Food is Medicine

2024 Research Action Plan

April 9, 2024

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Today’s Plan

Welcome by Corby Kummer, Executive Director, Food & Society at the Aspen Institute

2024 Food is Medicine Research Action Plan presentation, thanks to support from the Walmart Foundation, with co-authors:

- Kurt Hager, PhD, MS, UMass Chan Medical School
- Corby Kummer, Food & Society at the Aspen Institute
- Alexandra Lewin-Zwerdling, PhD, MPA, Fruitful LLC

Food is Medicine On the Ground Panel Discussion with:

- Luisa Furstenberg-Beckman, MPH

  Produce Rx Manager, DC Greens
- Tom McDougall

  Founder and CEO, 4P Foods and Aspen Institute Food Leaders Fellow
- Pamela Schwartz, MPH

  Executive Director, Community Health, Kaiser Foundation Health Plan and Hospitals

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About Food & Society at The Aspen Institute

Food & Society at the Aspen Institute brings together public health leaders, policymakers, researchers, farmers, chefs, food makers, and entrepreneurs to find practical solutions to food system challenges and inequities.

The goal is to help people of all income levels eat better and more healthful diets – and identify and nourish the leaders from all realms who will help them do that.

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About The Research Action Plan

The goal of this updated Food is Medicine Research Action Plan is to create a one-stop-shop for the latest peer-reviewed research, an overview of Food is Medicine interventions and a roadmap with simplified recommendations to advance the field

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What's Inside

- An overview of Food is Medicine, what it means and how it is defined in this report
- A history of Food is Medicine efforts in the U.S.
- A synthesis of existing peer-reviewed research
- A streamlined set of cross-sector recommendations to advance the Food is Medicine field and greatly informed by our expert Food is Medicine advisors

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Research - A Fast Moving Field

Kurt Hager, PhD, , MS, UMass Chan Medical School

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What has happened since the last Research Action Plan?

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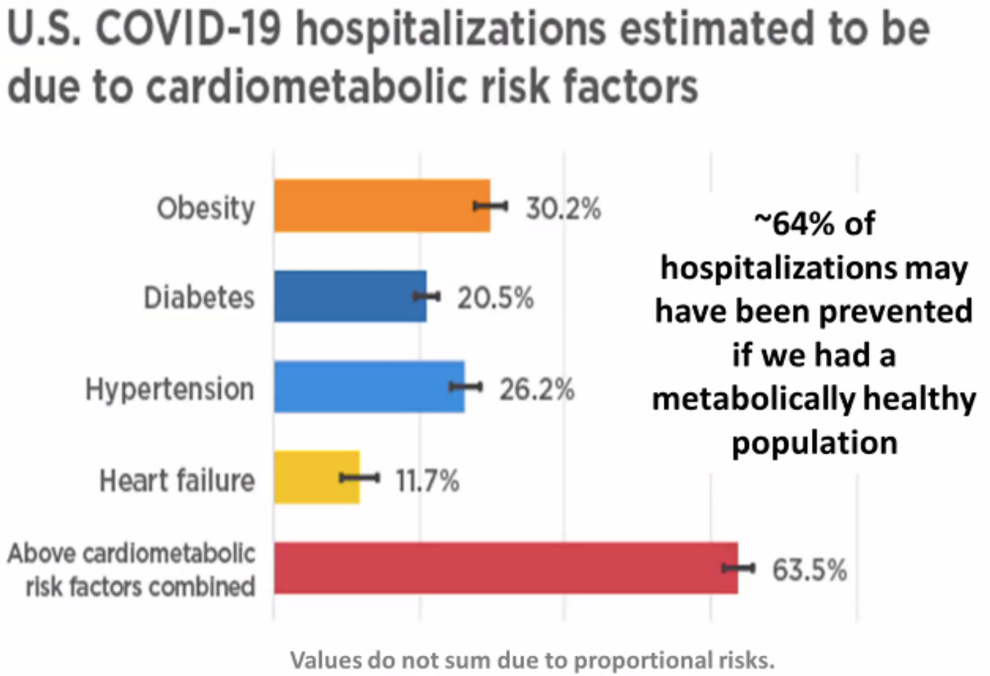
COVID-19 and Diet-related Illness

