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# FOOD IS MEDICINE

The Intersection of Food Insecurity  
and Diet-Sensitive Chronic Disease

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- Recent graduate from the Department of Dietetics and Human Nutrition
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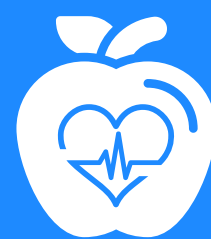


# Agenda

- 01 Addressing Myths
- 02 Basics of Food Insecurity
- 03 Food is Medicine Overview
- 04 Future Directions







## Food is Medicine: Mythbusters

**It is more expensive to eat healthier.**

- Busted
- Plausible
- Confirmed







## Food is Medicine: Cost

### What defines the cost of food?

- Cost per calorie?
- Cost per serving?
- Cost per nutrient?

**\$1**  
buys

**1,200**  
calories



**875**  
calories



**250**  
calories



**170**  
calories



### What should be included in the calculation?

- Environmental impacts
- Economic impacts (subsidies)
- Occupational health and welfare
- **Human health**

### ESTIMATED TRUE COST OF FOOD IN THE U.S., ANNUAL (T USD)







## How Far Can Your Food Dollars Go?

McDonald's	Chick fil A	Dairy Queen	Groceries (3 meals, 16 servings) *prices from walmart.com using 40506 zip code
<ul style="list-style-type: none"><li>• 2 Double Quarter Pounder combos</li><li>• 2 nugget happy meals</li></ul>	<ul style="list-style-type: none"><li>• 2 Chicken Sandwich combos</li><li>• 2 nugget kid's meals</li></ul>	<ul style="list-style-type: none"><li>• 2 Chicken Strip Basket combos</li><li>• 2 kids burger meals</li></ul>	<ul style="list-style-type: none"><li>• 1 white onion</li><li>• 2 cans white beans</li><li>• 1 box of vegetable stock</li><li>• 1 bag frozen diced carrots</li><li>• 1 package frozen chopped spinach</li><li>• 4 medium sweet potatoes</li><li>• 1 lb chicken tenderloins</li><li>• 1 bag frozen broccoli florets</li><li>• BBQ sauce</li><li>• 1 package chicken drumsticks</li><li>• 2 cucumbers</li><li>• 1 package grape tomatoes</li><li>• 1 red onion</li><li>• 1 bunch fresh parsley</li><li>• 1 lb lean ground beef</li><li>• 6 small baking potatoes</li><li>• 1 bag frozen peas and carrots</li><li>• 6 oz can of tomato paste</li><li>• 1 can low-sodium beef broth</li></ul>
<b>\$32.71</b>	<b>\$30.87</b>	<b>\$30.81</b>	<b>\$31.08</b>





## Complicating Factors

- **Future healthcare costs**
- **Lost wages**
- **Lower quality of life**

Unhealthy eating habits cost the American health care system about **\$50 billion** each year just for heart-related diseases.

Diabetes adds an additional **\$3.9 billion** in health care costs in Kentucky annually and may determine how much or if someone can work, leading to lost wages.





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but is it really more affordable

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**FOR EVERYONE?**





## Food Expenses in Underserved Populations

### What does it mean to have low food access?

- A population that lives more than 1 mile from a food store in urban areas or more than 10 miles in rural areas

### What is the food environment?

- The physical, economic, political and socio-cultural contexts in which people engage with the food system to make their decisions about acquiring, preparing and consuming food

### What is a food desert?

- A geographic areas where residents have few to no convenient options for securing affordable and healthy foods, especially fresh fruits and vegetables



## How Far Can Your Food Dollars Go?

Food item	Walmart	Food City	Dollar General	Convenience Store
Low fat milk	\$2.68	\$3.49	\$3.50	\$6.72*
Whole wheat bread	\$1.88	\$2.69	\$3.85	NA
Bananas	\$0.57/lb	\$0.65/lb	NA	\$0.98**
1 dozen eggs	\$1.16	\$1.79	\$2.10	\$3.75***
Bell pepper	\$0.86	\$0.99	NA	NA

Following the MyPlate Dietary Guidelines would cost a family of four between \$1,000–\$1,200 a month (Mulik & Haynes–Maslow, 2017).

