Food As Medicine:
Overview of Economic and Health Impact

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Today

- Burden of Diet Related Disease
- FIM and connection to HealthCare Costs and Food Insecurity
- FIM in context (types of programs and how it fits in larger landscape of federal programs)
- Evidence for Medically Tailored Meals, Produce Prescriptions, and Food Packages
- Agricultural Implications
- National Perceptions Study
- Recommended Actions

Burden of Diet Related Disease

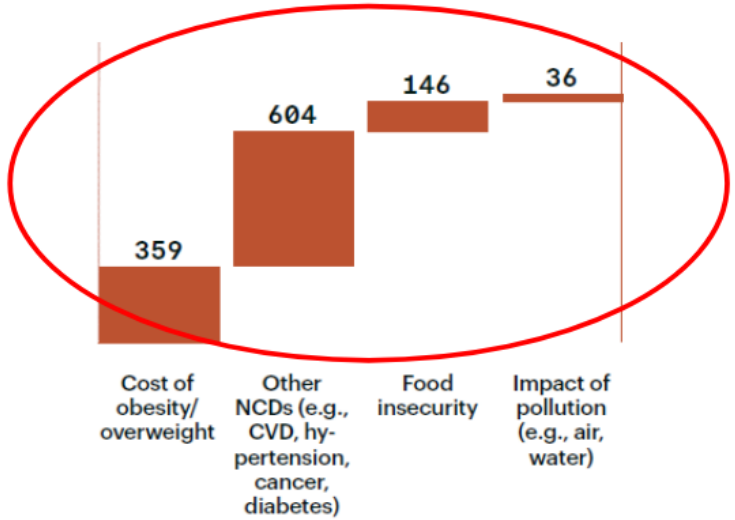
Nationally:

- Poor diet is the leading risk factor for mortality in the US, contributing to over 600,000 deaths annually (Rockefeller Foundation, 2021)
- Diet-related chronic diseases cost the US healthcare system $1.1 trillion annually (USDA FNS, 2025)
- 6 in 10 American adults have a chronic disease; 4 in 10 have two or more (CDC, 2023)

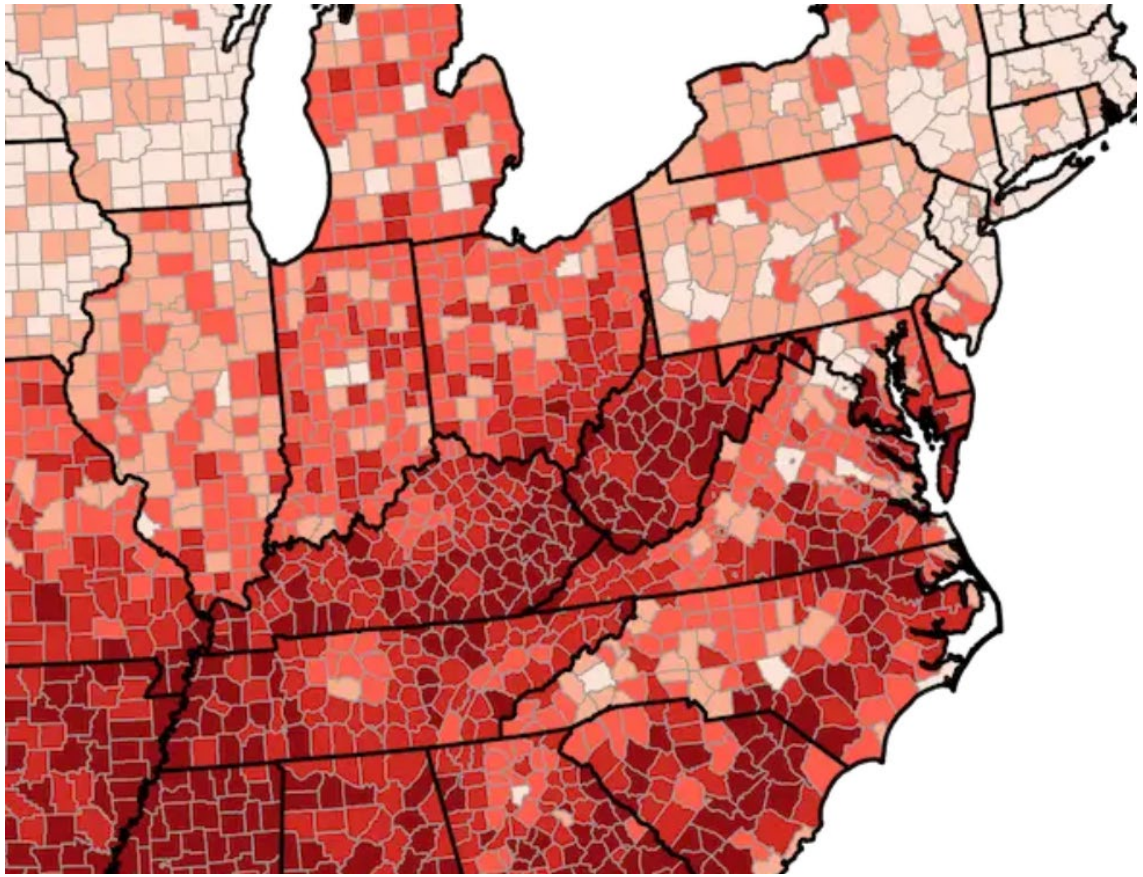
Delaware-Specific Data:

