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- All attendees are in listen-only mode. Submit all of your questions through the chatbox.
- Please put your name + institution into the chatbox.

State-of-the-Science: Food is Medicine in 2023

The Challenge and Promise of Food is Medicine

Hilary Seligman MD MAS

Professor of Medicine and of Epidemiology & Biostatistics, UCSF UCSF Center for Vulnerable Populations





Food Is Medicine



- Integration of specific food and nutrition interventions in, or in close collaboration with, the health care system
- Target population
 - People with or at high risk for certain <u>health conditions</u> (often diet-related)
 - People with or at high risk of <u>food insecurity</u>

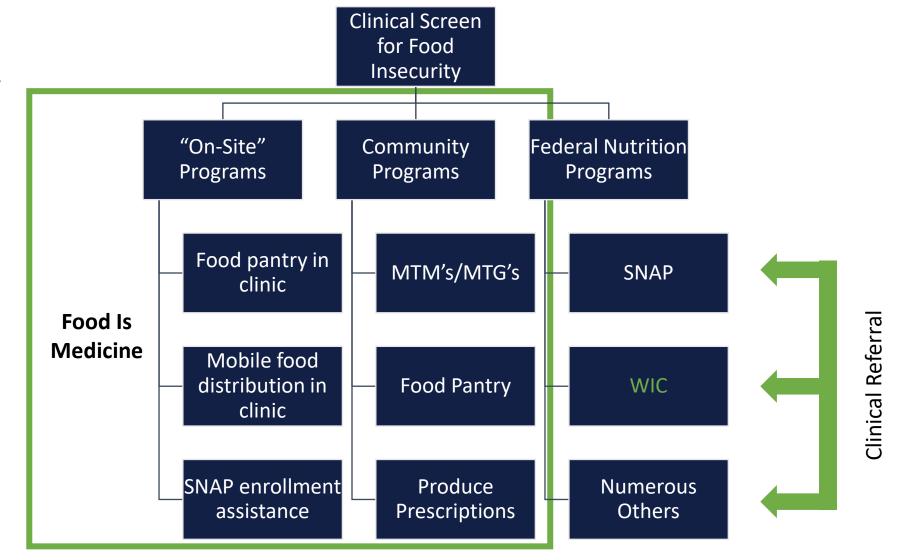
Spectrum of FIM Programs

From the perspective of health care

MTM=Medically Tailored Meals

MTG=Medically Tailored
Groceries

SNAP=Supplemental Nutrition Assistance Program



= "food is medicine"



Largest FIM Program



Food and Nutrition Service
U.S. DEPARTMENT OF AGRICULTURE

PROPOSED UPDATES TO THE WIC FOOD PACKAGES



OVERVIEW

WIC is a powerful public health program, proven to help moms, babies, and young children thrive. USDA's Food and Nutrition Service is recommending science-based updates to the food provided to WIC participants to best meet their nutritional needs and foster healthy growth and development. Some of the proposed changes are highlighted below.



BREASTFEEDING SUPPORT

Increase support for mothers who mostly, but not exclusively, breastfeed to support individual breastfeeding goals



SEAFOOD

Improve access to canned fish to reflect the latest dietary guidance



DAIRY AND EGGS

Provide more options, such as different sizes of yogurt containers or substituting soy yogurt for milk or tofu for eggs



FRUITS AND VEGETABLES

Increase fruit and vegetable benefit by 3-4x, focus on whole fruit, and increase variety of fruits, veggies, and legumes offered



GRAINS

Expand whole grain options to include things like quinoa, blue cornmeal, and whole wheat bagels

Can FIM programs be scaled?

PROVEN

Can FIM programs impact short and long term health outcomes?

PROVEN

Theory of Change









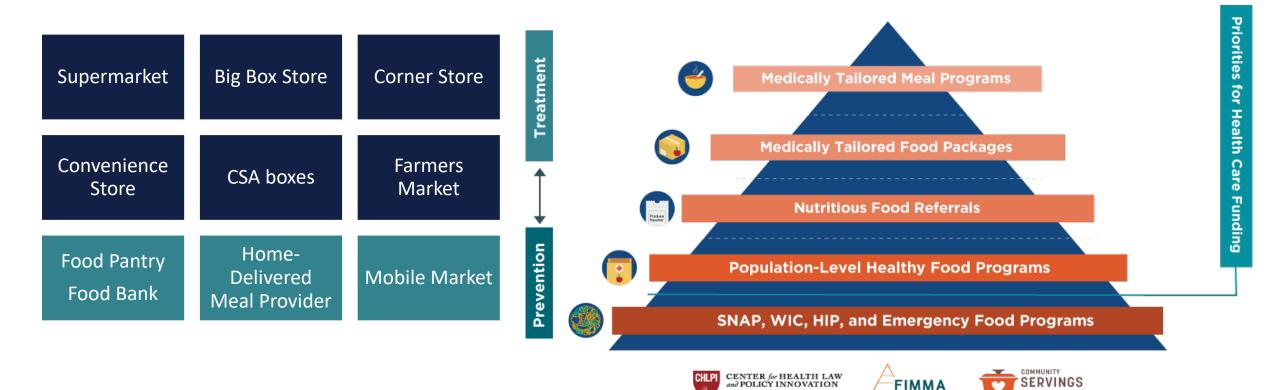




- Data transfer between sectors (health care, CBO, & food vendor)
- Data tracking within the electronic health record
- CBO capacity to provide food how, when, where and at the price that healthcare desires
- Fragmentation of the ecosystem outside of healthcare

