes not enough to eat; or, —often not enough to eat?

- [1] Enough of the kinds of food we want to eat
- [2] Enough but not always the kinds of food we want
- [3] Sometimes not enough to eat
- [4] Often not enough to eat
- [ ] DK or Refused

**Household Stage 1: Questions HH2-HH4** (asked of all households; begin scale items).

[IF SINGLE ADULT IN HOUSEHOLD, USE "I," "MY," AND "YOU" IN PARENTHETICALS; OTHERWISE, USE "WE," "OUR," AND "YOUR HOUSEHOLD."]

HH2. Now I'm going to read you several statements that people have made about their food situation. For these statements, please tell me whether the statement was often true, sometimes true, or never true for (you/your household) in the last 12 months—that is, since last (name of current month).

The first statement is "(I/We) worried whether (my/our) food would run out before (I/we) got money to buy more." Was that often true, sometimes true, or never true for (you/your household) in the last 12 months?

- Often true
- Sometimes true
- Never true
- DK or Refused

HH3. "The food that (I/we) bought just didn't last, and (I/we) didn't have money to get more." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

- Often true
- Sometimes true
- Never true
- DK or Refused

HH4. "(I/we) couldn't afford to eat balanced meals." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

- Often true
- Sometimes true
- Never true
- DK or Refused

**Screener for Stage 2 Adult-Referenced Questions:** If affirmative response (i.e., "often true" or "sometimes true") to one or more of Questions HH2-HH4, OR, response [3] or [4] to question HH1 (if administered), then continue to *Adult Stage 2*; otherwise, if children under age 18 are present in the household, skip to *Child Stage 1*, otherwise skip to *End of Food Security Module*.

**NOTE:** In a sample similar to that of the general U.S. population, about 20 percent of households (45 percent of households with incomes less than 185 percent of poverty line) will pass this screen and continue to Adult Stage 2.

**Adult Stage 2: Questions AD1-AD4** (asked of households passing the screener for Stage 2 adult-referenced questions).

AD1. In the last 12 months, since last (name of current month), did (you/you or other adults in your household) ever cut the size of your meals or skip meals because there wasn't enough money for food?

- Yes
- No (Skip AD1a)
- DK (Skip AD1a)

AD1a. [IF YES ABOVE, ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

- Almost every month
- Some months but not every month
- Only 1 or 2 months
- DK

AD2. In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?

- Yes
- No
- DK

AD3. In the last 12 months, were you every hungry but didn't eat because there wasn't enough money for food?

- Yes
- No
- DK

AD4. In the last 12 months, did you lose weight because there wasn't enough money for food?

- Yes
- No
- DK



**Screener for Stage 3 Adult-Referenced Questions:** If affirmative response to one or more of questions AD1 through AD4, then continue to *Adult Stage 3*; otherwise, if children under age 18 are present in the household, skip to *Child Stage 1*, otherwise skip to *End of Food Security Module*.

**NOTE:** In a sample similar to that of the general U.S. population, about 8 percent of households (20 percent of households with incomes less than 185 percent of poverty line) will pass this screen and continue to Adult Stage 3.

**Adult Stage 3: Questions AD5-AD5a** (asked of households passing screener for Stage 3 adult-referenced questions).

AD5. In the last 12 months, did (you/you or other adults in your household) ever not eat for a whole day because there wasn't enough money for food?

- Yes
- No (Skip 12a)
- DK (Skip 12a)

AD5a. [IF YES ABOVE, ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

- Almost every month
- Some months but not every month
- Only 1 or 2 months
- DK

**Child Stage 1: Questions CH1-CH3 (Transitions and questions CH1 and CH2 are administered to all households with children under age 18)** Households with no child under age 18, skip to *End of Food Security Module*.

SELECT APPROPRIATE FILLS DEPENDING ON NUMBER OF ADULTS AND NUMBER OF CHILDREN IN THE HOUSEHOLD.

**Transition into Child-Referenced Questions:**

Now I'm going to read you several statements that people have made about the food situation of their children. For these statements, please tell me whether the statement was OFTEN true, SOMETIMES true, or NEVER true in the last 12 months for (your child/children living in the household who are under 18 years old).

CH1. "(I/we) relied on only a few kinds of low-cost food to feed (my/our) child/the children) because (I was/we were) running out of money to buy food." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

- Often true
- Sometimes true
- Never true
- DK or Refused

CH2. "(I/We) couldn't feed (my/our) child/the children) a balanced meal, because (I/we) couldn't afford that." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

- Often true
- Sometimes true
- Never true
- DK or Refused

CH3. "(My/Our child was/The children were) not eating enough because (I/we) just couldn't afford enough food." Was that often, sometimes, or never true for (you/your household) in the last 12 months?

- Often true
- Sometimes true
- Never true
- DK or Refused

**Screener for Stage 2 Child Referenced Questions:** If affirmative response (i.e., "often true" or "sometimes true") to one or more of questions CH1-CH3, then continue to *Child Stage 2*; otherwise skip to *End of Food Security Module*.

