FEEDING AMERICA

FOOD SECURITY EVIDENCE REVIEW

Key Drivers and What Works To Improve Food Security

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INTRODUCTION

> The USDA defines **food security** as "access by all people at all times to enough food for an active, healthy life."[1]

Over the last 10 years, public attention around the issue of food insecurity and the literature on effective interventions have grown substantially. This increased attention likely reflects:

1) Stubbornly high food insecurity rates, even after the end of the Great Recession
2) Mounting evidence of negative health consequences related to food insecurity
3) Increasing recognition that food insecurity is an important, and well-validated, indicator of wellbeing
4) Commitment by the U.S. Department of Agriculture Food and Nutrition Service (USDA FNS) to funding research on very low food security among children, which brought many new researchers into the field.

Despite these influencing factors, much more is known about what drives people *into* food insecurity than what effectively brings people *out of it*. This memo consolidates the findings around the drivers of food insecurity, provides a high-level outline of interventions shown to reduce food insecurity, and highlights gaps in the literature where additional evaluation is needed.

HOUSEHOLD CHARACTERISTICS THAT MAY INCREASE THE RISK OF FOOD INSECURITY

Household Composition | Certain household characteristics increase the probability of food insecurity.[1] Policy and programmatic interventions should include special considerations to address the distinct needs these households may have. Households are more likely to be food insecure if:

- A child or parent is disabled.[2,3]
- The household is headed by a single parent, especially if the parent is female.[4,5]
- The household has children.[6,7]
- There are members of a minority race/ethnicity, specifically African American, Latino, and American Indian, and certain Asian nationalities in certain geographies.[8,9,10,11,12,13]
- A member is the veteran of a recent war.[14,15]
- A member was ever incarcerated.[16,17]

Systemic Barriers | Individuals and households experience food insecurity within the context of their community and broader environment. Associations between household characteristics and increased risk of food insecurity often reflect underlying inequalities, such as longstanding economic and social disadvantage resulting from structural racism. These barriers result in reduced resources, a key driver of food insecurity.

KEY DRIVERS OF FOOD INSECURITY

Food insecurity is an economic condition, meaning that it is driven primarily by lack of money and other critical resources. The following section outlines drivers that have been directly linked to food insecurity as well as household or individual characteristics that increase the risk of food insecurity. It is important to note that some of these conditions are bidirectional. For example, poor health can result in food insecurity and food insecurity can result in poor health (see the Health section below). It should also be noted that low-income households often struggle with multiple kinds of material hardship, in addition to food insecurity.

Limited *Household* Resources | Conditions that most strongly impact food insecurity are those that directly affect access to money and other assets.

We know the following conditions lead to greater risk of and/or persistent food insecurity.

Being **unemployed** is associated with higher levels of food insecurity.[18] At the county level, a one percentage-point increase in the unemployment rate leads to a 0.5 percentage-point increase in food insecurity.[19]

Income shocks also predict food insecurity.[20] These shocks can follow a job loss, a health emergency, foreclosure, or loss of stable housing, among other factors.

Lower assets can affect a household's ability to manage an income shock. This includes both physical assets such as owning a home,[21] and financial assets such as having savings.[22,23]

Renting and frequent relocation (i.e. moving) due to limited resources[24] and lack of affordable housing are also predictors of food insecurity.[25,26]

Limited *Community* Resources | Conditions outside of the household can make it hard for individuals to thrive. Lack of resources at the community level only exacerbate challenges faced by households with already strained resources.

We know the following conditions lead to greater risk of and/or persistent food insecurity.

High costs of food directly increase food insecurity.[27] They also increase food insecurity indirectly by reducing the effectiveness of SNAP, since SNAP benefits are not adjusted to reflect geographic variation in food costs or costs-of-living.[28]

High utility bills (e.g., water, gas, electricity) are increasingly being shown to negatively impact food security.[29]

High housing costs can compete with food budgets.[30] When families experience a high housing cost burden, food budgets are often among the first expenses to be cut.

We think the following conditions have a relationship with food insecurity, but additional research is needed.

Limited or no access to transportation also likely drives food insecurity.[31] Households without access to a car in areas with high food costs or rural areas are especially challenged in acquiring affordable food.[32]

Living in a low-income neighborhood, even after controlling for household characteristics, may increase a household's risk of being food insecure, especially for children.[33,34]

Health and Health-Related Behaviors | This includes physical health, behavioral health, and other health-related considerations.