- Infectious virus collided with existing pandemic of chronic disease
- Vascular inflammatory illnesses that exacerbate one another



Meghan O'Hearn. Coronavirus Disease 2019 Hospitalizations Attributable to Cardiometabolic Conditions in the United States: A Comparative Risk Assessment Analysis. Journal of the American Heart Association. 2021.

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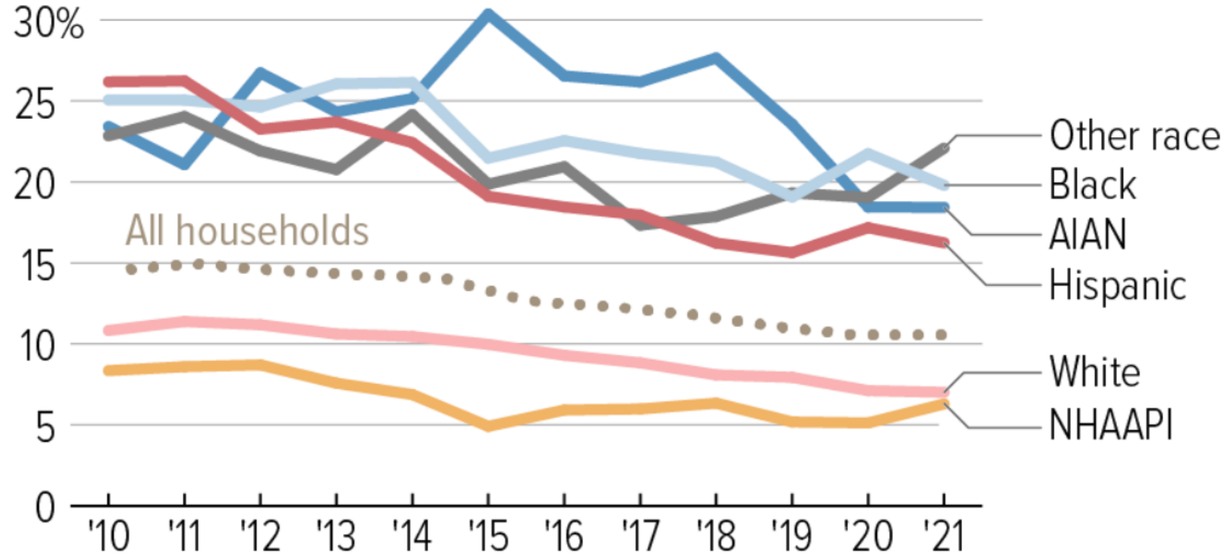
Food Insecurity as an Embodiment of Injustice

Food Insecurity by Race and Ethnicity Reveals Stark Disparities

Households that lacked access to adequate food at some point in the year



Note: People who are Hispanic may be of any race. Other race = people who are more than one race. AIAN = people who are American Indian or Alaskan Native. NHAAPI = people who are Asian, Hawaiian, or Pacific Islander. People who are AIAN, Black, NHAAPI, or white are that race alone. Race and ethnicity for the household are based on that of the household reference person (in whose name the housing unit is owned or rented).