\*Not sold by the gallon

\*\*Sold individually

\*\*\*When available





## SNAP PARTICIPANTS' BARRIERS TO HEALTHY EATING



**88%** of SNAP participants report facing challenges to a healthy diet



**61%** reported cost of healthy foods as a barrier

SNAP participants who struggled to afford healthy foods were **more than 2x as likely** to experience food insecurity.

### OTHER CHALLENGES TO EATING A HEALTHY DIET



Time to prepare meals from scratch | **30%**



Physical disability or limitations | **15%**



Transportation to the grocery store | **19%**



Storage for fresh or cooked foods | **14%**



Distance to the grocery store | **18%**



Kitchen equipment | **11%**



Knowledge about healthy foods | **16%**



Cooking skills | **11%**



## Complicating Factors

# What is the cost of time?

- Transportation and gas?
- Disability?
- Access to a well-stocked kitchen?
- Basic cooking skills?

According to recent research completed here at UK, individuals within the Appalachian region report traveling on average 10 miles one way to the closest grocery store (Gillespie, 2022)



## Food is Medicine: Mythbusters

**It is more expensive to eat healthier.**

- Dusted
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- Confirmed





## Defining Food Insecurity

The USDA defines **food insecurity** as a lack of consistent access to enough food for every person in a household to live an **active, healthy life** (USDA)

A new definition has emerged for **nutrition security**: consistent access, availability and affordability of foods and beverages that promote well-being and **prevent and, if needed, treat disease** (Mozaffarian, 2021)



How is it diagnosed?