System Fragmentation

FOOD IS MEDICINE PYRAMID



"CSA boxes" refers to delivery of foods directly from the farm to a household.

What do we know about the impact of FIM programs?

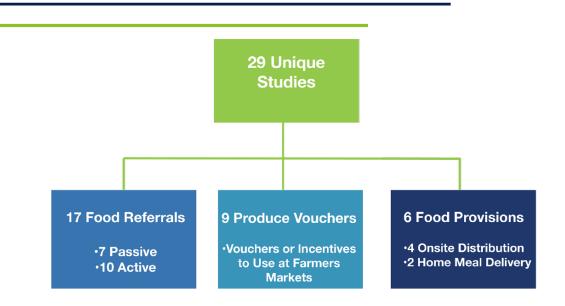
Summary of Research

	Weak Evidence	Moderate Evidence	Strong Evidence	
WIC				
	diet quality, food security, maternal & child birth outcomes, immunization rates, child academic performance			
SNAP	hoolth outcomes red	ucos modication non adh	oronco and roducos	Aspen Inst FIM Research Action Plan
	health outcomes, reduces medication non-adherence, and reduces health care expenditures			MTM's: 10 studies, 2 RCT's, 5 with a ctl group, & 5 with >100 ppts
MTM's	hospital admissions and readmissions, lower medical costs, and improve medication adherence			
MTG's	food security			MTG's: 12 studies, 3 with a ctl group, & 5 with >100 ppts
Produce Prescriptions	diet quality, food security, diabetes outcomes		PP: 27 studies, 5 with a ctl group, & 8 with >100	
On-site programs	diet quality, food secu	urity, diabetes outcomes		ppts

Food Insecurity Interventions in Health Care Settings: A Review of the Evidence

Table 1. Summary of review results: Food insecurity interventions

Figure 1. Number of studies by type of intervention (n=29)



	Impact		
Outcome	Referrals	Vouchers	Food*
Resource use	Mixed (4)	Improved (3)	-
Food security status	Improved [^] (2)	Improved (2)	Improved (1)
Health behaviors	Mixed (2)	Improved* (5)	Improved (1)
Health	Mixed (1)	Mixed (3)	Mixed (2)
Cost/utilization	Mixed (1)	-	Mixed (1)

Numbers in parentheses indicate the number of studies that reported on each outcome.

De Marchis E, Fichtenberg C, Gottlieb LM. Food insecurity inverventions in health care settings: A review of the evidence. 2020. San Francisco, CA: Social Interventions Research & Evaluation Network. Available online.

^{*} Based on two studies of home-delivered meals, and one study of an intervention offering infant formula, nutrition educational materials, and referrals to social work, a medical-legal partnership, and food banks

[^] Based on a study with a sample size 13 and a qualitative retrospective study so should be interpreted with caution.

[#] All five studies found improvements, although in one case only for fruit consumption and in another the improvements were not statistically significant.

Why is the data so limited?

Evaluation Challenges

- Almost all programs reach a small number of people
 - Not suitable* for examining health outcomes, utilization, & cost
- Almost all programs offer a relatively small dose & duration
 - Not suitable* for examining health outcomes, utilization & cost
- Many programs are <u>single-site</u>
 - Limited applicability to the field as a whole
- Bottom line: You need a LOT of data to show an impact
 - Most programs have limited funds available for evaluation



Why is so much data needed to prove impact on health outcomes, utilization, & cost?

- Food security and nutrition programs are generally
 - Better at prevention than at treatment
 - Expected to have an impact over a long length of time
 - Proven by their SMALL effect on a LARGE number of people, rather than their LARGE effect on a SMALL number of people
- If you anticipate a SMALL effect, to show an impact you need
 - A lot of people
 - A long duration of "treatment"
 - A high "dose"
 - A long duration of observation



Where are the opportunities?

Before I get to the opportunities...

