**Food as Medicine: An Evaluation of a Fresh Food Incentive Program**

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**Abstract/Executive Summary**

**Problem Statement:** Food insecurity remains a persistent problem in the United States and in Michigan. Incentive-based fruit and vegetable programs are steps which have been implemented to minimize the gaps in access and affordability. For elderly and/or disabled, chronically ill residents in the Fitzgerald community, does the participation in a freshly prepared meal and/or produce incentive program with an in-home nutrition and physical activity education module increase the consumption of fresh fruits and vegetables, improve cardiometabolic health, and promote changes in dietary and physical activity behaviors.

**Purpose:** To understand the impact of a fresh food and produce incentive program on the overall consumption of fruits and vegetables, cardiometabolic health, and dietary and physical activity behaviors among elderly and/or disabled, chronically ill residents living in the Detroit Fitzgerald community. The project also has a secondary aim to identify strengths and weaknesses in program efficiency, strengthen community partnerships, and offer recommendations for future program sustainability.

**Methods:** This program evaluation employs a mixed-methods research design comparing qualitative and quantitative pre-and-post program survey data. Participants were recruited by Fitzgerald Block Club leaders or voluntary sign-up after attending an information session at the Theresa Maxis facility.

**Inclusion Criteria:** Resident of the Fitzgerald community in Northwest Detroit, senior citizen or disabled status with at least one chronic metabolic condition (i.e. diabetes, prediabetes, hypertension, obesity, hyperlipidemia, etc.).

**Analysis:** Descriptive analyses, non-parametric two-Tailed Wilcoxon signed rank test, and content analysis was used to analyze pre-and-post program data. These findings were used to develop recommendations for future program success and sustainability.

**Implications for Practice:** Food incentive programs have the potential to improve health outcomes by by encouraging dietary changes and lifestyle modifications, increasing physical activity, expanding community partnerships, and promoting food justice by increasing utilization of local farmers market. The implementation of food incentive programs in the academic space is beneficial in the professional development of pre-licensure nursing students highlighting the impacts of social determinants of health and attainment of Healthy People 2030 goals.

**Table of Contents**

Abstract/Executive Summary……………………………………………………………...……2-3

List of Tables…………………………………………………………………….……………......5

List of Figures…………………………………………………………………………………….6

1. Introduction ……………………………………………………………………………... 7

Background/Significance ……………………………………………………………… 7-9

Problem Statement/Clinical Question ………………………………………………...9-10

Review of Literature ………………………………………………………….…….. 10-16

Organizational Assessment …………………………………………………………..16-21

Purpose of the Project, Scope, Goals, & Objectives ……………………………….. 21-22

1. Theoretical Framework and Conceptual Framework ………………………………. 22-26
2. Methodology …………………………………………………………………………… 27

Setting …………………………………………………………………………………...27

Participants ………………………………………………………………………………28

The Intervention and Data Collection ……………………………………………….28-31

Measures/Instruments/Tools …………………………………………………………… 32

1. Analysis …………………………………………………………………………….. 32-54
2. Sustainability Plan ………………………………………………………………………55
3. Implications for Nursing …………………………………………………………… 55-56
4. Conclusion …………………………………………………………………………….. 56

References ……………………………………………………………………………….… 57-59

Appendices …………………………………………………………………………………..60-64

**List of Tables**

Table 1. Proposed Timeline

Table 2. Demographics

Table 3. Food Insecurity Screening

Table 4. Statistical Significance of Pre-and-Post Program Biometrics

Table 5. Weight Loss

Table 6: Dietary Changes

**List of Figures**

Figure 1. Pre-survey Physical Activity Minutes

Figure 2. Post-survey Physical Activity Minutes

**Food as Medicine: An Evaluation of a Fresh Food Incentive Program**

The famous Greek physician, Hippocrates, once said “let food be thy medicine and medicine be thy food”. Undeniably, the influences of a diet rich in fruits and vegetables have been shown to prevent chronic conditions and decrease the risks of developing type 2 diabetes, hyperlipidemia, hypertension, obesity, and cancer (Bryce et al., 2017). Despite these benefits, many Americans fail to consume the daily recommended servings of fruits and vegetables, particularly those of lower socioeconomic status who are often faced with the burdens of food insecurity (Bryce et al. 2017). Notably, persons from lower socioeconomic status living in urban areas frequently have limited access to fresh fruits and vegetables, resulting in the increased consumption of processed foods that are low in nutrients (Bryce et al., 2017). These behaviors can ultimately exacerbate adverse health consequences.

The continued support and growth of urban agriculture and farmers across the city of Detroit, along with the implementation of incentive-based fruit and vegetable programs, are steps which have been implemented to minimizing the gaps in access and affordability. With the goal of empowering economically poor consumers to make healthier food choices, food-incentive programs such as Farmacy Foods and the Fresh Prescriptions program assist medical providers in connecting disadvantaged, chronically ill patient populations with fresh produce and nutritional education. More research is needed to evaluate the sustainability and effectiveness of food incentive programs and its impact on health, behavior change, and food insecurity.