- 61% of deaths in Delaware are due to chronic disease
- DE Ranks 5th among all US States in per capita health spending ($12,899 pp/yr).
- Adult obesity rate: 37.9% + 33.9% overweight (DE DHSS, 2022 Data); 17% of High Schoolers have BMIs considered obese
- Diabetes prevalence: 11.6% of adults (cost $1.1 Billion Annually)
- Hypertension: 36.2% of adults (DHSS)
- Food insecurity affects 10.2% of Delaware households (Feeding America, 2024)

Poor nutrition causes an estimated **$1.1 trillion in economic losses each year in the U.S.** from excess healthcare spending and lost productivity



Delaware and Hypertension

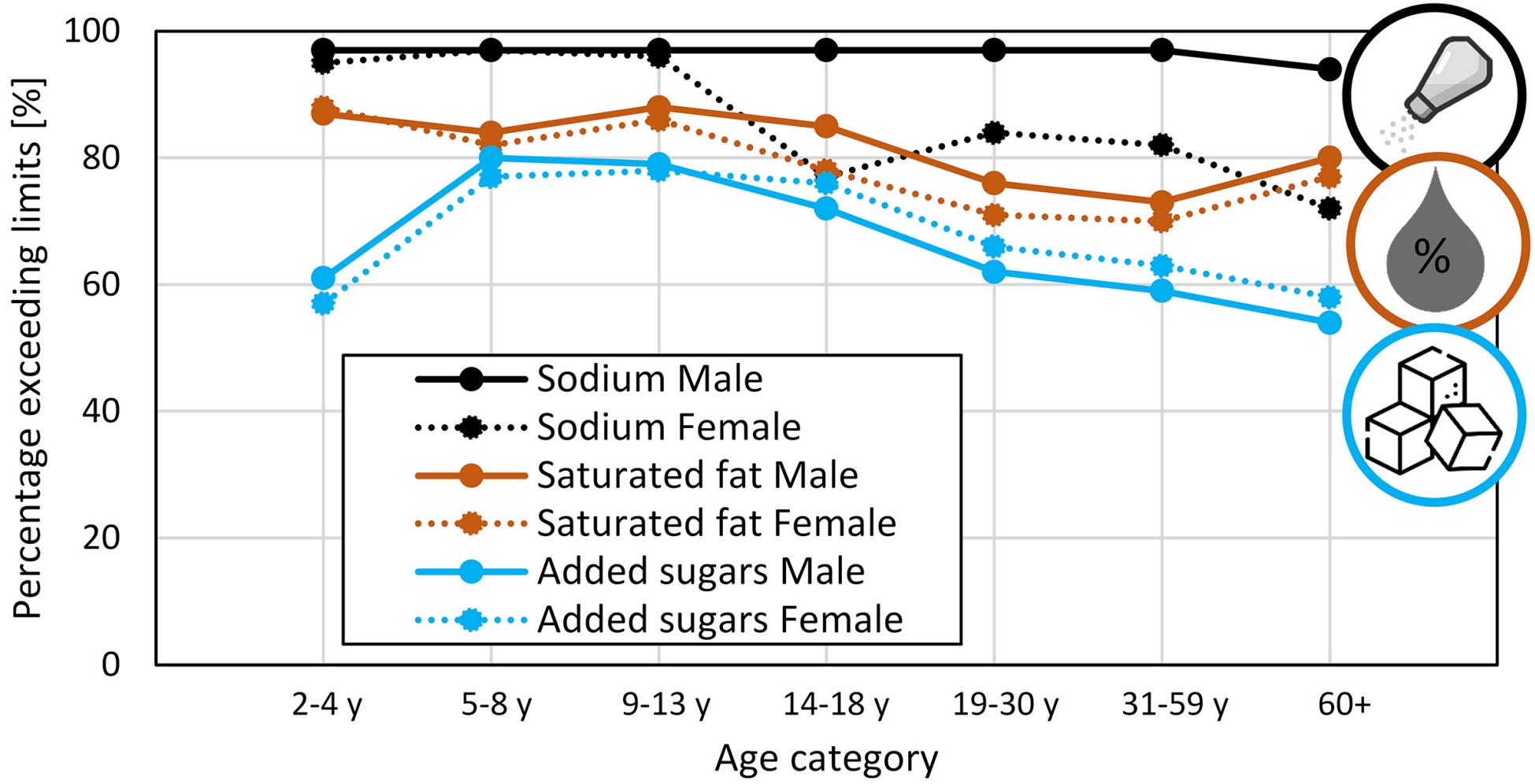


Age-Adjusted Prevalence (%)

- 20.9 - 28.6
- 28.7 - 30.9
- 31.0 - 33.3
- 33.4 - 36.7
- 36.8 - 52.7
- Insufficient Data

Data source and methodology found at: www.cdc.gov/dhdsp/maps/atlas/statistical-methods

Percentage of people exceeding the average daily intake compared with the recommended range in the United States



Economic Burden: Healthcare Costs

National Annual Healthcare Expenditures associated with cardiovascular risk factors (American Heart Association – Circulation)