Source: U.S. Department of Agriculture, Current Population Survey Food Security Supplement 2010-2021

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BIDEN-HARRIS ADMINISTRATION NATIONAL STRATEGY ON HUNGER, NUTRITION, AND HEALTH

SEPTEMBER 2022

THE WHITE HOUSE
WASHINGTON

Pillar 2—Integrate Nutrition and Health: ***Prioritize the role of nutrition and food security in overall health—including disease prevention and management—and ensure that our health care system addresses the nutrition needs of all people.***

A. Provide greater access to nutrition services to better prevent, manage, and treat diet-related diseases.

Receiving health care to help prevent, treat, and manage diet-related diseases can optimize Americans' well-being and reduce health care costs. However, access to and coverage for this

- **Expand Medicare and Medicaid beneficiaries' access to "food is medicine" interventions.** "Food is medicine" interventions—including medically tailored meals and groceries as well as produce prescriptions (fruit and vegetable prescriptions or vouchers provided by medical professionals for people with diet-related diseases or food insecurity)—can effectively treat or prevent diet-related health conditions and reduce food insecurity.[33] The Biden-Harris Administration supports legislation to create a pilot

experiencing diet-related health conditions. This proposal builds on a demonstration initiative in Medicaid, where HHS Centers for Medicare & Medicaid Services (CMS) will provide authority for states to test Medicaid coverage of additional nutrition services, and supports using Medicaid section 1115 demonstration projects. HHS CMS will also issue guidance on how states can use section 1115 demonstrations to test the expansion of coverage for these interventions.

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National Institute of Health Highlighted First Plan

Request for Information (RFI): Food is Medicine Research Opportunities

Notice Number:
NOT-OD-23-107

Background

A report from the ASPEN Institute and other analyses have provided evidence that Food is Medicine approaches are associated with meaningful improvements in food security, health biomarkers (e.g., BMI, cardiometabolic parameters, HbA1C), insurance costs, and health quality indicators (e.g., hospital readmissions for the same diagnosis). Food is Medicine is an umbrella term for programs that respond to the critical link between diet and health involving a nexus to the health care system and the provision of different services including: (1) MTMs; (2) medically tailored food packages or groceries; (3) nutritious food referrals; (4) prescriptions for nutritious groceries or produce; and (5) Culinary Medicine or Teaching Kitchens. In recognition of the opportunities in this area, the

Timeline of Food is Medicine Progress

2022–2023

- **2022:** The Biden Administration's White House Conference on Hunger, Nutrition, and Health is held, over 50 years after the first conference in 1969. The conference caps a nearly yearlong engagement with stakeholders across the United States and results in the National Strategy on Hunger, Nutrition, and Health. This report features an entire section on how health care can engage issues of nutrition and food insecurity and includes recommendations specific to Food is Medicine, most notably a call to expand access in Medicare and Medicaid to Food is Medicine programs.
- **2022:** The Centers for Medicare and Medicaid Services encourage states to submit Section 1115 Medicaid waivers to allow coverage of Food is Medicine programs for Medicaid members. These waivers represent an increasingly popular regulatory pathway to increase payment for Food is Medicine services in Medicaid for select members within participating states, which is not allowed generally under federal law.
- **2023:** The Bipartisan Policy Center convenes a Food is Medicine Working Group co-chaired by former Senate Majority Leader Bill Frist, former Agriculture Secretaries Dan Glickman and Ann Veneman, and former US Health and Human Services Secretary Donna Shalala. With the input of external stakeholders, this working group issues a report including 10 recommendations to improve nutrition education and scale evidence-based Food is Medicine interventions.[86]
- **2023:** Indian Health Services launches a produce prescription pilot that includes programs in several tribal nations that are tailored in their design to meet the needs and food preferences of tribal communities.
- **2023:** The Veterans Health Administration launches a produce prescription pilot in partnership with the Rockefeller Foundation.
- **2023:** The American Heart Association launches a bold and ambitious Food is Medicine Initiative in partnership with the Rockefeller Foundation, promising $250 million in research funding over 10 years. The funding will prioritize identifying best practices in program design and testing successful Food is Medicine programs in large, randomized controlled trials.
- **2023:** NIH demonstrates a growing commitment to Food is Medicine research, which includes a Request for Information on Food is Medicine to guide its research strategy and an announcement of a Food is Medicine Centers of Excellence concept to catalyze such research.
- **2023:** By the end of 2023, 10 US states (California, Massachusetts, New Jersey, North Carolina, Oregon, Washington, Delaware, Illinois, New Mexico, and New York) have approved, or have pending requests for Medicaid Section 1115 waivers to cover, Food is Medicine services for select members.

