

The Food Pharmacy at Haven Free Clinic
Public Health and Well-Being Research and Project Grants for Medical Students
New Haven County Medical Association Foundation
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Name of Applicant (First/Last): Katrina Dietsche and Jason Weinstein

Medical School: Yale School of Medicine

Projected Graduation Date (Month/Year): May 2027

Advisor Name: Dr. Angela Kang-Giaino

Advisor Title/Role: Assistant Professor of Medicine

Section 1: Eligibility

Please check the boxes below to confirm that you meet the eligibility requirements for this grant application:

X I confirm that I am currently enrolled at either the Frank H. Neter MD School of Medicine at Quinnipiac University or the Yale School of Medicine.

X I understand that grant recipients will be required to present the final results of their project at the annual NHCMA winter meeting in 2025 (date TBA).

Section 2: Introduction and Purpose

1. What is the specific public health issue or challenge your project/research aims to address in the Greater New Haven area?

Our project addresses the critical issue of food insecurity and its impact on chronic metabolic diseases in the Greater New Haven area. Food insecurity, defined as the lack of consistent access to nutritious food, disproportionately affects underserved populations, including Black and Latinx communities. In Connecticut, food insecurity rates surged to 23% in 2022, far exceeding the national average. Individuals experiencing food insecurity are more likely to have type 2 diabetes, high blood pressure, and poorer mental health. These disparities exacerbate health inequities for vulnerable populations.

Our goal is to establish a Food Pharmacy at the HAVEN Free Clinic at Yale. The food pharmacy will screen patients at the free clinic for food insecurity and metabolically related chronic diseases such as diabetes, hypertension, and obesity. These patients will receive healthy groceries tailored to their specific chronic disease condition. Additionally, we will provide nutritional education and recipes for preparing the groceries. Our objective is to increase access to healthy groceries, improve patient health outcomes, and increase nutrition education.

2. How does your project align with the mission of the NHCMA Foundation: to promote health and well-being in Greater New Haven area?

The HAVEN Food Pharmacy aligns with the NHCMA Foundation's mission by improving the quality and availability of healthcare for food-insecure populations. A cornerstone of disease management for nutritionally related chronic diseases is nutrition education. However, because of the prevalence of food insecurity, many patients who receive counseling cannot afford the healthy food they are encouraged to buy. Providing healthy groceries to patients will directly improve patient health by working as an adjunct to the pharmacological interventions provided by their care team. Additionally, providing nutritious food to patients helps with patient self-efficacy and autonomy in disease management. Equipping patients with the knowledge and necessary ingredients to create meals that will directly improve their health will increase confidence in themselves and the healthcare system. Overall, providing patients with healthy

groceries and education should increase the overall health and well-being of individuals in the Greater New Haven area.

3. How will your project directly benefit the residents of the Greater New Haven area?

The HAVEN Free Clinic Food Pharmacy will directly benefit the residents of New Haven through multiple levels of support: addressing financial, nutritional, and social needs.

Patients will save money on groceries by receiving free, nutritious food. The program will also help patients save time by reducing the need for frequent trips to grocery stores, particularly for those with limited transportation or mobility. This frees up both resources and energy for individuals managing chronic diseases like diabetes and hypertension.

The groceries provided will be medically tailored to meet patients' specific health needs, based on dietary guidelines for chronic diseases. Patients will receive guidance on food storage, recipe preparation, and how to incorporate these ingredients into balanced meals. This support ensures that patients are not only receiving food but are empowered to use it effectively to improve their health.

Finally, each patient will be paired with a volunteer who will walk them through the groceries they are receiving, explaining how to prepare them and answering any questions. This personal interaction fosters confidence in using the food provided and encourages feedback on which foods patients enjoy and find most helpful. The volunteer pairing also strengthens community bonds, offering emotional support and creating an environment where patients feel understood and cared for.

Through this combination of financial relief, nutritional guidance, and personal support, the Food Pharmacy will holistically improve the well-being of patients in Greater New Haven.

Section 3: Proposal

I. Mission/Background

According to the USDA's data, a substantial proportion of U.S. households grapple with food insecurity. In 2022, 12.8% of U.S. households, comprising 17.0 million individuals, experienced food insecurity. In Connecticut alone, the rise in food insecurity rates, from 12% to 23% within a year, surpassing the national average, highlights the gravity of the situation and the necessity for localized solutions. Moreover, disparities in food insecurity, particularly affecting Black and Latinx individuals, underscore the need for targeted interventions to promote equity in food access.

