



FOOD AND AGRARIAN SYSTEMS PROGRAM
& CENTER FOR RURAL ENGAGEMENT

Southern Indiana Farm to Health: Experiments in community-designed and –driven FIM

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Agenda

1) Background on Food Is Medicine (FIM) strategies

2) Our work:

- 4 years implementing & evaluating community-designed FIM in rural Indiana

3) Your questions & ideas about FIM

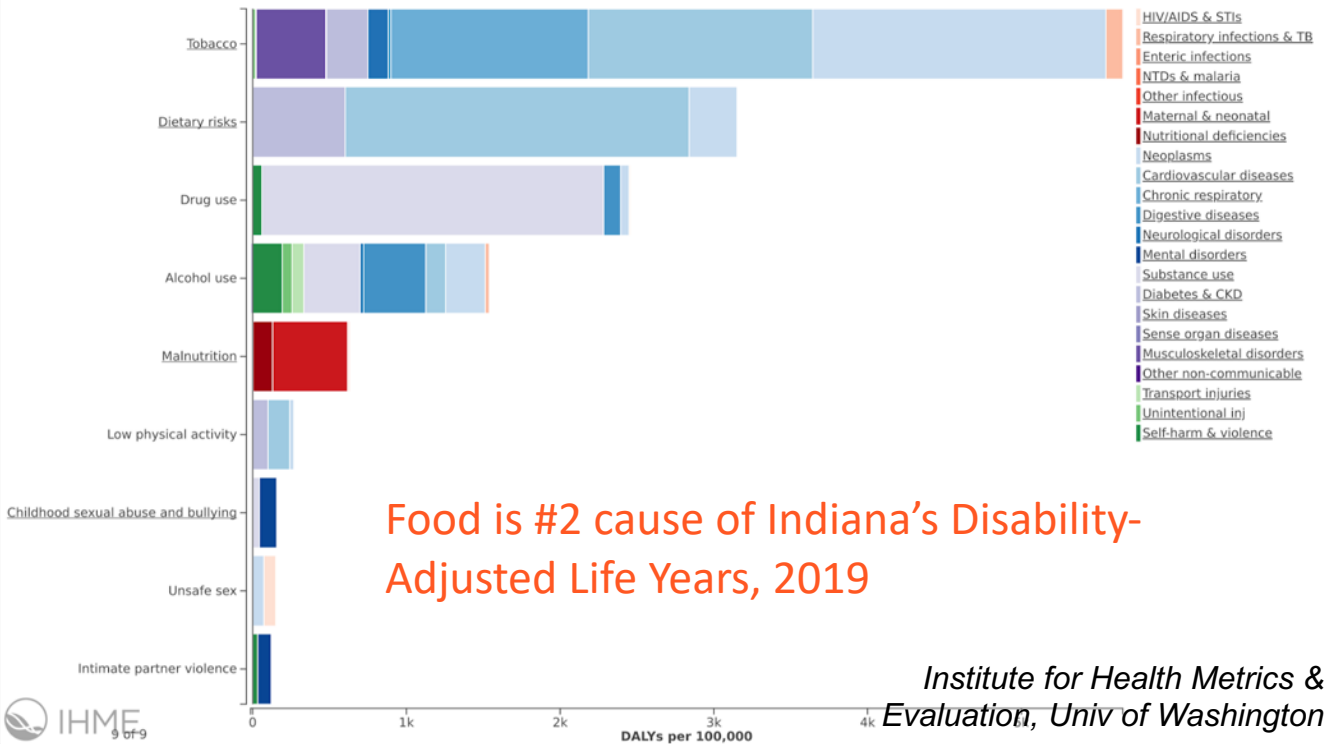
*Paoli, Indiana
rural grocery*

Motivations for Food Is Medicine work

1. Chronic diseases:
 2. Widespread and burdensome
 3. Expensive: 90% of our nation's medical care costs
 4. Food is the #2 cause behind tobacco
 5. Dietary patterns accumulate over decades
6. Produce prescriptions aim to help people shift their dietary patterns
7. By increasing fruit & vegetable intake