We know the following conditions lead to greater risk of and/or persistent food insecurity.

The presence of **family chaos** in the home is linked to higher levels of food insecurity. Chaos is characterized by lack of order and routine, high levels of background noise, high stress and crowded living conditions.[35,36]

The presence of an **adult household member who smokes** increases the risk of food security.[37,38]

We think the following conditions have a relationship with food insecurity, but additional research is needed.

High healthcare costs (e.g., chronic, pre-existing conditions, reliance on medication) and **health emergencies** (e.g., major surgeries, accidents) can drive a household into food insecurity.[39,40,41]

Poor health can also affect employability and can **reduce the stability of employment**, which increases food insecurity.[42]

Human Capital | The skills, knowledge, and experience possessed by an individual or household can predict if a household will be food insecure. Systemic barriers faced by certain populations can limit access to resources that build human capital.

We know the following conditions lead to greater risk of and/or persistent food insecurity.

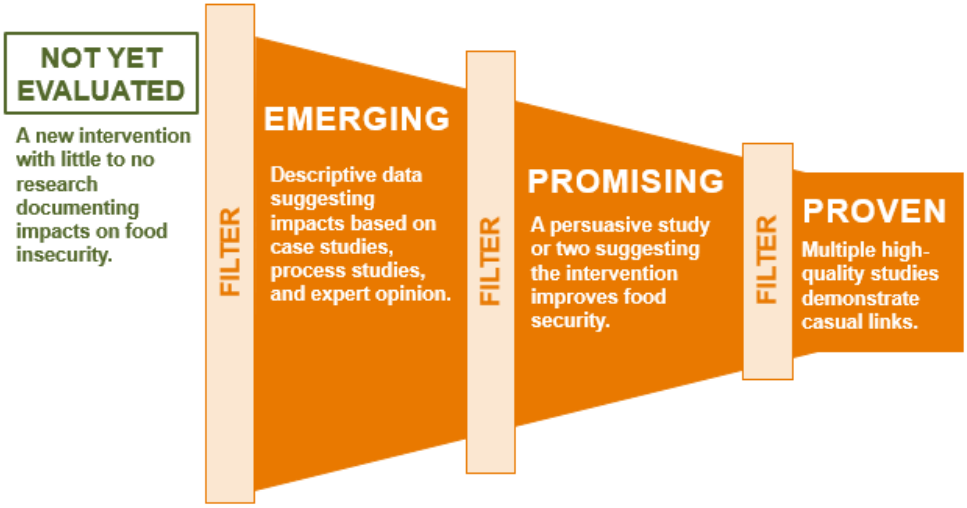
Limited financial management skills have been linked to greater food insecurity.[43]

Lower education levels also increase a household's risk of food insecurity.[44]

WHAT WORKS TO ALLEVIATE FOOD INSECURITY

METHODS | Interventions that address the above drivers are likely to improve food security, though much work remains to demonstrate which solutions are effective, and further, which are *most* effective. In this section, we identify and rate the evidence of six categories of interventions that have been clearly linked to improvements in food security: 1) Food Provision and Access (through federal nutrition and charitable programs), 2) Transportation, 3) Financial Stability, 4) Income, 5) Housing, and 6) Health.

The interventions are rated using Feeding America's Levels of Evidence Framework, which reflects the quality and quantity of accumulated research examining the effectiveness of each intervention. The image below represents the four rating levels as a filtered funnel:



Before reading the results of this review, it is important to note that:

1) If an intervention is not yet rated as Proven, it may still be effective. The other ratings only mean that more research is needed to understand the program's effectiveness. **A rating of Not Yet Evaluated, Emerging or Promising does not suggest that the intervention is ineffective.**

2) **The interventions in this review were rated based on their effectiveness in addressing the outcome of food insecurity only.** There may be ample literature that demonstrates their effectiveness for addressing other important outcomes (e.g. dietary and health outcomes, poverty, etc.).

3) **The information in this report was collected during the summer and fall of 2019** and the evidence ratings within the report reflect published literature and information available up to this point. The food security literature is rapidly growing, and new evidence may be available since the publication of this review.

Please see the Appendix for more detail on the Levels of Evidence Framework.

RESULTS

Food Provision and Access | The solutions in this section directly provide food to families (e.g. food pantries, school lunch) or provide benefits that can be used to purchase food (e.g. SNAP, WIC). Government programs have been more closely evaluated than programs in the charitable food space.