- 1 in 3 US adults receives care for a cardiovascular risk factor annually.
- For cardiovascular conditions, annual health care costs are projected to almost quadruple, from $393 billion to $1490 billion
- Productivity losses are projected to increase by 54%, from $234 billion to $361 billion.
- Stroke is projected to account for the largest absolute increase in costs.

- Medicaid spending on diet-related conditions: ~35% of total Medicaid budget (Delaware DHSS estimates)

Food Insecurity and Healthcare Utilization

Food Insecurity Exacerbates the Risk

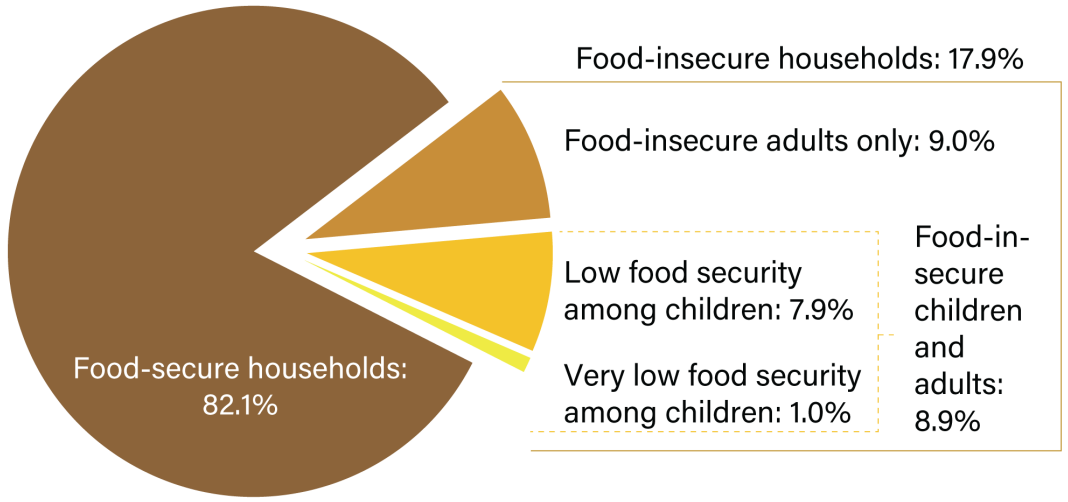
Emergency department visits: Those with food insecurity are **47% more likely** to visit the ER.

Hospitalizations: 47% more likely to be hospitalized.

Days hospitalized: Spent **54% more days in the hospital**.

- These differences remained even after accounting for age, income, education, insurance coverage, region, and rural residence.
- Food-insecure households were significantly more likely to be among the highest users of healthcare dollars — about **73% more likely to be in the top 10%**, **2.5 times more likely to be in the top 5%**, and **nearly twice as likely to be in the top 2%** of healthcare spending.