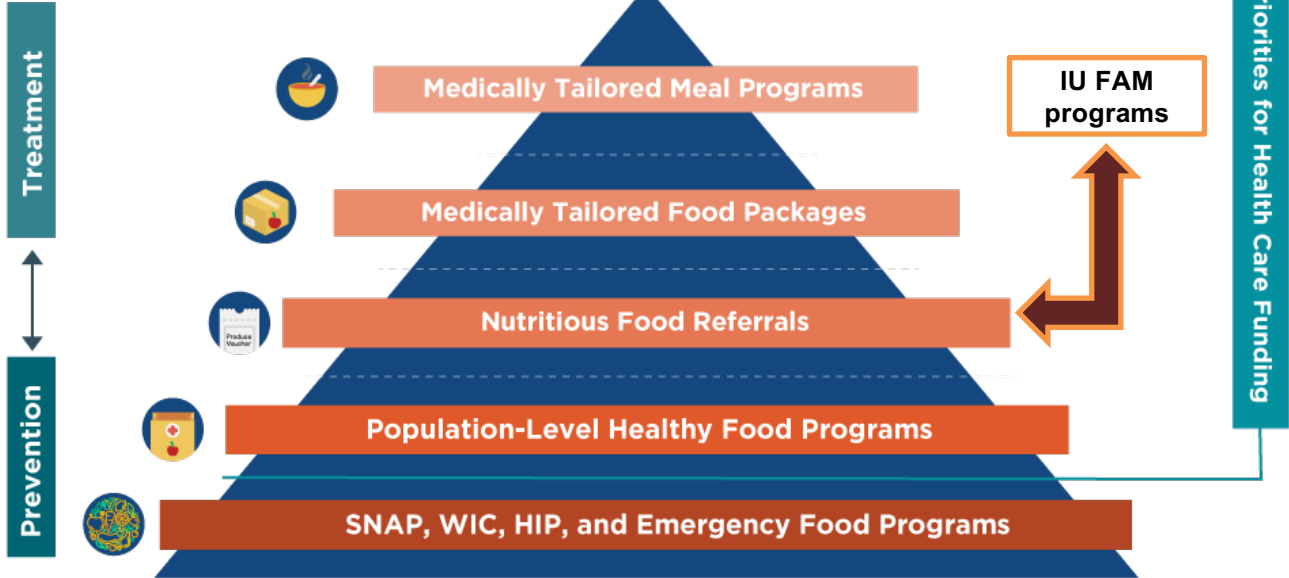


Indiana, Both sexes, All ages, 2019



Institute for Health Metrics & Evaluation, Univ of Washington

FOOD IS MEDICINE PYRAMID



Effects of FIM: Consensus in literature

Increase veg/fruit intake by 1 serving per day

That's a lot

(In our studies: 77% of people eat less than 1 veg/day at baseline)

Effects can rival those of pharma:

Average Hba1c reduction from FIM = 0.7% / from a pharmaceutical = 0.5%

Cost effective intervention - best buy - as cost-effective as statin drugs

Short term: Good effects on nutrition security

Long term: Potential direct effects on chronic disease burden



What is Food as Medicine?



- Unlocking the power of food
- Centering food in medical care
- Effects can rival pharmaceuticals
 - Access to nutritious food
 - Ease of cooking it
 - For us – local food!

“The Tufts-Delta pharmacies stocked food along with medicines, and practitioners who worked there wrote vouchers for food at local stores.”