Level of Evidence	Federal Nutrition Programs
Proven	**The Supplemental Nutrition Assistance Program (SNAP)** is by and large the most rigorously studied intervention and the most effective in addressing food insecurity, compared to all other interventions outlined in this review. [45] Multiple studies have found that participants receiving SNAP are 5-20 percentage points less likely to be food insecure than those who are eligible but unenrolled in the program.
Proven	**National School Lunch Program (NSLP)** participation decreased food insecurity among households with children in school by a range of 2-9 percentage points across multiple studies.[46]
Proven	**The School Breakfast Program (SBP)** has been shown to reduce food insecurity for children in elementary, middle, and high school.[47]
Proven	**The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)** provides supplemental foods and other supports during pregnancy and early life stages and has been shown to improve food security. Evidence suggests that WIC reduces the prevalence of child food insecurity by at least 20%.[48]
Promising	**The Summer Food Service Program (SFSP)** likely improves food security for households with children, but more robust investigations are needed.[49]
Promising	**The Supplemental Nutrition Assistance Program Education (SNAP-Ed),** the education arm of the SNAP program, has also been shown as a promising approach to improving food security.[50] A randomized-controlled trial (RCT) demonstrated that adding financial management skills to SNAP-Ed reduced food insecurity.
Promising	**The Child and Adult Care Food Program (CACFP)** likely improves food insecurity among low-income households by providing food at key life stages when support is needed.[51]

Level of Evidence	Charitable Food Programs [a]
Promising	**Food pantries**: To date, few robust studies have assessed the impact of food pantry use on either short-term measures (e.g., food budget shortfalls and food tradeoffs), or longer-term measures (e.g., chronic food insecurity over months and years).[52]
Promising	**Food pantries plus diabetes self-management support**: Providing bundled supports to pantry clients with diabetes that included nutritionally- appropriate food, education, blood sugar monitoring, and doctor referrals were shown to have a positive impact on food security.[53]
Promising	**Food pantries plus individual case management**: One study with strong methods looked at the effectiveness of combining a client-choice pantry model and individual case management, which showed a reduction in very low food security.[54]
Promising	**BackPack program:** Participation has been shown to reduce food insecurity in certain settings, though further research should examine its effectiveness across geographies and the benefit-cost ratio of implementing the program.[55]
Emerging	**Meal delivery programs** have been shown to improve some health outcomes, but more research is needed to understand the impact on food insecurity.[56]
Not Yet Evaluated	**Regional produce cooperatives:** Ongoing research is identifying the role of alternative distribution methods for fresh fruits and vegetables, such as regional produce cooperatives, in reducing food insecurity.
Not Yet Evaluated	**Mobile pantries** that meet clients where they are may impact food insecurity, although no research has been published on this topic to date.[57]
Not Yet Evaluated	**School pantries** provide convenient access to food for children and their families, though to date no research has been published about whether school-based pantries improve food security.[58]

Transportation | Little research has examined the relationship between improved transportation and food security.

Level of Evidence	Car or Transit Access
Emerging	**Access to public transit,** such as buses and subway or metro systems likely improve food insecurity by making it easier travel to and from grocery stores.[59]

[a] Many of these programs receive food and/or funds from The Emergency Food Assistance Program (TEFAP) and the Commodity Supplemental Food Program (CSFP).

Financial Stability | Given that income and employment shocks are important predictors of transitions into and out of food insecurity, programs that help protect against these shocks likely help protect against food insecurity.

Level of Evidence	Financial Stability
Emerging	**Financial education/Financial management training** has been shown to have small impacts on financial behaviors, but more research is needed to understand the impact on food insecurity. Some evidence indicates that "just-in-time" education[b] may be worth pursuing.[60] Financial literacy may not lead to better savings decisions or have direct impacts on food security, but it can lead to more efficient food shopping decisions. This relationship should be further explored.
Emerging	Despite being negatively perceived, emerging evidence suggests that access to **payday lenders** positively impacts food security. However, more research is needed to understand the long-term impacts.[61]

Income | Given that food insecurity is primarily driven by lack of resources, activities that increase household income should have a positive impact.