- Many of the next slides refer to produce prescription programs
 - There is lots of thought leadership and momentum here right now
- Produce prescription programs are not necessarily the best program for your clinic, your community, your patient population, etc.
- Almost ALL of the concepts are relevant to other FIM interventions

Opportunities for the Field Access to Large Amounts of Data

- Shared metrics across numerous programs
 - eg GusNIP Produce Prescription Programs
- Large health systems with a single electronic health record
 - VA, Indian Health Service, other integrated health systems
- Health insurers
 - Claims data

Produce Prescription Programs in the United States: 2010-2020 Legend Active Produce Prescription Headquarters Counties Covered 11 - 42 43 - 100 Inactive Produce Prescription Program Headquarters Counties Covered US State Boundaries **Number Active Programs: 94** Number of Inactive Programs: 14 Map reflects programs with these components: patient eligibility screening partnership with a healthcare organization prescriptions for healthy produce (fruits & vegetables with no added fats, sugars & salts at no or low cost)

repeated dosage
 retail redemption

Opportunities for the Field: Modeling Studies

Prescribing healthy food in Medicare/Medicaid is cost effective, could improve health outcomes

New study finds that health insurance coverage for healthy food could improve health, reduce healthcare costs, and be highly cost-effective after five years

Medicare/Medicaid: Healthy food prescriptions











Seato

ood Plant o

Insurance covers 30% of cost of eligible

food



\$100 billion

less in healthcare utilization over model population's lifetime



Cost-effective after

5 years

Less diabetes

120

thousand cases prevented or postponed Less cardiovascular disease

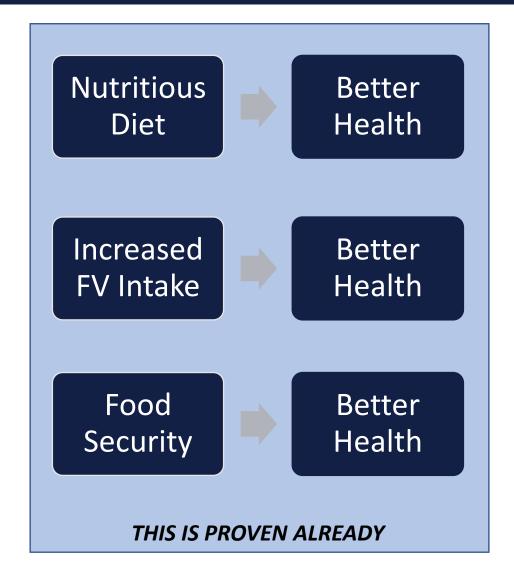
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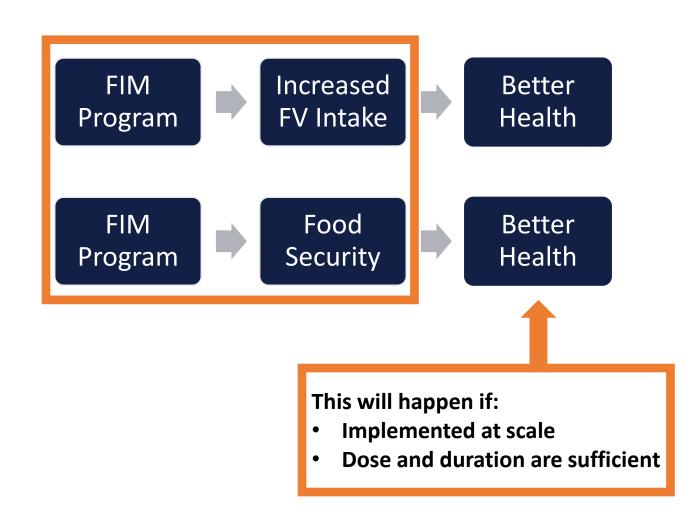
million cases prevented or postponed As or more costeffective than many currently covered medical treatments



For more information, see "Cost-effectiveness of financial incentives for improving diet through Medicare and Medicaid: A microsimulation study" by Lee et al. (2019). https://doi.org/10.1371/journal.pmed.1002761 Gerald J. and Dorothy R. Friedman School of Nutrition Science and Policy at Tufts University

Opportunities for Individual Programs





Opportunities for Individual Programs: Shared Metrics

Budd Nugent N, Byker Shanks C, Seligman HK, Fricke H, Parks CA, Stotz S, Yaroch AL. Accelerating Evaluation of Financial Incentives for Fruits and Vegetables: A Case for Shared Measures. Int J Environ Res Public Health. 2021 Nov 19;18(22):12140.

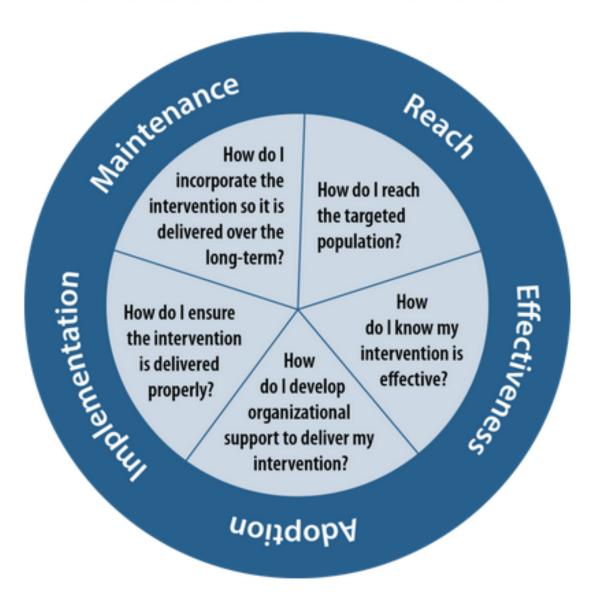
Shared metrics → pooled data → More participants More sites