**Background & Significance**

Food insecurity (FI), defined as the uncertainty of having or inability to acquire adequate food due to insufficient funds or resources, is a growing concern for millions of Americans (Food security, 2022). The interconnection between social determinants of health such as “racial and ethnic inequality; health, age, and disability status; and poverty, income and unemployment status” significantly intensify the severity of FI, contributing to an incessant cycle of income restriction and adverse health outcomes (Food security, 2022, p. 4). Nationally, African American (22%) and Hispanic (17%) households are more food insecure in comparison to their Caucasian (7%) counterparts (Food security, 2022). In the state of Michigan, high FI rates correlate with racial disparities among African American residents dwelling in urban areas as well as individuals living across several counties and tribal reservations in Northern Michigan (Food security, 2022). Thus, low-income communities of color suffer disparately from the effects of systemic racism on food access and security. The COVID-19 pandemic further exacerbated the challenges for those disproportionately vulnerable to FI. In Michigan, the cost of FI has detrimental effects on health care, education, and productivity costs. Michigan currently ranks “above the 75% percentile nationally for annual statewide healthcare costs associated with FI, or $1,801,282 per year” (Food security, 2022, p. 4). In 2019, approximately 1.3 million Michiganders experienced FI with over 305,000 being children; it is now estimated that this number increased to 1.9 million, including 552,000 children in the preliminary 2020 statistics (Food secuirty, 2022). An increase in COVID-19 pandemic related health care costs was influenced by the high number of patients with chronic conditions, many of which were exacerbated by poor diet and nutrition (Food Security, 2022). Consequently, Michigan’s total “hunger bill” expenses are now at $5.51 billion dollars per year as a result of educational costs, lost productivity, and lower lifetime earnings due to FI (Food security, 2022).

 The impact of FI is also interconnected with health, age, and disability status. Older adults typically live on fixed incomes, have higher medical expenses, and may experience decline in functional status which makes accessing and preparing nutritious meals difficult. In 2020, approximately 150,000 adults over the age of 65 were living in poverty in Michigan (Food security, 2022). Additionally, older adults exeriencing FI are more likely to suffer from chronic comorbid conditions such as diabetes, depression, high blood pressure, and have more frequent emergency room visits than food secure counterparts (Food security, 2022). Although recent statistics do not express a significant difference of FI between older and younger adults, it is observed that FI older adults face more severe health consequences than younger FI adults. Strikingly, “living with any form of disability is a risk factor for FI” which is more pronounced than poverty status (Food security, 2022, p. 9). In 2019, the Centers for Disease Control and Prevention (CDC) reported that 2.3 million adult Michiganders live with a disability. This is very concerning especially when considering burdens faced by elderly residents who inherently suffer from a triad of vulnerabilities (Food security, 2022).

**Problem Statement/Clinical Question**

 FI remains a persistent problem nationally as well as throughout the state of Michigan. From 2019 to 2020 the federal rate of FI remained steady at 10.5% (13.8 million households) while preliminary statewide reports revealed an increase of approximately 600,000 Michiganders with food insecurity within that timeframe (Food security, 2022). Subsequently, urban dwelling chronically ill, elderly, or disabled populations, particularly of color, are inherently at risk for suffering from FI and experience difficulty accessing affordable healthy foods. Additionally, FI has devestating impacts on high economic costs with Michigan’s situation being among the most dire. As mentioned previously, Michigan ranks above the 75th percentile for annual statewide healthcare cost related to FI. Notably, Wayne, Oakland, Macomb, and Genesee counties have over $100 million in FI associated healthcare costs (Food security, 2022). These trends are increasing over time and not expected to change in the near future. If measures are not taken, vulnerable populations will continue to deteriorate in health status and healthcare expenditures will continue to rise; therefore this preventable phenomenon ought to be evaluated.

PICO: For elderly and/or disabled, chronically ill residents in the Fitzgerald community, does the participation in a freshly prepared meal and/or produce incentive program with an in-home nutrition and physical activity education module increase the consumption of fresh fruits and vegetables, improve cardiometabolic health, and promote changes in dietary and physical activity behaviors.

**Review of Literature**

 The review of literature illustrates several thematic elements following the participation of a fresh food incentive program. These include self-reported decreases in FI and increased consumption of fresh fruits and vegetables, improvement in cardiometabolic health or self-management of comorbid conditions, improvement in quality of life, and overall program experience. Themes among barriers to healthy eating and program recommendations were also identified.