**NOTE:** In a sample similar to that of the general U.S. population, about 16 percent of households with children (35 percent of households with children with incomes less than 185 percent of poverty line) will pass this screen and continue to Child Stage 2.

**Child Stage 2: Questions CH4-CH7** (asked of households passing the screener for stage 2 child-referenced questions).

**NOTE:** In Current Population Survey Food Security Supplements, question CH6 precedes question CH5.

CH4. In the last 12 months, since (current month) of last year, did you ever cut the size of (your child's/any of the children's) meals because there wasn't enough money for food?

- Yes
- No
- DK

CH5. In the last 12 months, did (CHILD'S NAME/any of the children) ever skip meals because there wasn't enough money for food?

- Yes
- No (Skip CH5a)
- DK (Skip CH5a)

CH5a. [IF YES ABOVE ASK] How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

- Almost every month
- Some months but not every month
- Only 1 or 2 months
- DK

CH6. In the last 12 months, (was your child/were the children) ever hungry but you just couldn't afford more food?

- Yes
- No
- DK

CH7. In the last 12 months, did (your child/any of the children) ever not eat for a whole day because there wasn't enough money for food?

- Yes
- No
- DK

**END OF FOOD SECURITY MODULE**

## User Notes

### **(1) Coding Responses and Assessing Household Food Security Status:**

Following is a brief overview of how to code responses and assess household food security status based on various standard scales. For detailed information on these procedures, refer to the *Guide to Measuring Household Food Security, Revised 2000*, and *Measuring Children's Food Security in U.S. Households, 1995-1999*. Both publications are available through the ERS Food Security in the United States Briefing Room.

Responses of “yes,” “often,” “sometimes,” “almost every month,” and “some months but not every month” are coded as affirmative. The sum of affirmative responses to a specified set of items is referred to as the household’s raw score on the scale comprising those items.

- Questions HH2 through CH7 comprise the U.S. Household Food Security Scale (questions HH2 through AD5a for households with no child present). Specification of food security status depends on raw score and whether there are children in the household (i.e., whether responses to child-referenced questions are included in the raw score).
  - For households with one or more children:
    - f* Raw score zero—High food security
    - f* Raw score 1-2—Marginal food security
    - f* Raw score 3-7—Low food security
    - f* Raw score 8-18—Very low food security
  - For households with no child present:
    - f* Raw score zero—High food security
    - f* Raw score 1-2—Marginal food security
    - f* Raw score 3-5—Low food security
    - f* Raw score 6-10—Very low food security

Households with high or marginal food security are classified as food secure. Those with low or very low food security are classified as food insecure.

- Questions HH2 through AD5a comprise the U.S. Adult Food Security Scale.
  - f* Raw score zero—High food security among adults
  - f* Raw score 1-2—Marginal food security among adults
  - f* Raw score 3-5—Low food security among adults
  - f* Raw score 6-10—Very low food security among adults
- Questions HH3 through AD3 comprise the six-item Short Module from which the Six-Item Food Security Scale can be calculated.
  - f* Raw score 0-1—High or marginal food security (raw score 1 may be considered marginal food security, but a large proportion of households that would be measured as having marginal food security using the household or adult scale will have raw score zero on the six-item scale)
  - f* Raw score 2-4—Low food security
  - f* Raw score 5-6—Very low food security

Questions CH1 through CH7 comprise the U.S. Children’s Food Security Scale.

*f* Raw score 0-1—High or marginal food security among children (raw score 1

may be considered marginal food security, but it is not certain that all households with raw score zero have high food security among children because the scale does not include an assessment of the anxiety component of food insecurity)

*f* Raw score 2-4—Low food security among children

*f* Raw score 5-8—Very low food security among children

**(2) Response Options:** For interviewer-administered surveys, DK (“don’t know”) and “Refused” are blind responses—that is, they are not presented as response options, but marked if volunteered. For self-administered surveys, “don’t know” is presented as a response option.

**(3) Screening:** The two levels of screening for adult-referenced questions and one level for child-referenced questions are provided for surveys in which it is considered important to reduce respondent burden. In pilot surveys intended to validate the module in a new cultural, linguistic, or survey context, screening should be avoided if possible and all questions should be administered to all respondents.

To further reduce burden for higher income respondents, a preliminary screener may be constructed using question HH1 along with a household income measure. Households with income above twice the poverty threshold, AND who respond <1> to question HH1 may be skipped to the end of the module and classified as food secure. Use of this preliminary screener reduces total burden in a survey with many higher-income households, and the cost, in terms of accuracy in identifying food-insecure households, is not great. However, research has shown that a small proportion of the higher income households screened out by this procedure will register food insecurity if administered the full module. If question HH1 is not needed for research purposes, a preferred strategy is to omit HH1 and administer Adult Stage 1 of the module to all households and Child Stage 1 of the module to all households with children.