The concept of Food Pharmacies is not novel, with successful examples already in place across the country. Programs like the Food Farmacy at Penn Medicine Lancaster General Health, the Food Pharmacy program at Children's National Hospital, and Fair Haven Community Health Care's initiative in New Haven serve as models for effective implementation. These programs have demonstrated tangible benefits, including improvements in health metrics, increased nutrition knowledge, and enhanced community engagement. By leveraging existing successful models, our initiative at HAVEN Free Clinic can build upon proven strategies to address food insecurity and promote holistic healthcare delivery in our community.

In conclusion, the establishment of a Food Pharmacy at HAVEN Free Clinic represents a vital step towards addressing food insecurity and promoting holistic healthcare delivery in the Greater New Haven community. By harnessing successful models, leveraging national momentum, and collaborating with government and private sector partners, our initiative has the potential to make a meaningful impact on the health and well-being of underserved populations.

I. Objectives

1. To provide healthy groceries to families of individuals who screen positive for food insecurity and have some aspect of metabolic syndrome
2. To reduce rates of food insecurity in patients at HAVEN free clinic
3. To improve patient health outcomes through monitoring clinical markers of chronic disease progression

II. Methods:

HAVEN Free Clinic and inclusion criteria

The food pharmacy will partner with the HAVEN free clinic at Yale. This clinic is for individuals who are uninsured or underinsured. It is open Saturday mornings from 8AM to 2PM.

The clinic sees approximately 50 unique patients each day. Patients will be recruited based on positive screening for food insecurity status and the presence of diabetes, obesity, hypertension, dyslipidemia, and fatty liver. Patients must also have access to a kitchen.

Individual patients will be recruited from the food pharmacy, however, groceries will be provided based on the family size of the individual. Studies show that groceries provided for an individual patient in a food is medicine intervention are redistributed to the whole family regardless of the study intention. Additionally, family-based interventions are consistently shown to improve health outcomes over individual-based interventions.

Grocery planning, sourcing, and handling

Groceries lists will be generated weekly by a team of dietary advisors. This team is overseen by registered dietitians. The grocery bags will be designed to supply 10-15 servings of meals to a patient and their family. Nutrient density and meals are based on CDC and SNAP recommendations resource. Patients and volunteers will engage in shared decision-making to ensure a variety of healthy but enjoyable groceries are acquired each week.

All food provided to patients at the Food Pharmacy will be received or bought on the morning of Saturday clinic. No food will be stored overnight. Grocery items will be purchased at a local grocery store based on seasonality and availability.

Volunteers will be Yale undergraduate and graduate students. Volunteers will be required to complete HAVEN's clinic training and food safety modules. The training modules will be guided by the "food safety training for pantries and backpack programs" organized by Connecticut Foodshare.

Food Pharmacy Workflow

Food Pharmacy volunteers will arrive at the physicians building at 8 AM on Saturday to set up tents, tables, bins, coolers, and bags for food collection. Another set of volunteers will drive to a local grocery store to collect the required grocery items for the week. Groceries will be transported in coolers and food safety-compliant bins. Food will be organized on tables outside of the HAVEN free clinic.

Patients will be screened for food insecurity and a metabolic condition by their healthcare team in the clinic. If they are eligible, they will receive a food pharmacy referral card from the clinic team. Following patients' clinic visits, they will be directed to the food pharmacy outside the clinic. Upon arrival, a volunteer will be partnered with each patient. Patients will report their family size and health condition to aid with grocery selection. Volunteers will then learn about patients' food preferences and walk them through the options for the week. Volunteers and patients will work together to gather groceries that help target the patient's disease. Patients will receive 10-15 meals worth of groceries to support them for the week. Patients will be invited to come back weekly to receive groceries from the food pharmacy.