U.S. households with children by food security status of adults and children, 2023



Note: In most instances, when children are food insecure, the adults in the household are also food insecure.

Source: USDA, Economic Research Service using U.S. Department of Commerce, Bureau of the Census, 2023 Current Population Survey Food Security Supplement data.

Food is Medicine: Core Interventions

Four Primary Intervention Categories:

1. **Medically Tailored Meals (MTM)**

Fully prepared meals designed by dietitians for specific medical conditions, delivered to homes.

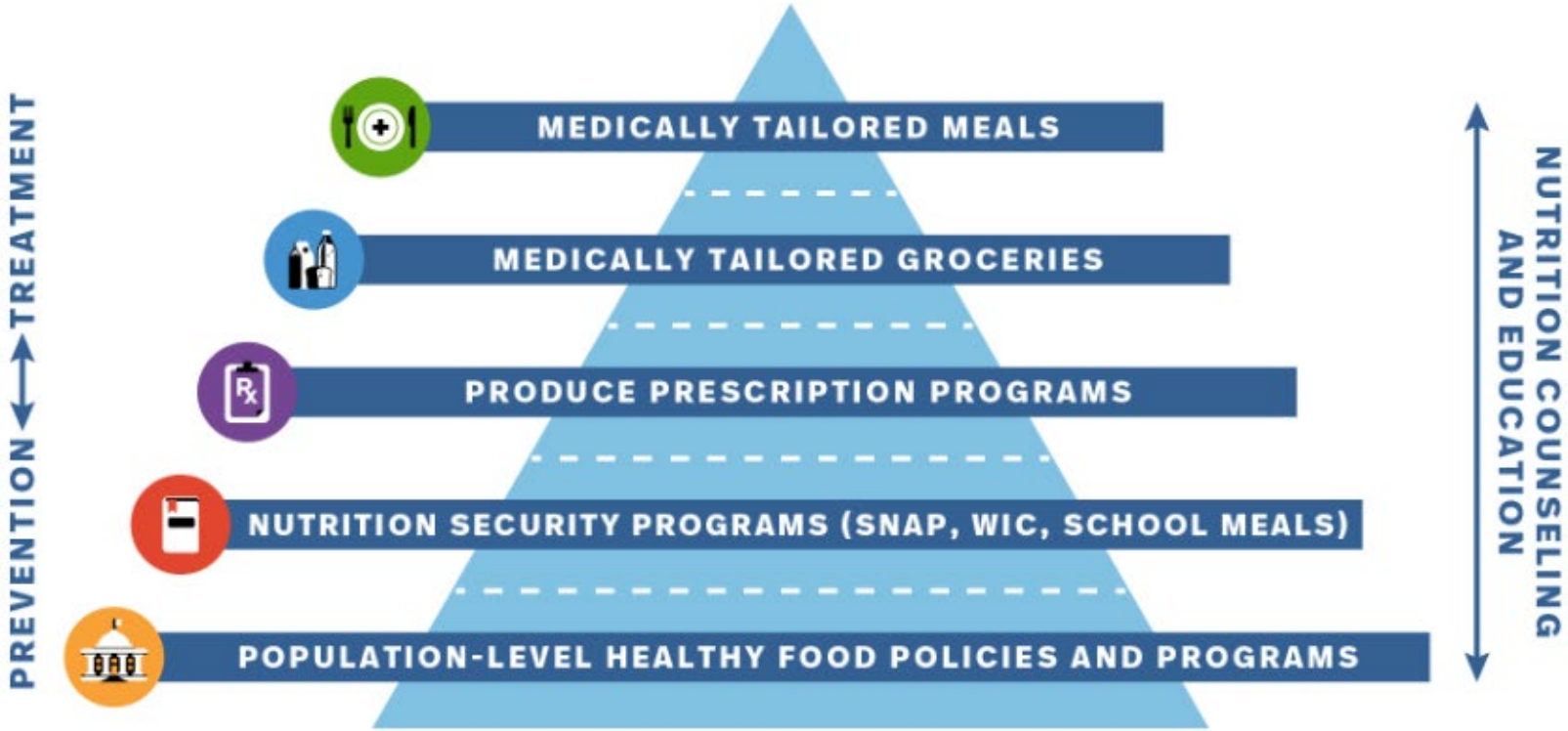
2. **Medically Tailored Groceries (MTG)/ Medically Tailored Food Packages**
Prescribed food packages with disease-specific ingredients and recipes.