- 1960s Mississippi
White, *Freedom Farmers*, 2018



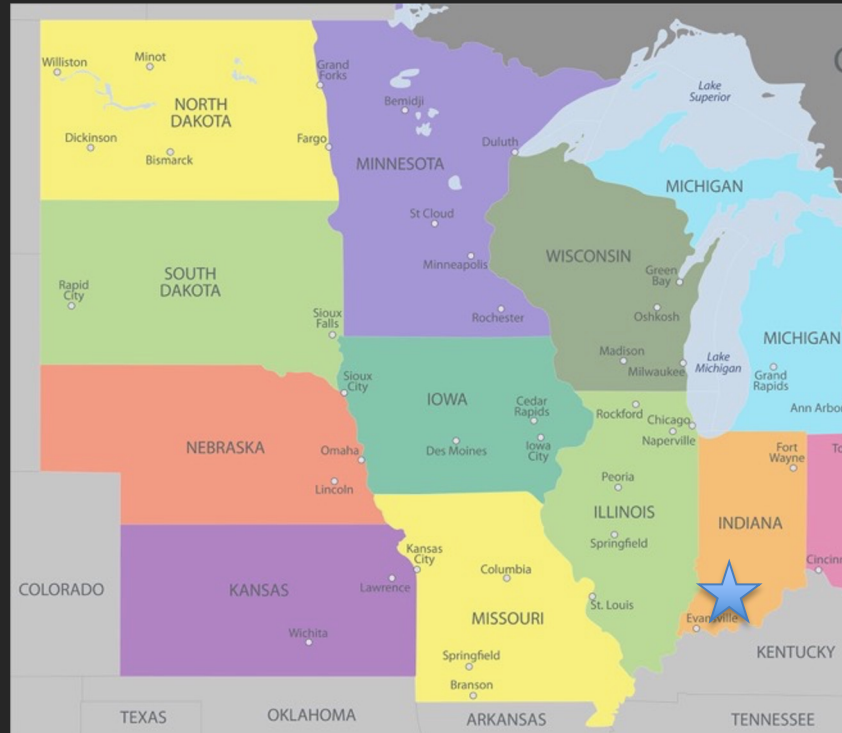
Phase 1: Our FIM pilot

- The catalysts for our pilot: a rural grocery and a rural clinic
- Store's goals: to grow business + serve community
- Clinic's goals: tackle chronic disease burden, diabetes especially
- Store and clinic leaders imagined & planned FIM
- Networked 30 local farmers
- Weekly food pickups from farms



The place

- Hilly, rocky land
- Lots of small, food farmers
- Rural: 45 people per square mile (versus 189 for Indiana / 94 for USA)
- Lower income: Median household income is \$49,000 (65% of US national median of \$65,000)



Our first FIM funders

- Indiana University Center for Rural Engagement
- ^^ Lilly Endowment



PHASE 1 FIM: 2020-2021

The Farm to Health Nutrition Box

The Farm to Health Nutrition Box

- One weekly meal kit for 3mo
- Very low dose!
- Education by a local dietitian
- *Cooking Matters* curriculum
- COVID required pivot to virtual
- Recruitment by local FQHC



AN INVITATION FOR:
SICHHC PATIENTS
WITH DIABETES AND
PRE-DIABETES

SOUTHERN INDIANA FARM TO HEALTH NUTRITION PRESCRIPTION PROGRAM

Ask your provider if you can join a research program providing access to fresh, local food as medicine. We are working to understand the health outcomes of healthy eating for patients with diabetes and pre-diabetes. You may qualify!

ELIGIBILITY GUIDELINES:

AGE 18+

HEMOGLOBIN A1C TEST OF 7%+

WEIGHT 110+ POUNDS

Interested? Tell your provider by July 24th for a chance to participate!



Figure Y. Intervention Calendar

	Recipe	Local Produce Provided
June	Herb Roasted Chicken with Vegetables	Carrots Potato Chicken
July	Turkey Tacos	Lettuce Zucchini Turkey
July	Tabbouleh	Green Onion Parsley Tomato Cucumber
July	Ratatouille	Onion Zucchini Tomato Yellow Squash Garlic
July	Summer Vegetable Pasta Salad	Cucumber Summer Squash
July	Melon Salsa	Onion Cucumber Cantaloupe
August	Green Bean Casserole	Green Beans
August	Tomato Salsa	Red Onion Tomato Jalapeno Peppers
August	Tomato Sauce and Spaghetti with Meatballs	Onion Tomato Garlic Beef Eggs
August	The Works Pizza	Onion Tomato Red Pepper Green Pepper

Seasonal meal kit recipes

		Onion Tomato Red Pepper Green Pepper
September	Roasted Butternut Squash	Maple Syrup Butternut Squash
September	Tuna Melt	Tomato
September	Sweet Potato Shepherd's Pie	Onion Garlic Sweet Potato Beef
September	Mushroom Garlic Angel Hair Pasta	Garlic Red Pepper
October	Fall Vegetable Salad	Beet Garlic Kale Fennel Apple
October	Sweet Potato Pumpkin Soup	Pumpkin Onion Sweet Potato
October	Chicken Salad with Peanut Dressing	Lettuce Red Pepper Apple Chicken
October	Hoppin' John	Onion Garlic Red Pepper Ham
October	Crescent Mummy Rolls	None
November	Hearty Egg Burritos	Green Onion Garlic Bell Pepper Eggs