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What’s new in the 2024 Research Action Plan?

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Overview of Federal Nutrition Programs

Health Outcomes Associated with the WIC Program

WIC is widely recognized as one of the most effective nutrition programs in the United States.[264]

This report reviewed 11 studies that examine the impact of WIC participation on health Outcomes.[265] WIC participation is associated with:

- **Decreased preeclampsia;[266]**
- **Increased length of gestation and birth weight;[267]**
- **Decreased preterm delivery and neonatal intensive care unit (NICU) stays;[268]**
- **Decreased infant mortality; and[269]**
- **Reduced racial disparities in maternal and birth outcomes (notably, preterm delivery, low birth weight, NICU admission, and infant mortality), particularly for Black pregnant people when compared with their white counterparts.[270]**

Discussion of COVID-19 on Food and Nutrition Programs

Considerations for Food is Medicine Research

Fewer touch points with clinical care teams
Disruptions in work, income, and childcare
Stimulus aid may have washed out program impacts
Rising food prices and shortages
Fear of exposure during grocery shopping or food pantry visits

Discussion of Changes to Federal Nutrition Programs

- SNAP
- WIC
- School meals
- Pandemic EBT and Summer EBT

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Introduction to Key Concepts in FIM Research

- Selection bias
- Regression to the mean
- Cost effectiveness
- Baseline health of the population
- Intensity of the program
- Adherence and program engagement

What Research was Included in Updated Report?

All new Food is Medicine studies published since last report (Jan 2022)

Searched a wide range of terms beyond the standard FIM terminology used in the last report.

Eligibility criteria:

1. Provide free, healthy food to participants.
2. Clear connection with the healthcare system.

Ineligible examples:

1. COVID-19 stimulus programs
2. Healthy food pantries with no healthcare referrals
3. International studies

Concise Summaries of each Food is Medicine Model

Produce Prescriptions Peer-Reviewed Literature: A Closer Look

Produce prescription research is the most common within the Food is Medicine literature. Produce prescription programs have become a national movement, with millions of dollars in dedicated federal funding each year through the GusNIP Produce Prescription Grant Program, new pilot programs within the Veterans Administration and Indian Health Service, and programs in several states implemented through Medicaid Section 1115 Waivers. The research on these interventions demonstrates improvements in food security and dietary intake while emerging research focuses on the impacts of clinical outcomes like BMI, blood pressure, and HbA1c. Yet even with a high volume of studies, there remain very few randomized trials confirming the efficacy of programs. The volume and scope of forthcoming research is exciting—in particular, studies will evaluate impacts within federally funded programs, representing an unprecedented scale.

No. of quantitative and qualitative studies:	59
No. of quantitative studies with control or comparison group:	9/35
No. of quantitative studies with sample over 100:	14/35
Duration range:	four weeks to two years
Intensity range:	$5 to $270/month

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New Summary Tables!

Medically Tailored Meals Example

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Color codes+

Sample size	
< 100	< 100
≥ 100	≥ 100

+Each green cell in the summary table represents a study with a positive association with the assessed outcome, signifying a positive effect on health outcomes. The darker green cells represent a larger sample size for a positive finding. Each gray cell in the summary table represents a study with a null or no effect finding. The darker gray cells represent a larger sample size for a null or no effect finding.