3**. Produce Prescription Programs (PRx) and related Nutrious Food Referrals**
Healthcare provider-prescribed vouchers for fruits and vegetables, or other funds for free or discounted nutritious foods from health care providers or plans following identification as being at risk for a diet-related disease.

4**. Nutrition Education & Counseling**

Registered dietitian consultations, cooking classes, and self-management support.

FIGURE 2: The Food is Medicine Pyramid



Source: Figure updated and adapted with permission from Food is Medicine Massachusetts. Food is Medicine pyramid. Food is Medicine interventions. https://foodismedicinema.org/food-is-medicine-interventions

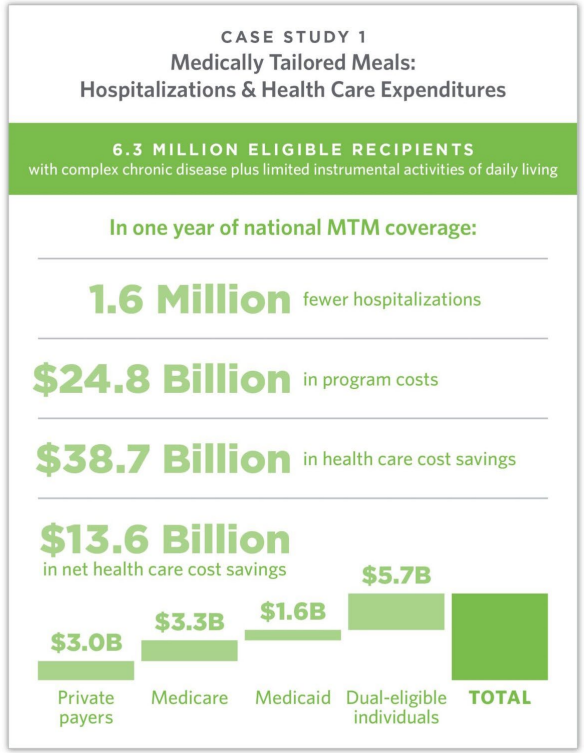
Tufts, 2023 https://tuftsfoodismedicine.org/wp-content/uploads/2023/10/Tufts_True_Cost_of_FIM_Case_Study_Oct_2023.pdf

Clinical Evidence: Medically Tailored Meals (Strongest Evidence Base)

Scope of Intervention: $11.15 per meal, 10 weekly meals for 8 months (standard)

- **Hospital Admissions:** 47 - 49% reduction in annual hospitalizations (519 fewer admissions per 1,000 people)
- **Skilled Nursing Facility Admissions:** 72% fewer admissions compared with non-recipients; (913 fewer skilled nursing facility admissions per 1,000 people/yr)
- **Cost Savings:** 19.7% reduction in annual health care expenditures

Note: Effect sizes vary by population risk level, with greatest impact among patients with multiple chronic conditions