- Food security
- FV intake
- SNAP participation
- Program satisfaction
- Health status
- Basic demographics

https://www.nutritionincentivehub.org/resources/resources/reporting-evaluation/core-metrics-produce-prescription/participant-level-metrics

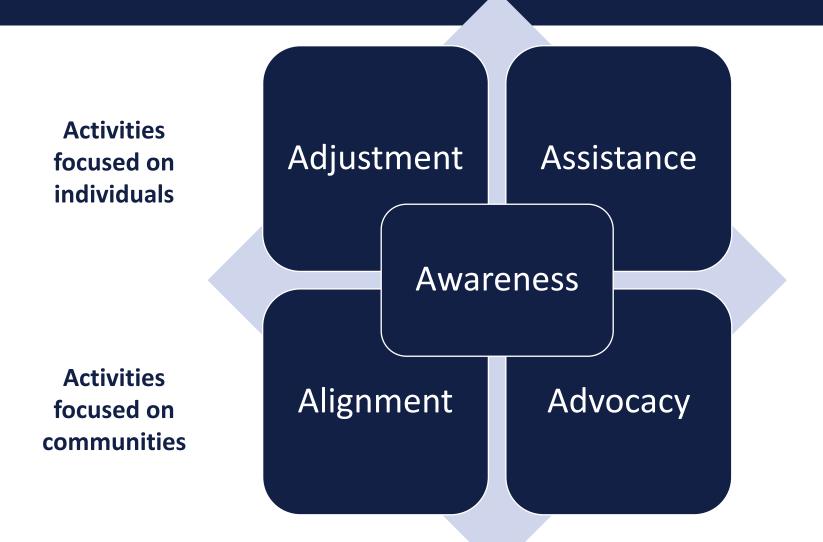
Elements of the RE-AIM Framework



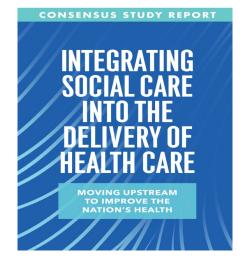
Opportunities for Individual Programs: Implementation Science

Glasgow RE, Vogt TM, Boles SM. Evaluating the public health impact of health promotion interventions: the RE-AIM framework. Am J Publ Health 1999;89(9):1322–7.

NASEM Health Care System Activities that Strengthen Social Care Integration: 5 A's



The National Academies of SCIENCES • ENGINEERING • MEDICINE



A Vision for the Future 5 A's for Food Security

Awareness

Adjustment (Social Risk-Informed Care)

Assistance (Social Risk-Targeted Care)

Alignment & Investment

Advocacy

- Screen patients for food insecurity
- Adjust insulin doses to avoid low blood sugar when food budgets run low
- Enroll patients in FIM programs
- Co-locate food programs in clinical settings
- Partner with local CBO
- Share data about health disparities with food security community organization
- Advocate for policies streamlining enrollment into SNAP

Adapted from: SIREN (Laura Gottlieb)

New NOPREN Resource: Share with Partners!

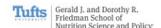
Supporting Food & Nutrition Security through Healthcare

A Resource for Healthcare Systems and their Public Health and Community Partners





Scan the QR code for the PDF or visit: https://nopren.ucsf.edu/resources







Conclusions

- WIC is a FIM that is already <u>proven</u>
 - Scalable
 - Positive impact on health outcomes
- Tremendous momentum toward implementing & evaluating FIM programs across the US
- Evaluation of FIM programs is hard
 - Try to convince your funders that we do not need to re-prove that nutritious food and food security are good for health
 - Right-size your evaluation for the size of your program
 - Examine all elements of the RE-AIM framework, not just effectiveness
 - For effectiveness: consider food security, dietary intake, satisfaction, and redemption rate
 - Use the same metrics others are using
 - We need (and are awaiting)
 - The large, rigorously conducted trial (lots of momentum here)
 - Implementation science approaches to establish best practices



NOPREN State of the Science September 11, 2023



NCCDPHP's Approach to Social Determinants of Health



Built Environment

Human-made surroundings that influence overall community health and people's behaviors that drive health.



Community-Clinical Linkages

Connections made between health care, public health, and community organizations to improve population health.



Food and Nutrition Security

Having reliable access to enough highquality food to avoid hunger and stay healthy.



Social Connectedness

When people or groups have relationships that create a sense of belonging and being cared for, valued, and supported.