The Nutrition Box evaluation

- Randomized controlled trial
- All participants had diabetes (HbA1c of 7%+)
- 60 people recruited and consented
- Half randomized to intervention, half to control
- Assessment at 3 time points:
 - Baseline
 - Post-intervention (@ 3 months)
 - Long-term (@ 9 months)



Participant profile 1

Characteristic	Study participants	2 study counties	USA
Food insecurity	68%	14%	12%
Education	18% < HS 39% HS / GED 43% any college	17% < HS 45% HS / GED 38% any college	9% < HS 28% HS / GED 63% any college
Race	100% white 3% NativeAmerican	96% white 2% NativeAmerican	59% white 2% NativeAmerican
Disability	61%	19%	13%



Participant profile 2

- COVID-19
- Internet
- BMI = 38
- Diabetes = 9.3% HBA1C



Results: Significant differences between groups

- Differences emerged during long-term follow-up
- Intervention participants stabilized
- Clinical markers: Obesity & diabetes
- Foods: Sodium & salad

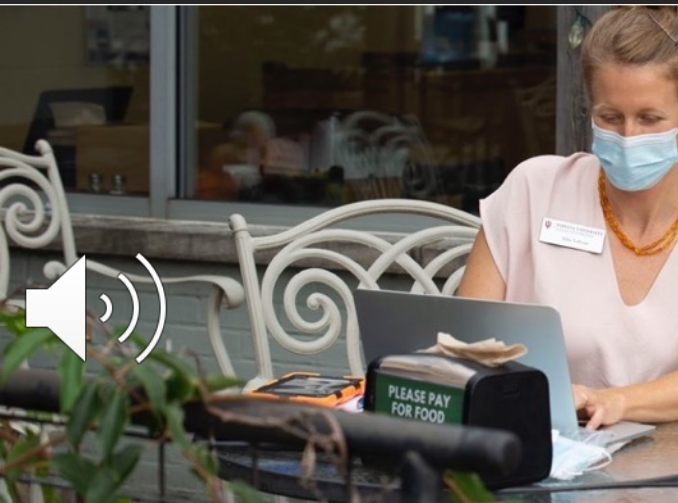
Divergence between groups, from baseline to 9-month follow-up:

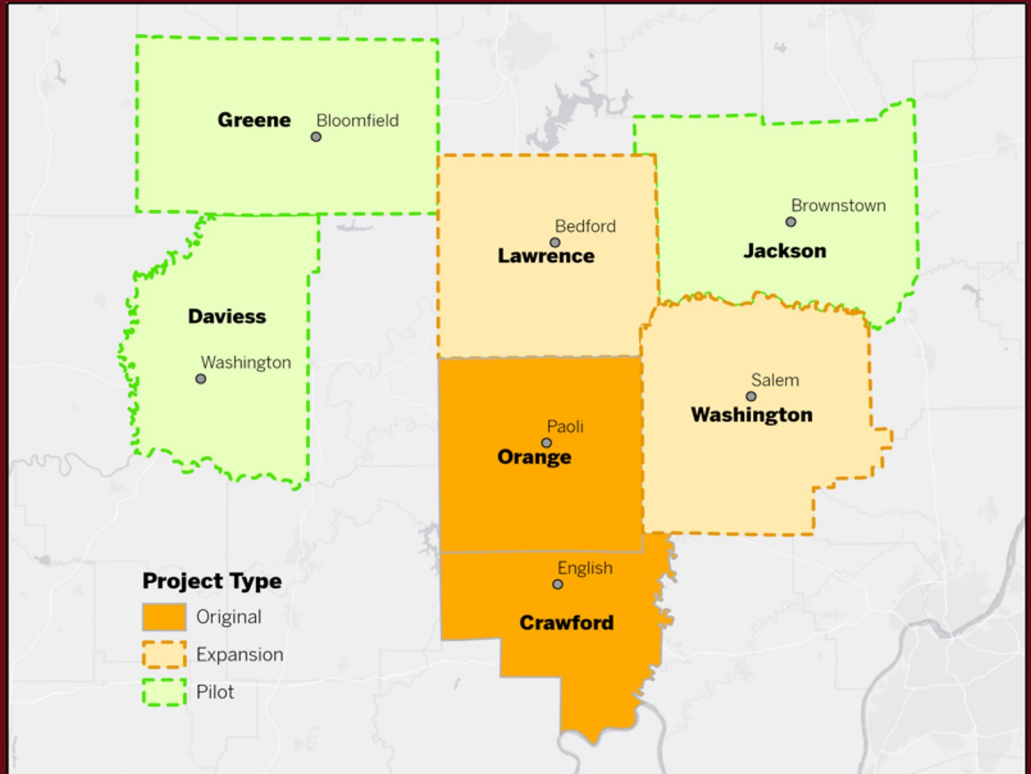
- BMI: 7.1% ($p=0.007$)
- HbA1c: 3.0% ($p=0.027$)