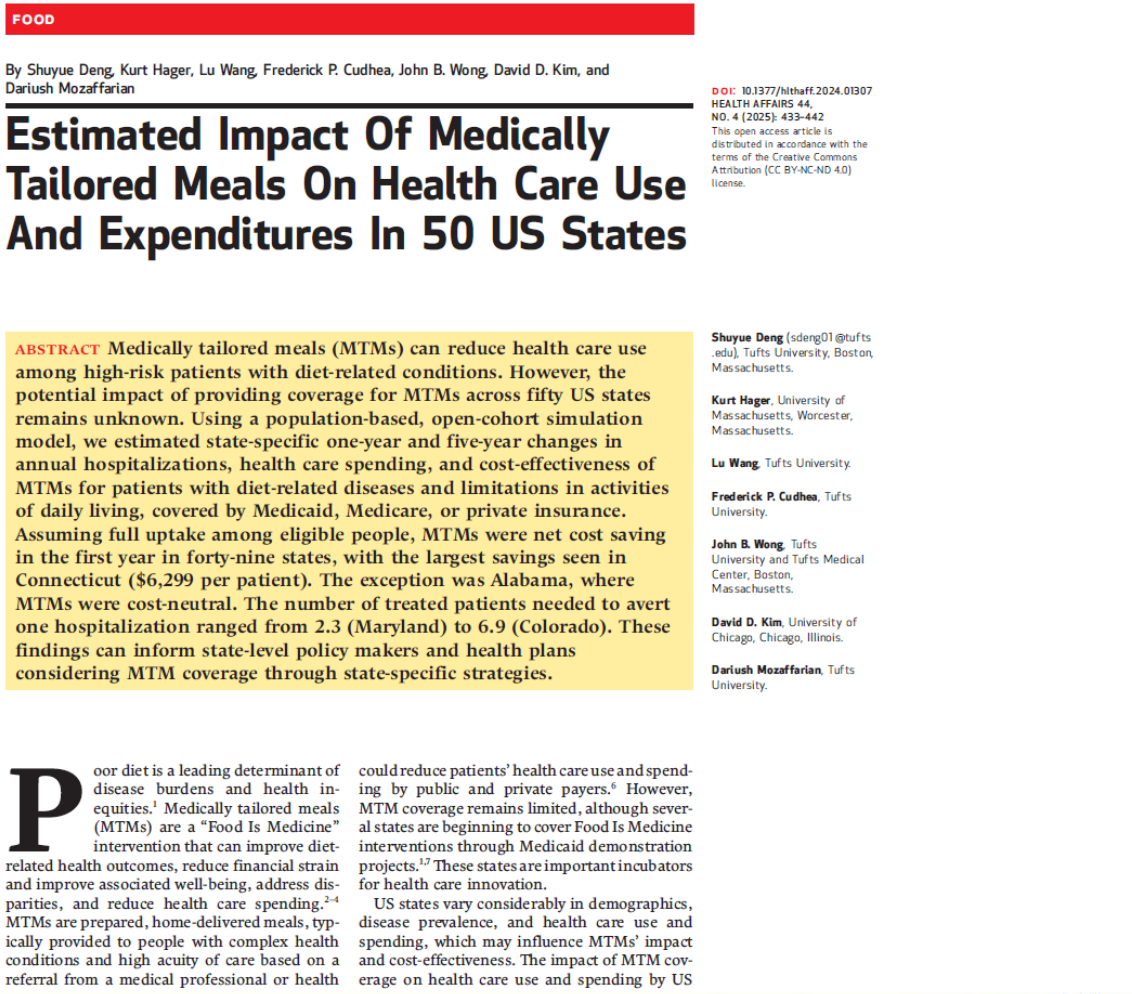


Deng er. Al. **Estimated Impact Of Medically Tailored Meals On Health Care Use And Expenditures In 50 US States** 2025, https://www.healthaffairs.org/doi/10.1377/hlthaff.2024.01307. **True Cost of Food Report: Food is Medicine Case Study**, Tufts, Oct 2023. https://tuftsfoodismedicine.org/wp-content/uploads/2023/10/Tufts_True_Cost_of_FIM_Case_Study_Oct_2023.pdf, AND CHLPI. *Food is Medicine: Peer-Reviewed Research in the U.S. Available:* https://chlpi.org/wp-content/uploads/2013/12/Food-is-Medicine_Peer-Reviewed-Research-in-the-U.S.1.pdf

Medically Tailored Meals by State

Recent paper on impacts by state found that for Delaware:

- **Number of treated patients need to reduce hospitalizations:** about 3.8 (fewer than 4 patients annually in Delaware)
- **Cost savings in the first year:** 1 year of MTM treatment per person would reduce healthcare costs by $1,000 annually pp



FOOD

By Shuyue Deng, Kurt Hager, Lu Wang, Frederick P. Cudhea, John B. Wong, David D. Kim, and Dariush Mozaffarian

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Estimated Impact Of Medically Tailored Meals On Health Care Use And Expenditures In 50 US States

ABSTRACT Medically tailored meals (MTMs) can reduce health care use among high-risk patients with diet-related conditions. However, the potential impact of providing coverage for MTMs across fifty US states remains unknown. Using a population-based, open-cohort simulation model, we estimated state-specific one-year and five-year changes in annual hospitalizations, health care spending, and cost-effectiveness of MTMs for patients with diet-related diseases and limitations in activities of daily living, covered by Medicaid, Medicare, or private insurance. Assuming full uptake among eligible people, MTMs were net cost saving in the first year in forty-nine states, with the largest savings seen in Connecticut ($6,299 per patient). The exception was Alabama, where MTMs were cost-neutral. The number of treated patients needed to avert one hospitalization ranged from 2.3 (Maryland) to 6.9 (Colorado). These findings can inform state-level policy makers and health plans considering MTM coverage through state-specific strategies.