Tobacco-Free Policy

Population-based preventive measures to reduce tobacco use and tobacco-related illness and death.

https://www.cdc.gov/chronicdisease/healthequity/sdoh-and-chronic-disease/nccdphps-approach-to-social-determinants-of-health.html

OUR GOAL: OPTIMAL NUTRITION ACROSS THE LIFESPAN

DNPAO works at multiple levels to establish healthier food environments for all











Breastfeeding

Maternal Nutrition

Early Child Nutrition

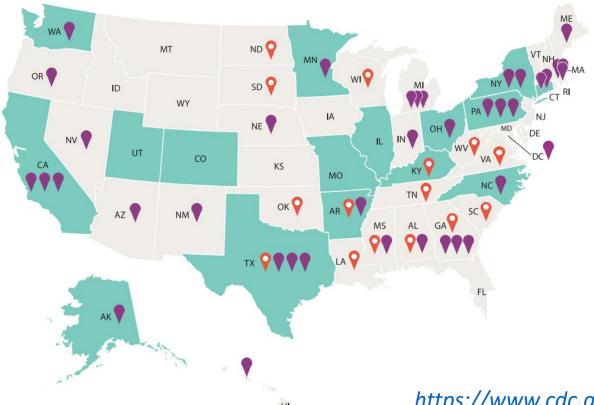
Early Care and Education Farm to Education

Nutrition Standards in Charitable Food Systems Community Food Systems

Food Service Guidelines

Health Equity

Fiscal Year 2022



State Physical Activity and Nutrition Program (SPAN)

 16 state and local recipients strengthening efforts to implement interventions that support healthy nutrition, safe and accessible physical activity, and breastfeeding

High Obesity Program (HOP)

 15 land grant universities leveraging community extension services to increase access to healthier foods and opportunities for physical activity in counties that have more than 40% of adults with obesity

Racial and Ethnic Approaches to Community Health (REACH) Program

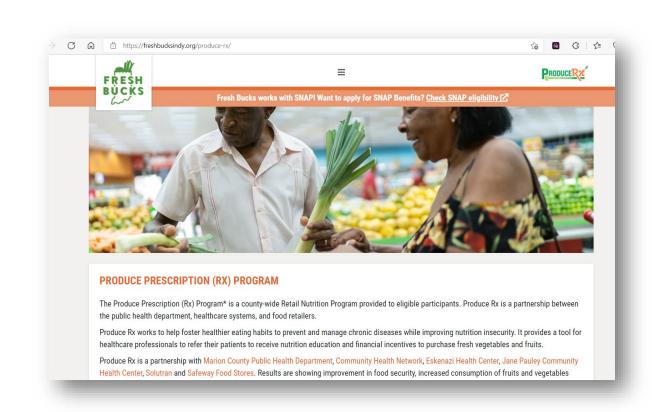
• **40 organizations** aiming to improve health, prevent chronic diseases, and reduce health disparities among racial and ethnic populations with the highest risk, or burden, of chronic disease

https://www.cdc.gov/nccdphp/dnpao/state-local-programs/index.html

DNPAO'S FUNDED PROGRAM RECIPIENTS, 2018-2023

Current REACH Recipients working on FIM: produce prescription Programs

- Eastern Michigan University
- Health & Hospital Corporation of Marion County
- Houston County Board of Health
- Multnomah County Health Department
- Partners in Health
- Presbyterian Healthcare Services
- Penn. State University Hershey Medical Center
- The Y of Coastal Georgia, Inc.
- Navajo Nation

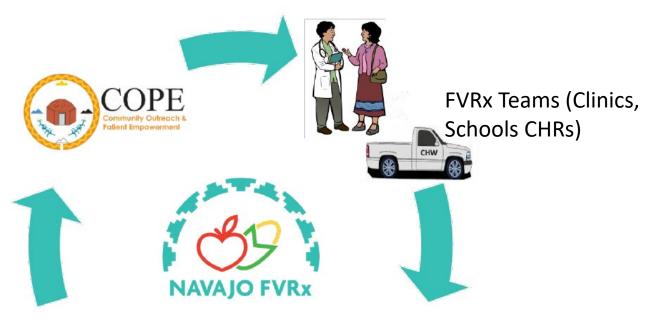


EXAMPLE REACH RECIPIENT WORK: NAVAJO FVRx



Partner with
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COPE trains FVRx teams & processes reimbursements



FVRx Retailers/Growers (Redemption Site)



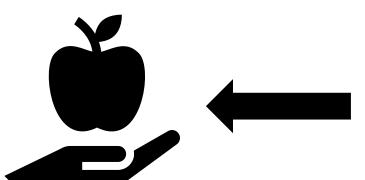


Families Enrolled in the FVRx Program

Example Braided Resources – Marion County REACH

CDC REACH

Health Systems – Community Benefits





Funding, clinical support

Marion County Public Health Department Indianapolis, IN



City of Indianapolis and Local Foundations



USDA GusNIP



Funding, technical support, evaluation

USDA Local Food Purchase Assistance



Recruit/engage BiPOC growers, cultural foods from Hoosier Harvest Market

USDA SNAP Ed



Community outreach, trauma-informed nutrition training (Leah's Pantry)