Findings from EVERY Food is Medicine Study published in the US

Medically Tailored Groceries

Table 11: Medically Tailored Groceries Peer-Reviewed Literature

Author	Study Design	Intervention	Key Findings
Crusan[397] **(2023)**	**Qualitative interviews** n = 15 adult patients recruited from a community health clinic identifying as Latinx and managing a chronic disease	Dietary Approaches to Stop Hypertension (DASH diet) medically tailored food kits	• Food kits with all fresh fruits and vegetables were the preferred model by two-thirds of participants • Themes included a preference for fresh fruits and vegetables over frozen or canned items; common barriers to accessing produce included time, money, and transportation
Finkel[398] **(2023)**	**Qualitative interviews** n = 24 participants n = 10 program stakeholders	Clinic-to-community emergency food assistance program developed in response to food insecurity during the COVID-19 pandemic Participants received approximately 40 pounds of pre-packaged groceries, including vegetables, fruit, whole grains, dairy, and protein twice per month, pick-up or delivery	• Pandemic-related demands and reduced resources motivated participation • Convenience, safety with masks and social distancing, and ease of access facilitated program retention • Participants valued fresh produce and diversity of foods • Stakeholders identified aligned values, flexibility, and communication as key to successful partnerships

Over 100 studies now published in the Food is Medicine literature

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Recommendations

Designing Equity-Centered Food is Medicine Research

1. Food is Medicine research should make health equity central to its methods, conduct, and outcomes because diet-related illnesses and their risk factors are major drivers of health disparities.

Recommendations

Designing Equity-Centered Food is Medicine Research

2 Researchers should seek out and include the perspectives of community members who are eligible to receive the intervention in question. At the same time, researchers and funders should seek out a broad variety of perspectives and partnerships with Food is Medicine implementers.

Recommendations

Designing Equity-Centered Food is Medicine Research

3 Research teams should surface and identify their team members' perspectives and potential biases, and fully engage all team members and partners in study design, planning, and decision-making.

Recommendations

Designing Equity-Centered Food is Medicine Research

4 Teams should monitor study recruitment and retention to ensure that the study population fully represents the population being targeted for the intervention. Participants should also be properly compensated for their time.

Recommendations

Funding Equity-Centered Food is Medicine Research

5 Funders and researchers must ensure that there are adequate resources for the time and necessary steps required for true equity-centered research. This includes time for study planning and training to ensure that researchers fully listen to community and practitioner voices and effectively integrate equity principles into the research design framework.

Recommendations

Funding Equity-Centered Food is Medicine Research

6 Congress should provide the National Institutes of Health (NIH) with significant funding dedicated to Food is Medicine research. The NIH should also leverage its own resources to continue its path-breaking work in emphasizing and expanding Food is Medicine research, including by establishing Food is Medicine Centers of Excellence.

Recommendations

Funding Equity-Centered Food is Medicine Research

7 Health care payers should partner with government agencies and one another to enable more cross-disciplinary Food is Medicine research that is ambitious and builds in equity-centered evaluation components from the outset, especially for high-impact opportunities like state Medicaid waiver programs.

Recommendations

Food is Medicine Study Design

8 Eligibility and inclusion criteria for interventions should fully reflect the diversity of the community being studied.

Recommendations

Food is Medicine Study Design

9 Qualitative research, which examines the perceptions and experiences of participants, clinicians, and program implementers, should be an essential component of new proposals. Human-centered design also prioritizes these values.

Recommendations

Food is Medicine Study Design

Qualitative and human-centered research should include: culturally reflective methodologies that support diverse perspectives and attempt to understand the “why” behind quantitative results.

Recommendations

Food is Medicine Study Design

At the same time, quantitative analyses should leverage comparison groups, either through randomized trials or quasi-experimental approaches, to compare outcomes among those who participate in Food is Medicine programs and similar patients who do not. These studies will provide the strongest evidence and allow successful models to scale.

Recommendations

Food is Medicine Study Design

10 Studies should be designed to test what types of interventions work, at what dose, for what population, and for what duration. For example, researchers can assess the health impacts of providing food interventions plus nutrition education versus providing food interventions alone.

Recommendations

Food is Medicine Study Design

The findings will build the case for health plans and payers to adopt, scale, and tailor coverage for highly effective Food is Medicine interventions.

Recommendations

Food is Medicine Metrics to Advance Clinical and Policy Decision-Making

11 Food is Medicine research should measure a broad set of health outcomes so that research metrics will fully capture the effects of interventions on individual and population health. These could include changes in diet, quality of life, clinical outcomes, mental health, engagement with health care, health care utilization, and cost-effectiveness.