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Poor diet is a leading determinant of disease burdens and health inequities.[1] Medically tailored meals (MTMs) are a "Food Is Medicine" intervention that can improve diet-related health outcomes, reduce financial strain and improve associated well-being, address disparities, and reduce health care spending.[2–4] MTMs are prepared, home-delivered meals, typically provided to people with complex health conditions and high acuity of care based on a referral from a medical professional or health could reduce patients' health care use and spending by public and private payers.[6] However, MTM coverage remains limited, although several states are beginning to cover Food Is Medicine interventions through Medicaid demonstration projects.[1,7] These states are important incubators for health care innovation.

US states vary considerably in demographics, disease prevalence, and health care use and spending, which may influence MTMs' impact and cost-effectiveness. The impact of MTM coverage on health care use and spending by US

Clinical Evidence: Produce Prescriptions

Intervention: Average monthly Rx: $43 for a mean of 6 months; 73% dollars spent.

Fruit and vegetable intake: Adults ate nearly 1 extra cup per day (about 0.85 cups).

Food security: Across all households, the likelihood of being food insecure dropped by about 33%.

Blood sugar (HbA1c): Among people with diabetes, blood sugar levels improved:

- Those with HbA1c ≥6.5% saw a 0.29 percentage point drop.
- Those with HbA1c ≥8.0% saw an even larger 0.58 percentage point drop.

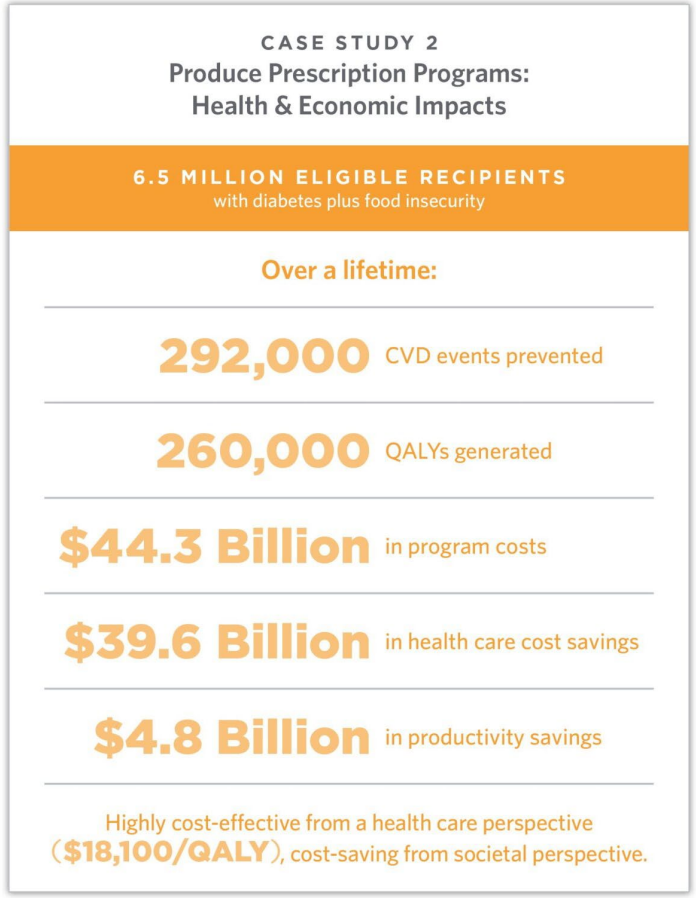
Blood pressure:

- People with stage I or II hypertension lowered systolic pressure by 8 mmHg and diastolic pressure by 5 mmHg.
- Those with stage II hypertension saw even greater improvements: systolic pressure dropped by 11 mmHg and diastolic by 9 mmHg.

Body Mass Index (BMI):

- Adults with overweight or obesity reduced BMI by 0.36 points.
- Adults with obesity saw a larger reduction of 0.52 points.

Self-rated health: Participants were 60% more likely to move up at least one step on the 5-point health scale (e.g., from “fair” to “good” or from “good” to “very good”).



Food Package Prescriptions Feeding Families, DE

12 months of food boxes + wrap around services and support

- Improved fruit/vegetable consumption by .5 cups/day
- Decreased BMI of .86 between baseline and 12 months
- HbA1c improvements
- Shifts in Food Insecurity (study 1), 71% to 47%
    - Participants 50-60% less likely to worry their food would run out.
- 95% of the food in the box was fully utilazed

Delaware Journal of Public Health

Dela J Public Health. 2025 Apr 30;11(1):10–18. doi: 10.32481/djph.2025.04.04

Food is Medicine

The Effectiveness of Delaware's Feeding Families Program in Managing Chronic Conditions

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Abstract

Background

The "Food is Medicine" (FIM) model bridges healthcare and food access to mitigate chronic health conditions and address social determinants of health.