III. Timeline, research collection, and outcome measurements

Phase 1: Co-design and food pharmacy pilot		Phase 2: Food pharmacy		
1-2 months		6-10 months		
Participants	Methods	Participants	Pre-Intervention methods (day 1)	Post Intervention methods (6 months)
<p>Co-design: 30-55 HAVEN Free Clinic patients will be randomly called to receive a survey</p> <p>Food pharmacy pilot: Patients who arrive at the free clinic will be randomly referred to the Food Pharmacy based on need</p>	<p>Co-design: Volunteers administer phone surveys to participants</p> <p>Survey assesses: -Patients input on food pharmacy design -Food preferences -Kitchen competency -Education preferences</p> <p>Food Pharmacy pilot -Food pharmacy leads shop for groceries -Volunteers organize Food Pharmacy on Saturday morning clinic days -Patient Services Team alerts participants of Food Pharmacy availability -Volunteers administer food to participants regularly (e.g., weekly or biweekly)</p>	<p>5-10 individuals and their families will be enrolled in the food pharmacy to receive medically tailored groceries. Participants will be added on a rolling basis.</p> <p>Inclusion criteria: -Positive for food insecurity -Diagnosed with obesity, diabetes, hypertension, dyslipidemia, or fatty liver disease -Access to *full kitchen to cook groceries -Willing to come to Food Pharmacy 1-2 times/month</p> <p>Exclusion criteria: -Participated in food pharmacy pilot</p> <p>*full kitchen includes refrigerator, freezer, stove, and pots and pans.</p>	<p>Validated surveys: - Dietary Screener Questionnaire (DSQ-10) - USDA Six-Item Food Security Module - Two-item barrier to fruit/vegetable questionnaire - Perceived stress (PSQ-10) -General Belonging Scale (GBS) -Survey on lifestyle changes</p> <p>Biomarkers: -HbA1c -BMI -Weight -Blood pressure -Triglycerides -LDL</p>	<p>Validated surveys: - Dietary Screener Questionnaire (DSQ-10) - USDA Six-Item Food Security Module - Two-item barrier to fruit/vegetable questionnaire - Perceived stress (PSQ-10) -General Belonging Scale (GBS) -Survey on lifestyle changes</p> <p>Biomarkers: -HbA1c -BMI -Weight -Blood pressure -Triglycerides -LDL</p> <p>Qualitative survey: Conduct a qualitative interview with patients about their feedback on the food pharmacy</p>
Expected outcomes				
<p>Co-design: 35 to 50 completed Qualtrics surveys which inform: -frequency of food allotted -type of food provided -level of nutrition education for patients</p> <p>Food Pharmacy pilot -Establish a smooth workflow of providing patients with food -Learn patient preferences and the number of volunteers required</p>		<p>Food Pharmacy: At least 75% of Food Pharmacy participants will report: -having less food insecurity -fewer barriers to fruit and vegetable consumption -being less stressed -feeling increased community belonging -lower HbA1C levels* -lower BMI* -lower blood pressure* -lower lipids*</p> <p>*specific diagnosis will inform which metrics are monitored</p>		

IV. Budget

The Food Pharmacy at HAVEN free clinic will be primarily funded by a donation from the Hellman Foundation. The Hellman Foundation in San Francisco graciously donated \$44,000 for two years and \$20,000 for a third year. Using this budget, we'll be able to serve 19 individuals (4-5 families) half of their weekly groceries (based on calculations from SNAP) for the first two years.

With an additional 2,300 from the NHCMA, we could supply weekly groceries for a year for one additional family of four. The money will supply 10-15 servings of food for breakfast, lunch, and dinner. A sample menu is below, but weekly groceries will vary based on seasonality and food availability.

Cost Breakdown for Serving 1 family 10-15 meals/week aiming \$160 per month					
	Price/Unit	Weekly Quantity	Weekly Price	Monthly Price	Yearly Price
Meats					
Chicken	\$6.49	1	\$6.49	\$25.96	\$311.52
2-ct Frozen Salmon	\$11.77	0.562	\$6.61	\$26.46	\$317.51
Dairy					
Milk	\$3.99	1	\$3.99	\$15.96	\$191.52
Vegetables					
Asian Stir Fry Medley (Frozen)	\$2.50	1	\$2.50	\$10.00	\$120.00
Mushrooms	\$2.89	1	\$2.89	\$11.56	\$138.72
Broccoli	\$2.99	1	\$2.99	\$11.96	\$143.52
Fruits					
Banana (organic)	\$2.46	1	\$2.46	\$9.84	\$118.08
Orange	\$1.49	2	\$2.98	\$11.92	\$143.04
Apples	\$0.85	2	\$1.70	\$6.80	\$81.60
Grains					
Brown Rice	\$0.06	80	\$4.80	\$19.20	\$230.40
Quick Cook - Steel Cut Oats	\$0.19	24	\$4.56	\$18.24	\$218.88
Misc.					
Low Sodium Natural PB	\$0.23	16	\$3.68	\$14.72	\$176.64
Soy Sauce	\$0.25	10	\$2.50	\$10.00	\$120.00
			SUM	SUM	SUM
			\$48.15	\$192.624	\$2311.43