2023-2028 DNPAO Fruit and vegetable program strategy

Coordinate the uptake and expansion of existing fruit and vegetable voucher incentive **and** produce prescription programs

Short-Term Outcome

Intermediate Outcome

Long-Term Outcome

 Increased access to healthier food Increased purchasing and distribution of healthier foods

- Reduced health disparities in chronic conditions
- Improved health behaviors

2023 – 2028 SPAN, HOP....and REach

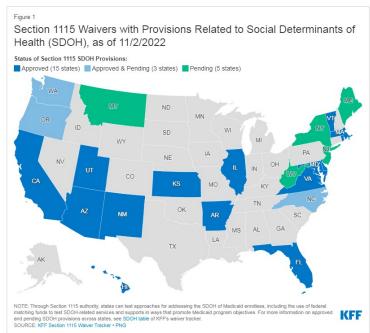


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SPAN Activities for FVP

- Strengthen or launch regional, state, or local food policy councils
 - Also, Food is Medicine Coalitions, etc.
- Engage representatives from Medicaid programs in implementation, expansion, and evaluation incentive or produce prescription programs
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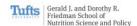


resources

Supporting Food & Nutrition Security through Healthcare

A Resource for Healthcare Systems and their Public Health and Community Partners











Priority Nutrition Strategy: Food Service and Nutrition Guidelines

Promote food service and nutrition guidelines and associated healthy food procurement systems in facilities, programs, or organizations where food is sold, served, or distributed.

https://www.cdc.gov/nutrition/state-and-local-strategies/priority-nutrition-strategy.html



Community
Preventive Services
Task Force

More than 25 years of evidence-based findings for population health

Social Determinants of Health: Fruit and Vegetable Incentive Programs— Effectiveness Review

Ramona Finnie Stacy Harmon Renee Stein Chelsea Pritchard

Community Preventive Services Task Force Meeting October 18, 2023

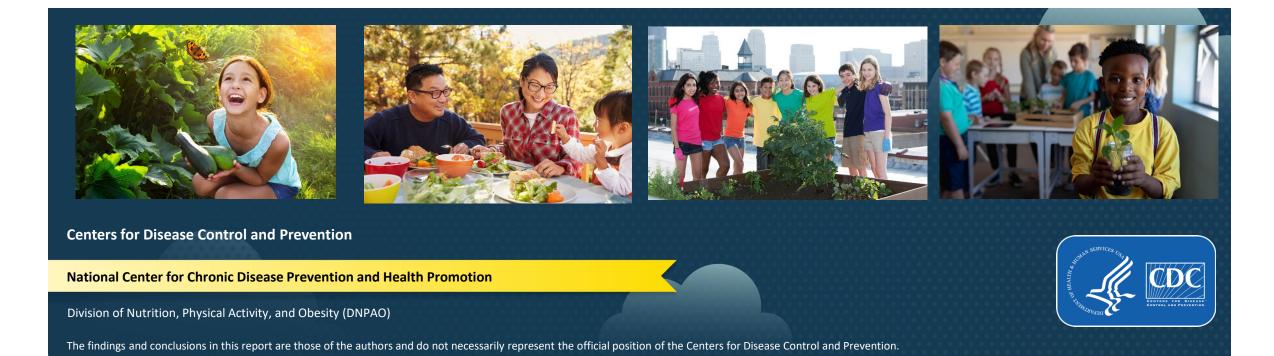




Thank you

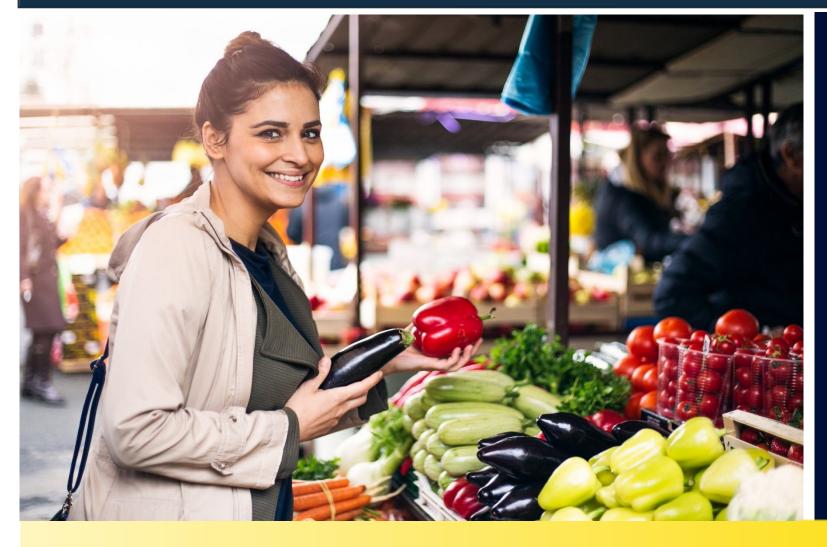
For more information, contact: dmharris@cdc.gov