Level of Evidence	Household Income Supports
Proven	There is evidence that **Earned Income Tax Credits (EITC)** reduce food insecurity in households with children.[62]
Emerging	**Child Tax Credits (CTCs)** have not been studied for their impact on food insecurity specifically, but because they increase income for households with children there is directional evidence of impact.[63]
Emerging	**Low Income Home Energy Assistance Program (LIHEAP)** may indirectly lead to improved food security through improved energy and
Emerging	Internationally, a substantial literature exists examining the effectiveness of **cash transfers** in improving food security. There are several pilot programs in the U.S. and Canada that are investigating the effects of providing a universal basic income. More investigation into this solution and its impact on food security would be beneficial. [65]
Not Yet Evaluated	**Social Security** very likely improves food security. Participation in the program prevented nearly 22 million individuals from falling into
Not Yet Evaluated	**Workforce development programs** have not yet been studied in-depth for their impact on food insecurity.[66]
Not Yet Evaluated	Some studies suggest that labor policy, such as **minimum wage laws** and **overtime regulations**, may help support low income households, but the direct impact and generalizability of these findings are still unclear.

[b] The goal of just-in-time education is to provide financial training when it is most relevant and applicable (i.e. when the financial decision arises, and the training can be immediately utilized).

[c] Romig, K. (2020). Social Security Lifts More Americans Above Poverty Than Any Other Program. Washington, DC: Center on Budget and Policy Priorities. Available online at https://www.cbpp.org/sites/default/files/atoms/files/10-25-13ss.pdf

Not Yet Evaluated	There is little research on the impact of **childcare subsidies** on food security.

Housing | There has been increasing interest in the policy and research world in understanding housing stability, some of which focuses on the intersection of housing and food insecurity. The U.S. Department of Housing and Urban Development (HUD) is currently developing a Housing Security Measure (inspired by the effectiveness of the Household Food Security Measure),[d] which will support more and better research on the topic.

Level of Evidence	Housing Stability
Promising	**Permanent housing subsidies** provide a long-term benefit and are available if residents continue to qualify for housing assistance. One study suggested that these programs have a substantial impact on food insecurity, even when other supportive services are not offered along with the subsidies.[67]
Emerging	**Temporary housing subsidies** provide a short-term, time-limited transitional benefit. These programs have been shown to improve short-term food security but did not have a meaningful impact long term.[68]
Not Yet Evaluated	**Foreclosure and eviction prevention programs** have not yet been investigated for effects on food insecurity.[69]

Health | Programs that address health issues may improve multiple health outcomes in addition to food security.

Level of Evidence	Healthcare and Health Promotion
Promising	**Fruit and vegetable prescriptions or vouchers** (e.g., EatSF or VeggieRx) have been shown to improve food insecurity in some settings.[70]
Promising	**Expansions in Medicaid** likely result in overall improvements in food security.[71]
Emerging	The presence of **free clinics at pantries** or conversely, **pantries in healthcare settings** have not been adequately studied, though preliminary research suggests these programs may have a positive impact on food security.[72]
Emerging	Screening for food insecurity in outpatient, inpatient and emergency room settings, collectively known as **screen and intervene,**[e] has shown high rates of referrals and acceptance into food assistance programs as well as high rates of satisfaction among patients. Some

[d] Note: The Household Food Security measure, developed by the USDA, is a validated survey module that is used to systematically assess food insecurity.

[e] Screen and intervene programs are being used in healthcare organizations to identify patients who are food insecure and connect them with a solution to support improved access to healthy food. That might be 1) referrals to existing food bank programs & agencies; 2) creation of new programs for accessing healthy food (e.g. on-site pantries, mobile distributions at the clinic, or even some new home-delivered grocery programs); and 3) support for SNAP enrollment. For additional information, see Feeding America's *Evidence Review of Food Bank – Health Care Partnerships and Related Interventions* at www.feedingamerica.org/research/program-evaluation.

	local data also suggests the practice both improves food security and clinical outcomes, although more research is needed.[73]

LOOKING FORWARD

There is still substantial work to be done to better understand how to improve the lives of people living in food-insecure households. That said, the increased attention around food insecurity in the U.S. has also highlighted the many potential partners in the academic, non-profit, policy, and foundations fields that are eager to investigate effective and innovative solutions.

Developing a strong evidence base around effective interventions is foundational to Feeding America's 2025 Strategy and Outcomes and completing and updating Evidence Reviews like this one provides a strong foundation on which to learn more.