## THE HUNGER VITAL SIGN

1. Within the past 12 months we worried whether our food would run out before we got money to buy more.



Often true



Sometimes true

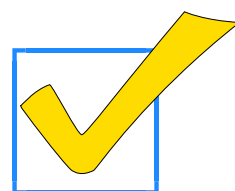


Never true

2. Within the past 12 months the food we bought just didn't last and we didn't have money to get more.



Often true



Sometimes true

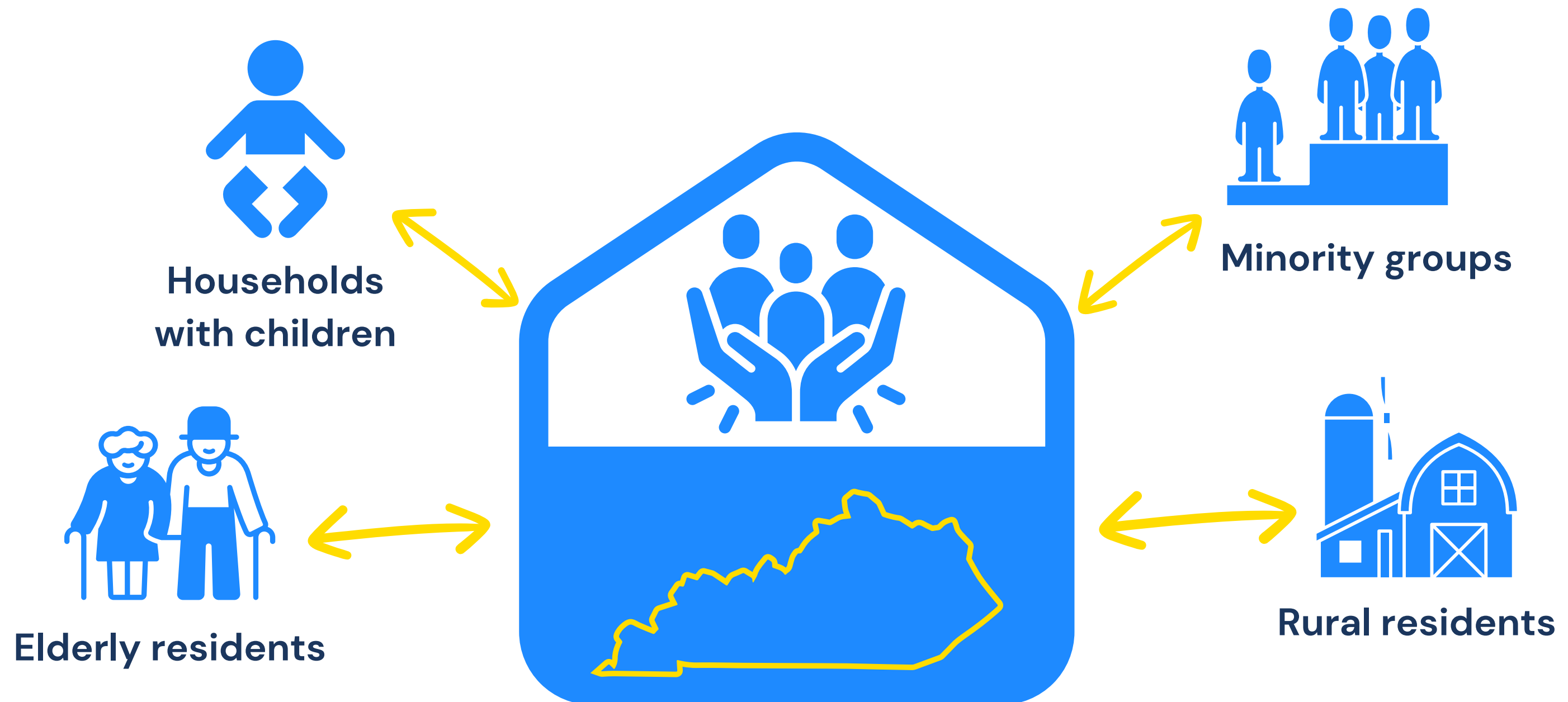


Never true





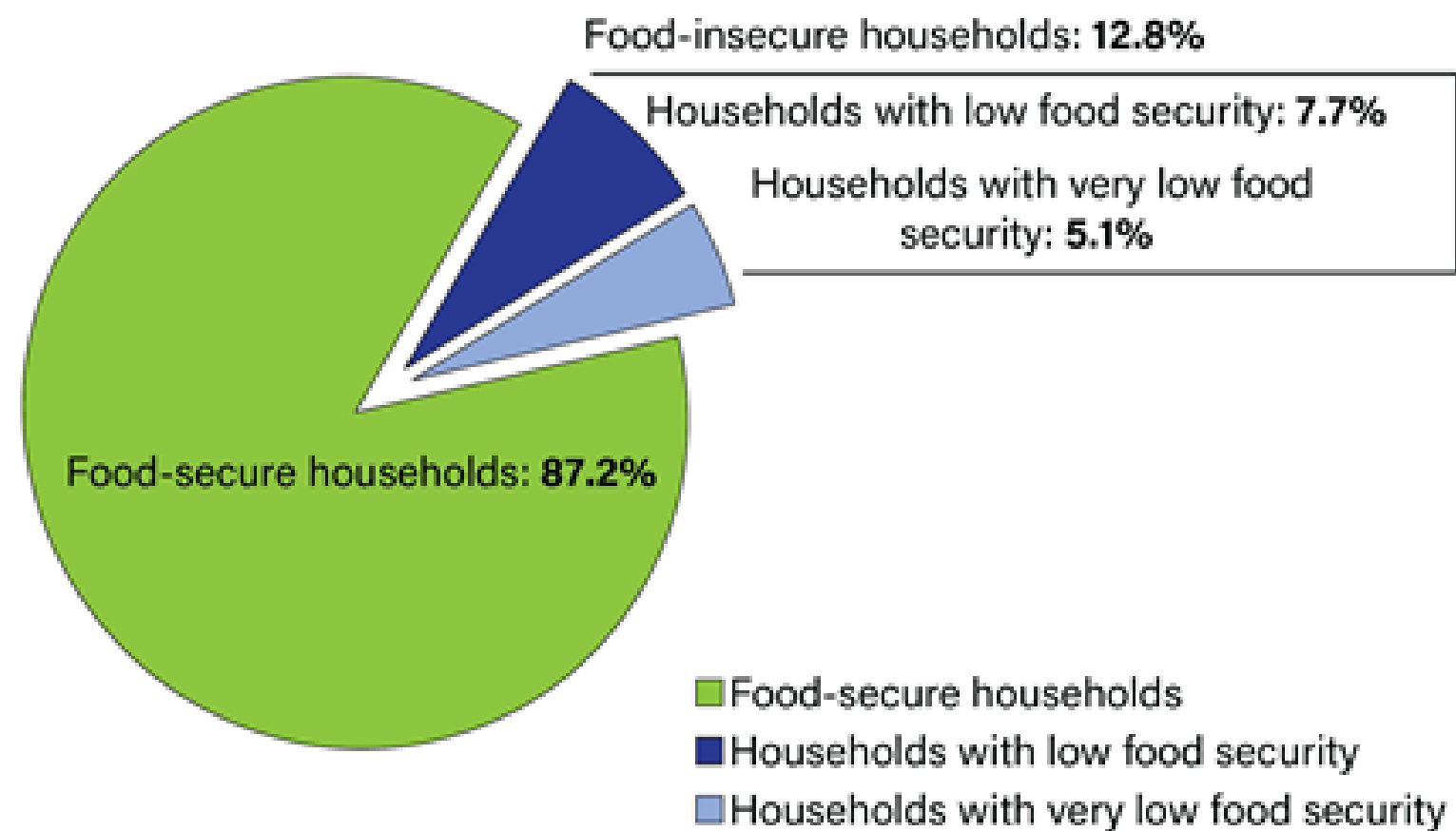
# Hunger in Kentucky





## Food Insecurity by the Numbers

### U.S. households by food security status, 2022



Source: USDA, Economic Research Service using data from U.S. Department of Commerce, Bureau of the Census, 2022 Current Population Survey Food Security Supplement.

In Kentucky, 579,770 people are facing hunger - and of them 154,290 are children.



**1 in 7**  
**children**  
face hunger.

People facing hunger in  
Kentucky  
are estimated to report needing

**\$318,670,000**

more per year to meet their food needs.

The average cost of a meal in Kentucky is \$3.11. Data from Feeding America's [Map the Meal Gap](#) study.

[Learn more >](#)