Help us keep America healthy and strong. See how at: cdc.gov/nccdphp/dnpao



Want to learn more about NOPREN or join the network?
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DNPAO-FUNDED
PROGRAMS
ADDRESSING
FOOD IS
MEDICINE

DIANE HARRIS, PHD MPH

LEAD, HEALTHY FOOD ENVIRONMENTS TEAM

DIV. NUTRITION, PHYSICAL ACTIVITY AND OBESITY

NOPREN State of the Science September 11, 2023



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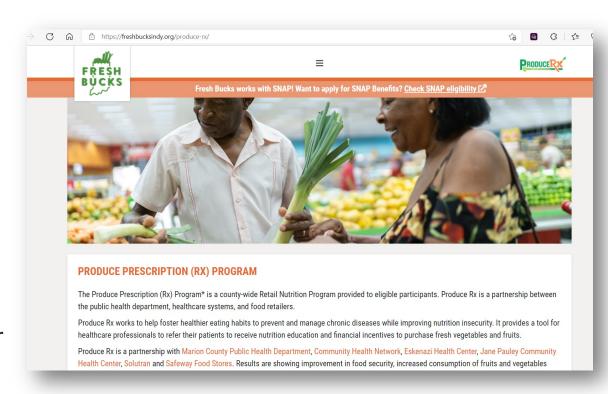
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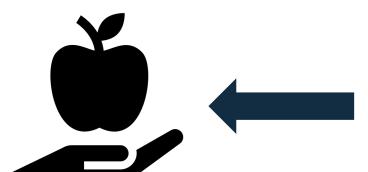
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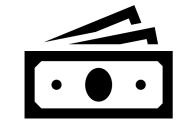


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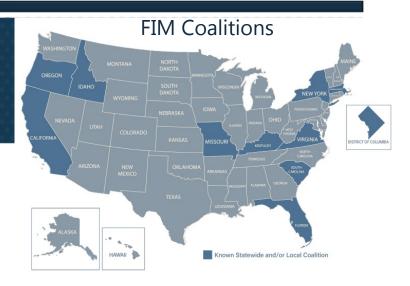


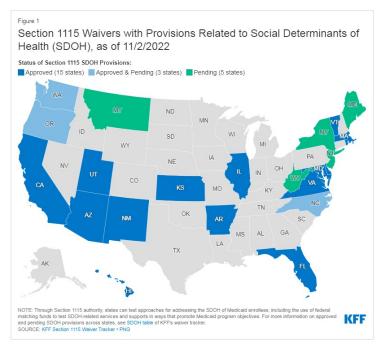
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https://chlpi.org/wp-content/uploads/2023/06/Mainstreaming-Produce-Prescriptions-in-Medicaid-Managed-Care-V6.pdf https://www.kff.org/medicaid/issue-brief/section-1115-waiver-watch-approvals-to-address-health-related-social-needs/





RESOURCES

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Heather Vecsey Ramona Finnie Stacy Harmon Renee Stein Chelsea Pritchard

Community Preventive Services Task Force Meeting October 18, 2023





- FVP included in 3 DNPAO funding programs
- Importance of role for public health, including coordinating state policies and systems
- Emphasis on multisectoral partnerships and leveraging multiple funding sources



THANK YOU

For more information, contact: dmharris@cdc.gov

Help us keep America healthy and strong. See how at: cdc.gov/nccdphp/dnpao



Centers for Disease Control and Prevention

National Center for Chronic Disease Prevention and Health Promotion

Division of Nutrition, Physical Activity, and Obesity (DNPAO)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.