Please visit HungerNet for updates and additional information about Feeding America's Evidence Reviews.

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APPENDIX

Levels of Evidence Framework: Purpose | Feeding America believes in utilizing the best available evidence to inform our decisions and investments. This necessitates a systematic approach to assessing the effectiveness of potential and existing interventions with the purpose of understanding what works, what is ineffective in achieving specified outcome, and where more evaluation is needed.

To that end, Feeding America has developed a Levels of Evidence Framework with four primary goals:

1. Provide a systematic approach to assessing and describing **how well an intervention works** towards achieving a specified outcome.
2. Identify interventions where effectiveness **still needs to be evaluated**.
3. Develop a **shared language** so that interventions can be placed on a continuum of known effectiveness.
4. Provide food banks and FANO transparent information into what interventions have clear positive outcome(s): a key input to inform decision-making around **implementation and dissemination**.

The Levels of Evidence ratings are Proven, Promising, Emerging and Not Yet Evaluated. They represent the quality and quantity of existing evidence that an intervention is effective at improving a specified outcome(s), such as food security, or earned income.

Levels of Evidence Framework: Process | Feeding America's Evidence Review process begins by identifying research that examines the effectiveness of programs and interventions on a stated outcome and meet our eligibility criteria. For this report, the outcome of interest is Food Security and the eligibility criteria are listed in **Table 1**.

Once the evidence pool has been identified, relevant studies are reviewed for quality. These ladder up to assign each intervention a rating corresponding to one of four levels of evidence. These ratings are based on the quantity and quality of research available demonstrating an intervention's effectiveness.

Table 1: Eligibility Criteria for the Food Security Evidence Review

Category	Variable	Eligible if…
Study Details	Geography	Conducted within the U.S.
	Language	English
	Date of Publication	Published 1998 or later
	Publication Type	Published journal articles, academic research, technical reports,* Unpublished research**
Research Question	Outcome of Interest	Food security
Population	Age	All available studies; No exclusions
	Race/Ethnicity	
	Socioeconomic Status	
	Geography	

**Note that conference papers and book chapters were eligible for inclusion in this review. Newspaper articles, editorials, dissertations (Master's or PhD), commentary, and book reviews were excluded.*

***Unpublished research includes the "gray literature," or rigorous research that may not have been published in an academic journal.*

Table 2 lists and describes the four levels of evidence, which remain consistent across all Evidence Reviews.

Table 2: Feeding America's Levels of Evidence

Rating	Background Inputs	Additional Detail
Proven	Multiple high-quality studies demonstrating that the intervention is causally related to improvements in the outcome of interest (e.g., food security)	• The intervention is evidence-based and used actively in practice, ideally with ongoing data collection for performance monitoring • Rigorous and comprehensive research (e.g., RCTs, QEDs, or other econometric approaches) demonstrates positive impact on the outcome of interest • Collectively, relevant studies indicate the intervention is generalizable across multiple geographies and populations (broadly, or within the population of interest); in rare cases, a single, rigorous study that studies multiple populations across multiple geographies may deem an intervention as proven
Promising	One or more persuasive studies suggesting that the intervention is causally related to improvements in the outcome of interest	• The intervention is used widely but not considered generalizable because it has not been replicated or validated as extensively across contexts as a proven practice • Moderate evidence from research with some methodological limitations (e.g., RCTs, QEDs, pre-post studies, or other econometric approaches that are limited in scope or scale) indicate effectiveness on impacting the outcome of interest
Emerging	One or more studies suggesting that the intervention may impact the outcome of interest, supported by expert opinion or theory, or descriptive data from case studies or process studies, or limited pre-post or administrative data	• The intervention may be new, in pilot phase, and/or an innovative approach suggested by expert opinion as having a strong potential for impact • Limited evidence (e.g., anecdotal or persuasive evidence based on expert opinion or practice data) suggests positive effects on the outcome of interest, but is not supported by rigorous research
Not Yet Evaluated	Few studies, if any, exist that document the effects of the intervention on the outcome of interest, but expert opinion, theory, and/or preliminary practice data suggest potential for impact	• The intervention is new or considered a commonly accepted practice that has not been rigorously or thoroughly investigated

For more information, contact the Feeding America Research Team at research@feedingamerica.org.

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WHAT WORKS – RESULTS

In the following pages, the citations used to reach each intervention's rating are listed alphabetically in the order they appear in the review.

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