Results: qualitative

1. Most Significant Change method
2. Play Earth Eats





Southern Indiana Food As Medicine

Phase 2 actions

The purpose:

- Partnership building
- Develop rural local food systems & lay groundwork for future FAM collaboration

Action:

- Expand pilot from 2 counties to 7
- Expand rural grocery coverage to 4 counties

Funders:

- CDC
- Indiana Department of Health

“We saw the fragility of the global food system firsthand, not being able to get orders, so we are creating a safety net on the chance that something like that would happen again.”

- Brandon Query Bey, Healthy Initiatives Coordinator, Lost River Market and Deli



Our FIM model



How our Food As Medicine works

- 1) Plan a seasonal recipe calendar
 - 1) Feature local produce when it's abundant and low cost
- 2) Recruit and enroll participants through public health and medical partners
- 3) Purchase food, build the meal kits, give them out, include necessary kitchen tools
- 4) Teach participants how to cook them, and about nutrition
- 5) Assess how it all went for partners and participants

(Garlic butter chicken bites w/ lemon asparagus)

Our FIM model: Diversity of rural program designs



Participants: moms, immigrant meatpackers, shelter and food pantry patrons, senior / disabled housing residents, etc....

Languages: Haitian/Creole, Spanish

Health / medical: perinatal navigation, WIC, clinics, low-income residence communities, 4-H, schools, etc....

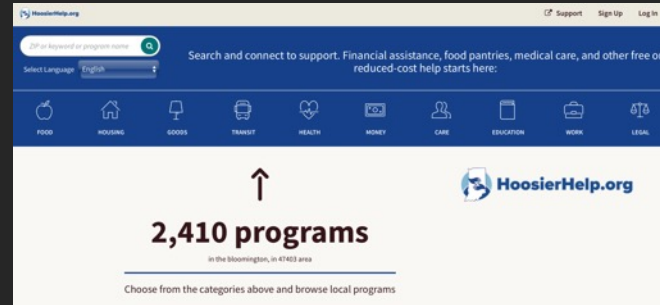
Local food: farmers markets, mobile market, local rural grocers

Linton Senior Center @ Glenburn Home incorporates fresh local foods into congregate meals



Referral tool: HoosierHelp.org

- Online tool used by FIM recruitment partners
- Refers to many types of public health services
- Most searches are for food & housing
- IU Center of Community-Engaged Dissemination & Implementation Research



Cost to deliver

Cost / Serving	Greene County FAM	Home Chef	Hello Fresh
Food	\$3.89	-	-
Food + Labor*	\$6.68	<u>\$8.99</u>	<u>\$7.99</u>

- Other costs to consider
- Language translation
 - Venue or space fees
 - Nutrition education
 - Travel
 - Participant incentives
 - Cooking supplies
 - Promotion
 - Equipment



Sesame noodles with carrots and beef



Pasta with chickpeas and swiss chard



Skillet brats and veggies

CONCLUSION

Reflections on our work in FIM

Pros and cons of our model

- Meal kit versus just produce
- Costs are low, but grant funded
- Need sustaining investment source
 - Insurers, employers, policy
- Good case for that (evidence, modeling)
- Reaches networks of people
 - Builds local food access & community around food
 - Dismantles loneliness

Easy one-skillet zucchini lasagna



Summary & program continuation

- Even our low-dose, community-designed intervention stimulated changes
 - Clinically relevant
- Continue building partnerships:
 - Research + programmatic
 - Local rural cross-sector leadership
- Supporting access:
 - Rural farmers markets and groceries are a huge asset
 - Individuals versus networks



Thank you!

- All the partners in Indiana's Crawford, Daviess, Greene, Jackson, Lawrence, Orange & Washington counties
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- IU team members: Jeni Waters, Kyla Cox Deckard, Jacob Simpson, Nick Smaligo, Jodee Smith, Kathleen Sobiech & students
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