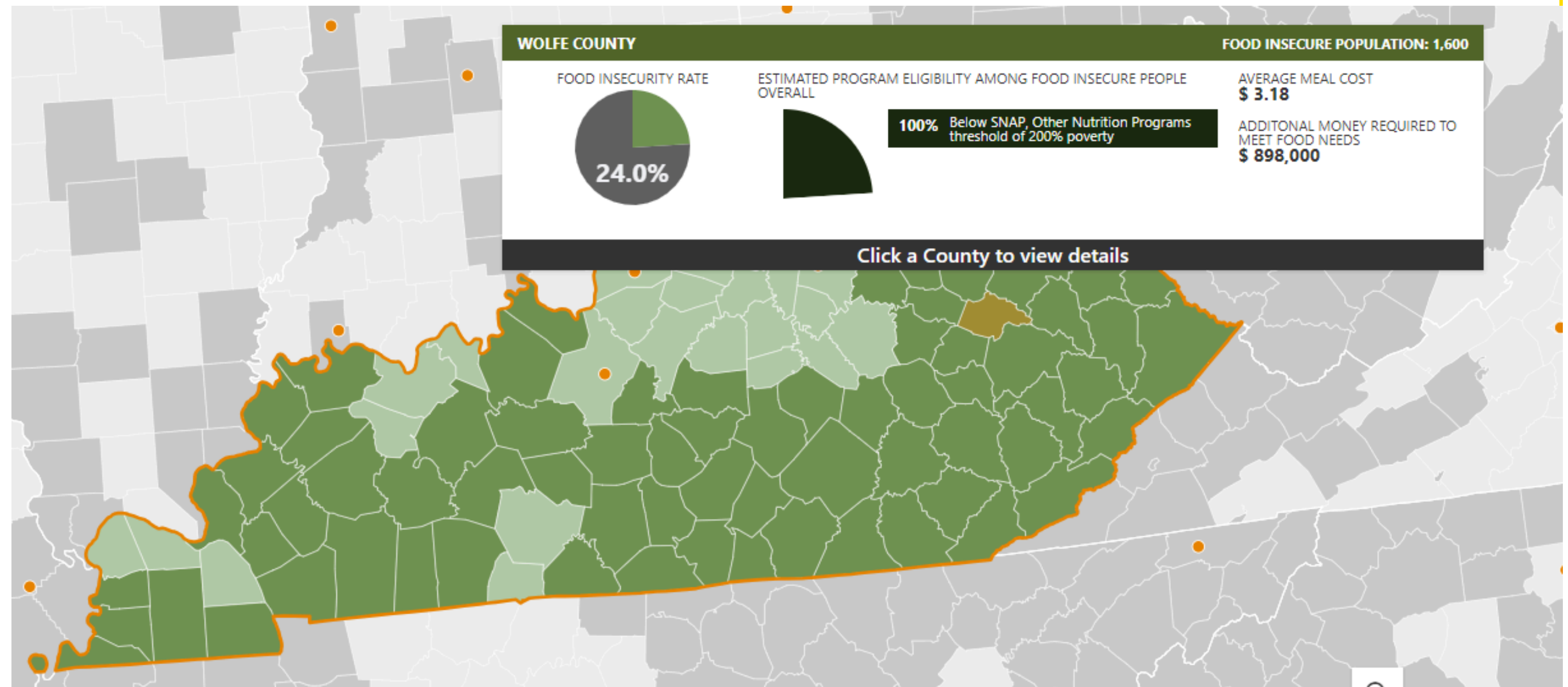




## Geographic Risk

### Map the Meal Gap, 2022

What factors are at play in areas where nearly 1 in 4 residents experiences food insecurity?





# Vast Financial & Health Costs

Diet-affected chronic health conditions cost the United States over a billion dollars in direct medical expenses each year.

Food insecurity is associated with 10 of the costliest and most deadly preventable diseases including:

- Heart disease
- Diabetes
- Certain cancers







## Increased Risk



- Diabetes – adults who experience food insecurity are 2–3 times more likely to develop type 2 diabetes.
- Hypertension – adults from food insecure households had a 21% higher risk of HTN.

- Gestational Diabetes – adults are 50% more likely to develop gestational diabetes.
- Certain Cancers – higher gastrointestinal cancer risk and higher risk of reproductive cancer.



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Efforts to combat both food insecurity and its associated poor health outcomes led to the development of:

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**FOOD IS MEDICINE**





## One Approach to Help

# FOOD IS MEDICINE PYRAMID





- A proactive, patient centered approach to improving chronic disease through diet.
- Recognition that the food we eat impacts nearly every aspect of our health.
- Simultaneous acknowledgement of the negative impacts of food insecurity.
- **Food is Medicine interventions consist of nutritious foods that are tailored to meet specific dietary needs of individuals living with or at risk for serious health conditions affected by diet.**



## Legislative Efforts

H.R.56

**Summary:** H.R.56 — 117th Congress (2021-2022)

 Listen to this page 

There is one summary for H.R.56. [Bill summaries](#) are authored by [CRS](#).

**Shown Here:**

**Introduced in House (01/04/2021)**

**Patient Access to Medical Foods Act**

This bill provides for coverage of medical foods under Medicare, Medicaid, the Children's Health Insurance Program, and TRICARE. The bill also requires private health insurance providers to cover medical foods.