Recommendations

Food is Medicine Metrics to Advance Clinical and Policy Decision-Making

Assessed outcomes should reflect the needs and desires within a community, including participants and their care team, and not simply reflect the interests of researchers.

Recommendations

Food is Medicine Metrics to Advance Clinical and Policy Decision-Making

12 Researchers and experts from the fields of health care, nutrition, public health, and dietetics, as well as Food is Medicine providers and advocacy organizations, should identify a set of meaningful metrics that can be incorporated across Food is Medicine research design and evaluation.

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Recommendations

Food is Medicine Metrics to Advance Clinical and Policy Decision-Making

Health care practitioners should use standardized metrics and validated tools when possible for specific health conditions. Previously developed toolkits, such as the Nutrition Incentive Hub's Core Metrics Toolkit, may be a helpful starting point for metrics development.

Recommendations

Food is Medicine Research Outcomes that Will Support a Common Agenda

13 Research that focuses on prevention and not solely on managing diet-related disease should be expanded—especially for populations, such as children, that can benefit greatly from a prevention model.

Recommendations

Food is Medicine Research Outcomes that Will Support a Common Agenda

14 Researchers should explore, and funding should be available to assess and evaluate, the wider spillover effects of Food is Medicine interventions on improving the health and nutrition security of entire households and not just study participants.

Recommendations

Food is Medicine Research Outcomes that Will Support a Common Agenda

15 As part of the effort to build momentum toward integrating Food is Medicine and health care, health care organizations and payers should increasingly highlight data on the cost-effectiveness of Food is Medicine interventions for specific populations.

Recommendations

Coordinating and Strengthening Related Federal Policy Efforts

16 Government agencies and researchers should coordinate within and across departments to combine data on health outcomes and health care utilization (i.e., from Medicaid, Medicare, and the Veterans Health Administration) with enrollment and benefits data from the US Department of Agriculture and federal nutrition programs.

Recommendations

Coordinating and Strengthening Related Federal Policy Efforts

This will allow researchers to evaluate health outcomes among Food is Medicine participants and within the general population.

Recommendations

Coordinating and Strengthening Related Federal Policy Efforts

17 Food is Medicine research should continue to examine the ripple effects of other outcomes that more broadly address social drivers of health, such as reduced social isolation, household economic stability, and improved mental health in addition to Food is Medicine's impacts on local food systems.

Recommendations

Coordinating and Strengthening Related Federal Policy Efforts

18 Building on the recommendations from the 2022 White House Conference on Hunger, Nutrition, and Health, the US Department of Health and Human Services should continue to lead and coordinate efforts across federal agencies to explore the impact of Food is Medicine interventions on health outcomes, health care utilization, and cost-effectiveness.

Recommendations

Coordinating and Strengthening Related Federal Policy Efforts

HHS should guide federal investments in Food is Medicine research and encourage interagency collaboration. These investments could include cross-sector organizations and agencies working with specific populations like older adults and other vulnerable populations such as pregnant and postpartum women or those with disabilities.

Recommendations

Coordinating and Strengthening Related Federal Policy Efforts

New collaborations will accelerate the integration of evidence-based Food is Medicine interventions across government programs and health care providers.

Thank you to our advisors, colleagues, and everyone who had a hand in helping us put together this report

Food is Medicine: On the Ground Panel Discussion

Please welcome:

- Luisa Furstenberg-Beckman, MPH
  Produce Rx Manager, DC Greens

- Jillian Griffith, MSPH, RDN
  Sr. Health Partnerships Manager, Amazon Access and Aspen Institute Food Leaders Fellow

- Tom McDougall
  Founder and CEO, 4P Foods and Aspen Institute Food Leaders Fellow

- Pamela Schwartz, MPH
  Executive Director, Community Health, Kaiser Foundation Health Plan and Hospitals

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