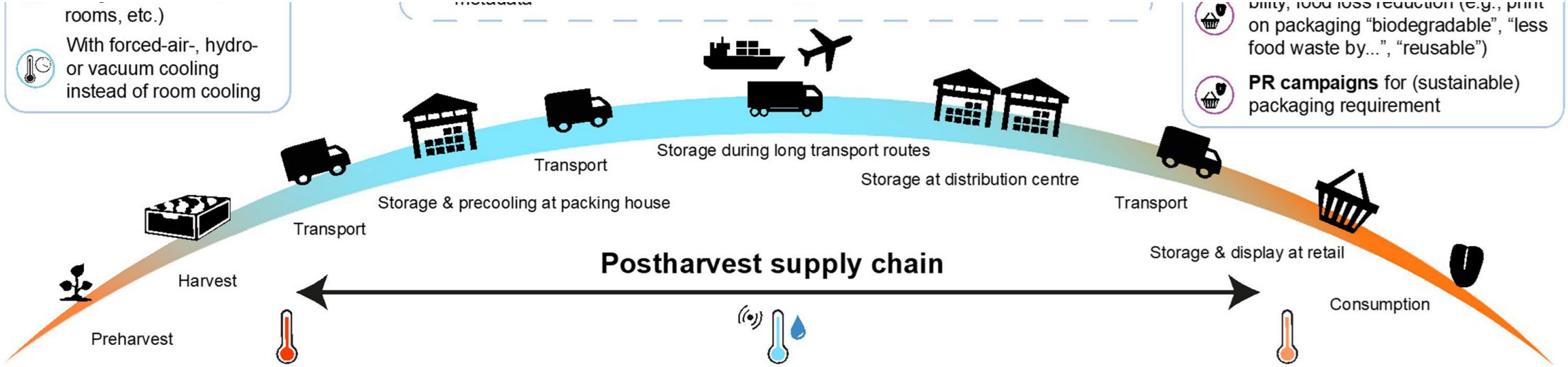
Objectives

This study assesses the impact of the Feeding Families (FF) program, a FIM initiative by Westside Family Healthcare in Delaware, which was conducted between February 2023 and February 2024 and designed to support individuals with diabetes, hypertension, and obesity.

Methods

Agricultural Implications

$1 Local Purchasing = 1.32-1.90 Economic Activity



CHLPI. *Maximizing the Impact of Nutrition Interventions with Local Food Procurement Envisioning a Food is Medicine marketplace that integrates America's local producers to build thriving local economies and food systems.* 2025 Report, https://chlpi.org/wp-content/uploads/2025/07/Maximizing-the-Impact-of-Nutrition-Interventions-with-Local-Food-Procurement_FINAL_.pdf

What do US Adults Think?

2025 Study in Health Affairs on Public Knowledge, Perceptions and Experiences of FIM

- Knowledge of Food is Medicine is Low: 21% have any prior knowledge
- Only about 24 percent of respondents reported being asked by primary care providers whether they have enough to eat
- More than 50% adults support Food Is Medicine interventions and coverage of Food Is Medicine programs by Medicare, Medicaid, and private payers. (among those Food Insecure its 64-68%)
- 58% are interested in receiving nurition counseling and culinary education through their healthcare system.

Current Calls For Action

- **Expanded FIM coverage of Food Is Medicine through Medicare Advantage supplemental benefits** and, the Advance Investment Payments option in the Medicare Shared Savings Program
- **Increase coverage of Food Is Medicine by private health insurance payers** with greater efforts to incorporate these interventions within employer-based insurance plans and private coverage in the individual market
- Double down on efforts in primary care settings to **screen patients for food and nutrition insecurity**, discuss the role of diet, and **link patients to registered dietitian nutritionist counseling**.
- State Medicaid programs **should require screening or referral for food insecurity through managed care contract requirements.**
- Expand **health care providers** who are trained in and use food- and nutrition-related assessments and treatments should serve to motivate changes to medical training, including **education on medical nutrition and culinary medicine**, which combines nutrition education with cooking experiences.
- Add nutrition competencies in medical program accreditation standards of the Accreditation Council for Graduate Medical Education and the Liaison Committee on Medical Education, **as well as new nutrition-related questions in medical licensing and certification examinations.**

Thank you

- Questions?