Generally, a medical food is a food prescribed by a physician for the dietary management of a disease or condition. The bill expands this definition to include a food prescribed as a therapeutic option when a physician determines that traditional therapies are inappropriate for the patient. This definition shall apply to the insurance programs described above and to a federal grant program to encourage the development of drugs and medical foods for rare diseases.

- The White House endorsed the Food is Medicine (FiM) movement into the September 2022 National Strategy, during the White House Conference on Hunger, Nutrition, and Health.
- The administration recommended expanding FiM interventions to Medicaid recipients, with 5 states (AR, MA, NJ, OR, and WA) already receiving approval from CMS.
- All 5 also include education and counseling.

- USDA administers the Gus Schumacher Nutrition Incentive Program (GusNIP) for produce prescription.
- The Department of Veterans Affairs and Indian Health Service are launching produce prescription programs.
- NIH and CDC are looking at FiM grant and research opportunities.





## Initiatives and Trends

# COMMERCIAL PARTNERSHIPS

The White House conference led to investment of \$8.5 billion to fight hunger and improve health by 2030. This included funds from the Rockefeller Foundation, the American Heart Association, and Kroger to launch a \$250 million initiative, aiming to make Food Is Medicine a standard part of healthcare.



instacarthealth



Kroger health

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## Food is Medicine

Food Law and Policy, Health Law and Policy | Food Access and Nutrition, Social Determinants of Health



## National Initiatives

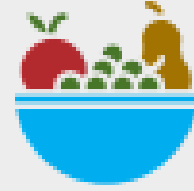
- Food is Medicine Coalition
- National Produce Prescription Collaborative
- Aspen Institute's Food & Society Food is Medicine Initiative
- Friedman School of Nutrition Science and Policy's Public Impact Initiative: Food is Medicine





## Packages

The Harvard Chan School of Public Health identifies six broad categories of Food is Medicine programs:



### Type of Food Provided

Types of foods being offered	Combination fresh/stable food box	Produce only	Fresh food box	Shelf stable food box	Medically tailored food box	Medically tailored meals (hot/cold/frozen)
Number of FIM Programs (N=13)	4	4	2	3	2	2

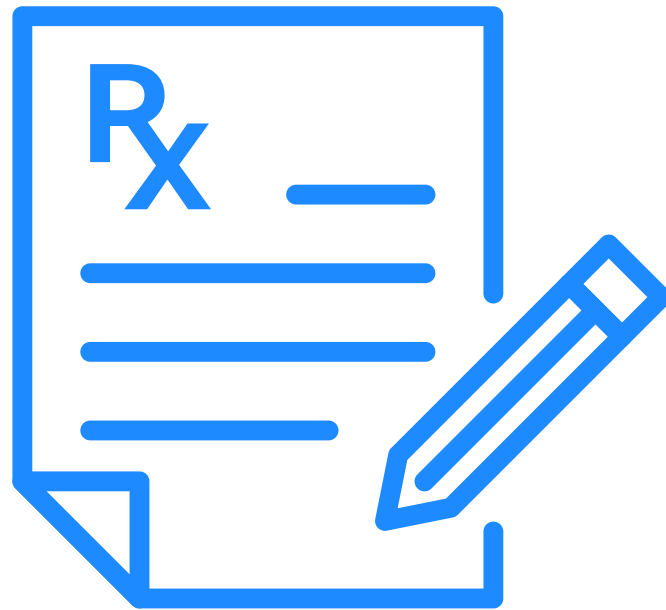
- **Produce only:** minimally processed fruits and vegetables
- **Shelf stable food box:** shelf-stable items such as canned goods, dry goods, and other non-perishable items
- **Fresh food box:** minimally processed items such as grains, fruits, vegetables, legumes, dairy, meats, seafood, etc.
- **Combination fresh and stable food box**

- **Medically tailored food box:** combination of fresh, frozen, and/or shelf-stable single-ingredient items selected to fit particular dietary needs of the client, such as high fiber, low added sugar, high protein, etc.
- **Medically tailored meals:** hot, cold, or frozen meals prepared to fit particular dietary needs of the client, such as high fiber, low added sugar, high protein, etc.