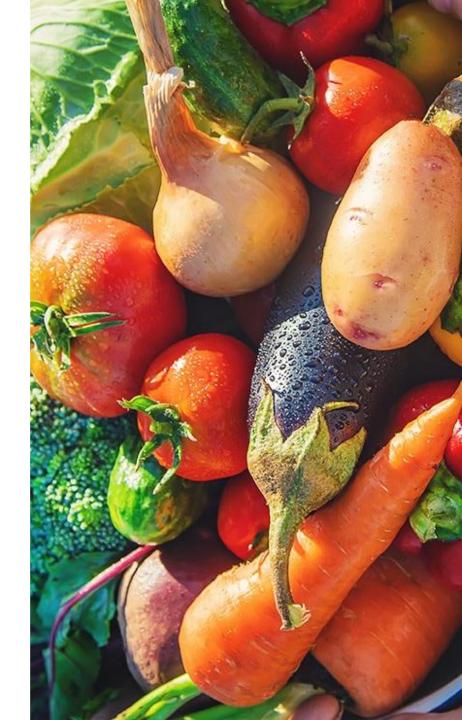


USDA's Actions on Food and Nutrition Security: Integrating Nutrition & Health

NOPREN State of the Science – Food is Medicine

Caree Cotwright, PhD, RDN
Director of Nutrition Security and Health Equity

September 8, 2023



White House Conference on Hunger, Nutrition, and Health







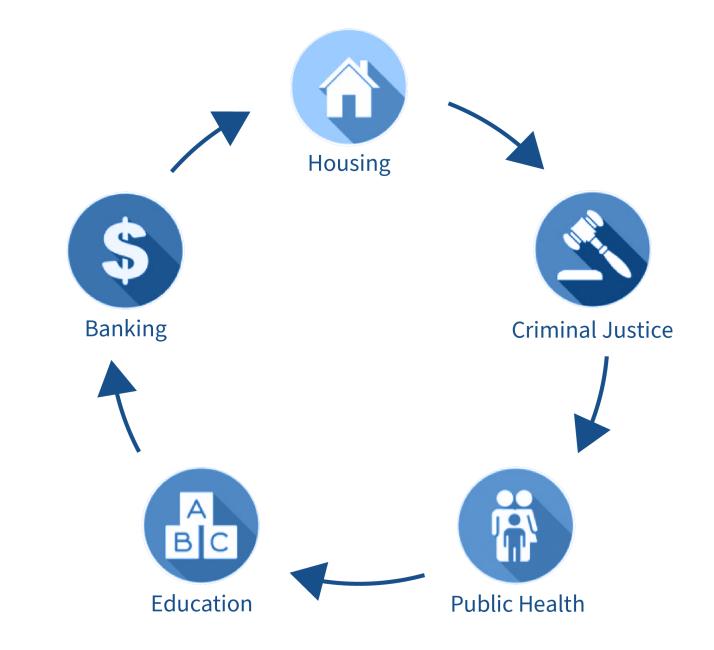




Equity Accomplishments

- Reducing barriers to USDA programs
- Partnering with trusted technical assistance providers
- Directing USDA programs to those who need them the most
- Expanding equitable access to USDA nutrition assistance programs
- Advancing equity in Federal procurement
- Updating Federal trust and treaty responsibilities to Indian Tribes
- Committing unwaveringly to civil rights
- Operating with transparency and accountability

Dismantling structural inequities











1 in 4 Americans is served by USDA's nutrition assistance programs



USDA's Four-Pillar Approach

Meaningful Support



Healthy Food



Collaborative Action



Equitable Systems



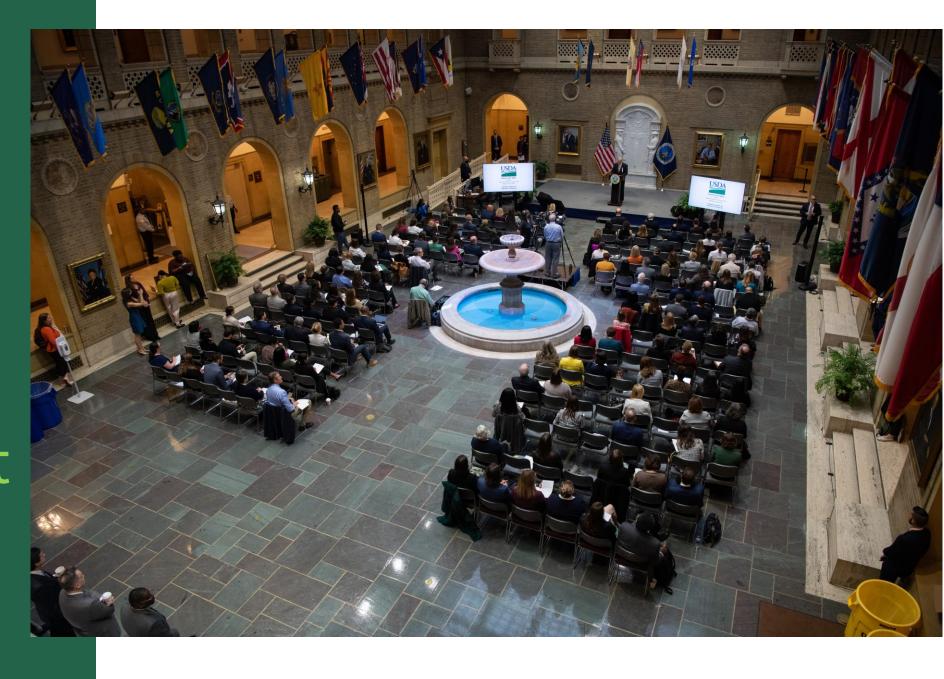




SNAP reduces healthcare costs

- Reaches more than 41 Million
 Americans each month
- Lowers participants' annual health costs ~ \$1,400 or nearly 25% less in medical care in a year

Goal: Encourage action and engagement





Thank You & Stay Connected



www.usda.gov/nutrition-security



USDA is an equal opportunity provider and employer.