**(4) 30-Day Reference Period:** The questionnaire items may be modified to a 30-day reference period by changing the “last 12-month” references to “last 30 days.” In this case, items AD1a, AD5a, and CH5a must be changed to read as follows:

AD1a/AD5a/CH5a [IF YES ABOVE, ASK] In the last 30 days, how many days did this happen?

\_\_\_\_\_days

[ ] DK

## APPENDIX B

### Interview Guide

#### **Introduction/Verbal Consent:**

*Good morning/afternoon, my name is Becky Handforth. I am a graduate assistant working on the current food bank project that's being conducted by the Yale Rudd Center for Food Policy and Obesity. The interview to follow will focus on understanding the current situation, development and acceptance of nutrition education and nutrition standards at food banks. As a reminder, nutrition standards typically fall under two categories: A non-acceptance policy for certain food products or a food rating system to help agencies understand which products have the most nutritional value. At this time I will read aloud the consent form and ask you to verbally accept or decline your role as an interview participant.*

*As mentioned in the recruitment letter, this interview will take roughly one hour of your time. You will receive a \$25 gift card to Amazon to thank you for your participation. The interview is completely voluntary. If you do not feel comfortable discussing specific questions, they can be passed. If at any time during or after the interview you wish to withdrawal from the study, you may do so. All data will be de-identified during transcription. Only the researchers involved in this study and those responsible for research oversight will have access to the information you provide. With your permission, I would like to record the interview so that I can review your comments at a later time. Do I have your permission to use a recording device? Are there any questions I can answer prior to the start of the interview?*

#### **Opening Questions:**

1. Please describe your role and job responsibilities at the \_\_\_\_\_ Food Bank?
2. How long have you been working at this food bank?
3. Please provide me with a brief overview about your food bank.
4. Tell me about your favorite aspect of working at the \_\_\_\_\_ Food Bank?

#### **General Hunger and Nutrition:**

1. What are your general thoughts about the relationship between hunger and obesity?
2. Briefly, what role do you think food banks should have in providing nutritious food to clients in the community?

3. As an entity that provides food to supplement what individuals are able to buy in the supermarket, what foods do you feel are most important for your clients?

**Main Questions: Nutrition Education Programming**

*Now we are going to start with the main questions of the interview. First we will talk about nutrition education programming, followed by nutrition standards.*

1. Can you provide me with some information about any nutrition education programs offered by your food bank?
2. What is your perception of the impact these programs have on the community?

**Main Questions: Nutrition Standards (donations)**

1. In the food banking community, different opinions exist about whether or not food banks should distribute products with low nutritional value, such as soda and candy. What are some opinions you have heard regarding this topic of conversation?
  1. What type(s) of nutrition standards have been implemented by your food bank?
  2. What catalyzed the discussion of nutrition standards at your food bank?
  3. What was the original response among food bank staff about establishing nutrition standards?
  4. How did your agencies react when food bank staff spoke with them about the possibility of implementing nutrition standards?
  5. What concerns arose regarding donor reactions towards the changes?
  6. Which entities were invited to contribute to the development and implementation of the nutrition standards?
  7. What challenges did your food bank overcome throughout the process of implementing the nutrition standards?

**Results of Implementation Questions:**

1. Please describe any feedback you have received from individuals throughout the community regarding the changes in food options.
2. Please explain any unexpected results or challenges that became evident after the initial implementation of the program?

**Main Questions: Nutrition Standards (programs)**

1. What are some nutrition standards you have in regard to what is purchased by your food bank?
2. Please describe any nutrition standards you have in place regarding your Backpack [or Kids Café] program?

**Closing Questions:**

*We are nearing the end of the interview. I just have a few closing questions to ask of you.*

1. To your knowledge, what other food banks are integrating nutrition standards into their programs?
2. What do you feel is the best way to measure the success of a food bank?
3. What is one realistic change that could strengthen the impact food banks have on the nutrition status of their end clients?

*Thank you for your time today. Is there anything you feel is important for this project that I may not have brought up during the interview? Do you have any questions for me? If I have any follow-up clarifications or questions do I have permission to contact you at a later time?*



## APPENDIX C

1006006898

## Yale University

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To: Marlene Schwartz  
From: FAS Human Subjects Committee  
Date: 06/16/2010  
Committee Action: **IRB Review Not Required**  
IRB Action Date: 06/16/2010  
IRB Protocol #: 1006006898  
Study Title: The Future of Food Banks  
Expiration Date:

Thank you for the opportunity to review the above project. Based on the information provided, I have determined that the Yale involvement in this study does not constitute human subjects research requiring review by the Human Subjects Committee. The federal regulations at 45 CFR 46 define human subjects as "a living individual about whom an investigator (whether professional or student) conducting research obtains (1) data through intervention or interactions with the individual or (2) identifiable private information." The proposed study does not meet the above definition. Thus, further review of this study by the Human Subjects Committee is not required.