## How Do the Programs Work?

1



Provider writes Food is Medicine program prescription after screening for food insecurity.

2



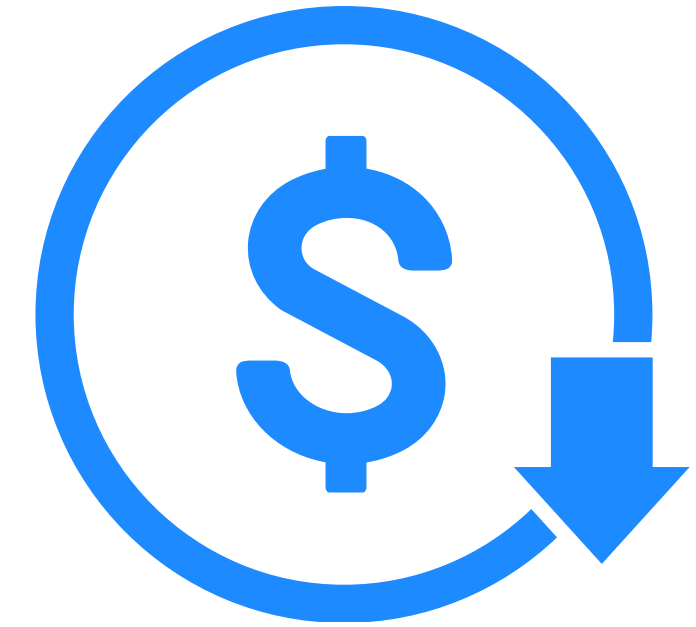
Clinician refers patient to clinical care support team to participate in a Food is Medicine program.

3



Participant utilizes appropriate package based on their individual needs.

4

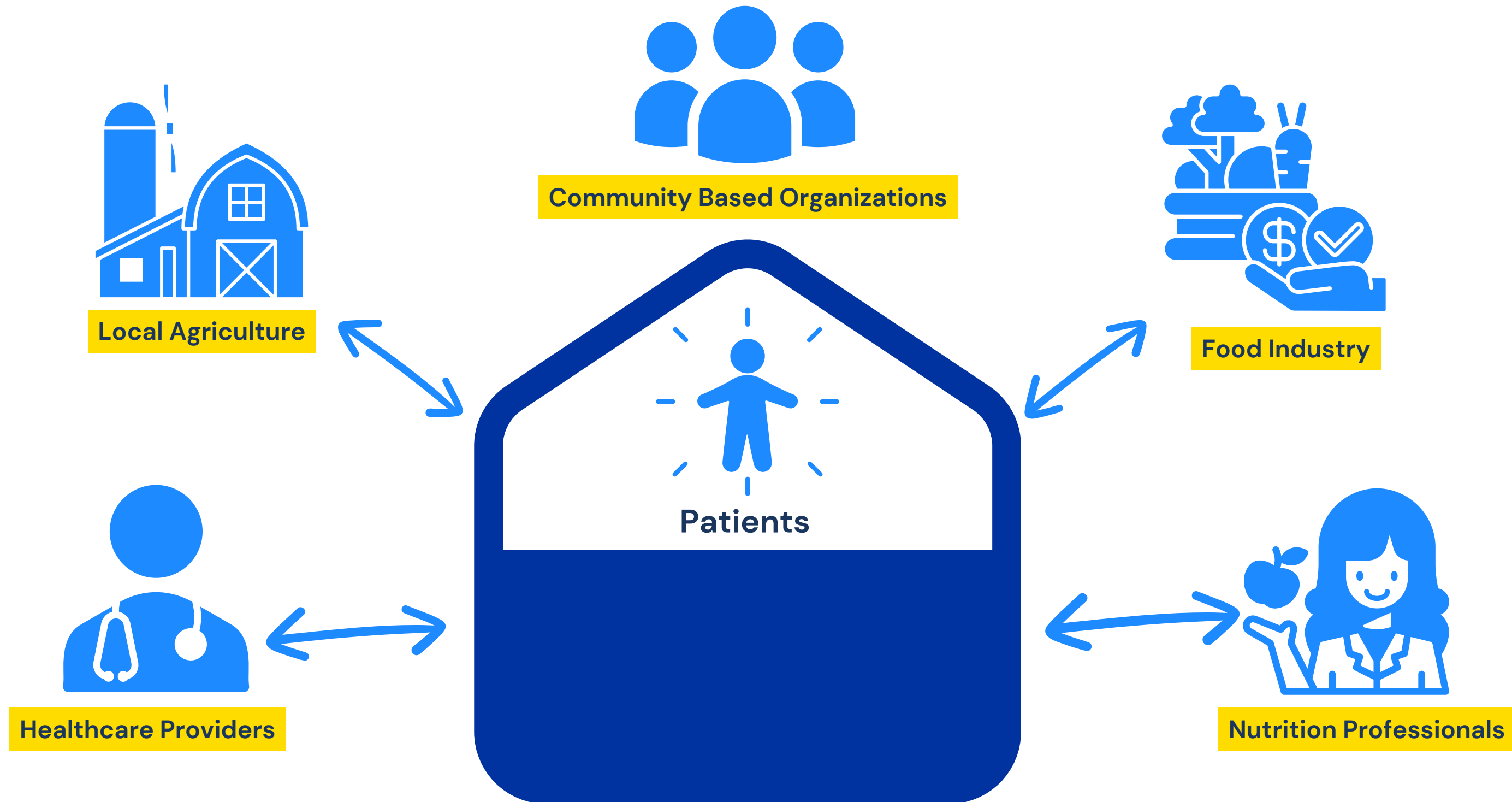


**This results in better health outcomes and reduced healthcare costs.**





# The Key Players





## Current Research Findings

**In states where the programs have been launched, research has been conducted on the health and financial benefits.**

## Mathematical Modeling

- A hypothetical “healthy food incentive” model was estimated to prevent more than 3 million CVD deaths and save \$100 billion over ~5 years (Lee, 2019).

## Medically Tailored Meals

- Led to a 16% drop in healthcare costs overall, with 49% fewer hospital visits and 72% fewer stays in nursing homes compared to those who didn't get the meals (Downer, 2020).







## Conflicting Results

### Produce Prescription

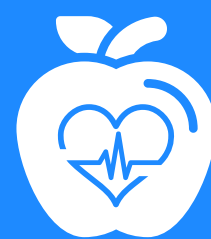
- A fruit and vegetable voucher program combined with diabetes education showed a small reduction in HbA1c (Veldheer, 2021)
- PP program utilization associated with lower hospitalization, but no change in diabetes markers (Xie, 2021)
- Longitudinal examination of produce prescription has found no effect (Hager, 2023)

**There is still much we don't know, and we need research among a variety of partners to help guide future policy decisions.**

### Food Bank Partnership

- A partnership between a primary care practice and a local food bank including consult with food bank dietitian and home-based education from a community health worker showed improvement in HbA1c (Ferrer, 2019)

**What factors make a program successful?**



## The Challenges Ahead

- **Heavy investment in research**– what works best?
- **Statewide network and partnerships**– how do we bring everyone to the table?
- **Integration at scale**– what are the barriers?
- **Sustained funding**– what is the process?
- **Training for clinicians**– who mans the frontlines?





## How Can RDs Get Involved?

- Volunteering your time to provide dietary counseling to food insecure populations at food banks or beyond
- Familiarizing yourself with federal and local resources
- Screening and referral in your practice
- Providing education materials specific to food insecure populations
- Advocate for policy change

**Central Role in Future FiM Programs**



## Key Takeaways

To improve health outcomes, we must address food insecurity.



We need many sectors to help tackle this complex issue.



Food is Medicine programs are just one way to address this issue, but there are many other options.



Together we can make a difference!





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**THANK YOU!**

**Let's Hear Your Questions**

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