 Search methods included retrieving eight scholarly journal articles from PubMed, ProQuest, BMC Archives of Public Health, and Cambridge University Press databases. Filter limitations were placed on all databases which stratified evidence according to relevance, including only peer-reviewed or scholarly journal articles published between 2017 and 2022. PubMed was searched using the phrase, “fresh prescription and diabetes”. A total of nine articles were found, three of which are reviewed in this paper. PubMed was also searched using the terms, “medically-tailored meals” which produced 58 articles, two of which are included in this review. ProQuest was searched using the terms “fresh prescription” resulting in 6,635 articles. Additional terms such as “organic food, food insecurity” were added to the search tab which then narrowed the results to 95 articles, one of which is reviewed in this paper. Next, the BMC Archive of Public Health was searched for the terms, “fresh prescription” which revealed three articles, one of which is reviewed in this paper. Subsequently, this same article appeared in multiple databases including PubMed and ProQuest. Last, the Cambridge University Press database was searched for the phrase, “community-based fruits and vegetable incentives” and a total of 2,679 were found, one of which is reviewed in this paper. There were no specific exclusion criteria besides relevance, scholarship, and time frame. A variety of study designs including community based participatory research approach, randomized controlled trials, longitudinal/cohort study, qualitative, and exploratory mixed qualitative and quantitative designs were included in the literature review. Studies were not confined within the United States, with one study conducted in Canada. Moreover, all studies involved vulnerable, low-income, and ethnically diverse minority participants that demonstrate FI.

**Decreased Food Insecurity and Increased Consumption of Fresh Produce**

 Decreasing food insecurity and increasing the overall consumption of fruits and vegetables is a primary objective for most food incentive programs. It is evident that “when incentivizing people to eat more fruits and vegetables, they may be more likely to eat less junk food and consume healthier food” (Bryce et. al, 2021, p. 4). In this review, food incentivized programs were targeted among FI, low income participants suffering from or at risk of developing at least one chronic condition. Statistically significant reports of decreased FI and improvement in food security scores were observed in three studies (Berkowitz et al., 2019; Heasley et al., 2021; Kerr et al., 2020). It is noteworthy that Heasley et al. (2021) reported 26 participants improved food insecurity scores substantially by 74% demonstrating strong statiscal significance. Likewise, Kerr et al. (2020) ) found that all participants demonstrated a low or very low food security score of “35% at enrollment which dropped significantly to 13% after 3 months” in the program (*p* <0.001) (Kerr et al., 2020, p. 242).

Four studies suggested themes of statisically significant increases in self-reported consumption of fresh fruits and vegetables and improvement in diversifying food choices (Berkowitz et al., 2019; Heasley et al., 2021; Kerr et al., 2020; Metcalf et al. (2020). In a post-program interview, one participant reported “I was eating more fruits and vegies than I have in years” and the dietary diversity in new food exposures motivated another participant “to experiment and try out new things” (Heasley et al., 2021, p. 9). Subsequently, the frequency of vegetable consumption notably increased with “50% of the 120 participants who completed the exit questionnaire consuming vegetables at least once a day at 3 months, compared with 15% at baseline (*p* < 0.0001)” (Kerr et al., 2020, p. 242)., In a study evaluating the impact of a community-based culinary and nutrition education intervention with produce allocation revealed a statistically significant increase in consumption of fruits (*p*= 0.001) and vegetables (*p*= 0.002) in comparison with the control group (Metcalfe et al., 2021). Interestingly, unlike previous studies which typically involved one study participant, Metcalf et al. (2021) implemented their intervention with families which produced positive results in the overall consumption of household fruits and vegetables as well as changes in dietary behaviors. These themes support the effectiveness of food incentive programs in decreasing FI and improving dietary changes. These findings also suggest the potential impacts of healthy behavior change if education and incentives are directed towards whole families rather than individuals.

**Improvement in Cardiometabolic Health**

The impact of food incentive programs on cardiometabolic health and biometric data is an area of high interest for researchers and policy makers. Food incentive studies are typically limited by time constraints making it difficult to generalize findings. Many of the studies in this review were conducted over a short 10-to-15-week period. The data found in the literature offered insight on the potential impact of healthy eating within such a short time span. Published studies have shown that participating in food incentive programs can decrease hemoglobin A1c (HbA1c) levels. Statistically significant improvement in baseline HbA1c concentration indicated an average decrease of -0.35% to -0.71% among three studies (Bryce et al., 2017; Bryce et al., 2017; Kerr et al., 2020). A study evaluating continuous glucose monitoring (CGM) in a sample of 40 participants showed an improvement in time in range of 70-180mg/dL (*p* < 0.01) (Kerr et al., 2020). Reduction in waist circumference (-0.77cm) and systolic blood pressures (-7.5mmHg) were also observed (Kerr et al., 2020). Finally, in post-program interviews, Heasley et al. (2021) and Berkowitz et al. (2020) determined that several participants endorsed improvement in self-management of chronic health conditions. These findings suggest that participating in food incentive programs even for a short duration can substantially improve cardiometabolic factors and promote disease management, which is concurrently useful in preventing food insecurity related mortality.

**Improvement in Quality of Life**

Improvement in overall quality of life is a common theme presented across multiple studies. Quality of life includes any statements regarding the improvement of socialization, mental health, and self-efficacy in cooking/shopping behaviors. Metcalfe et al. (2021) found that “hands on cooking activities, meal and budget planning, and the social aspect of the Market to My Plate program (M2MP) were the most commonly mentioned ‘favorite parts’ of the program” (p. 441). They also reported “increases in cooking self-efficacy, children’s willingness to try new foods, trying new recipes or cooking techniques and a greater variety in the vegetables they cooked and ate after participating in M2MP” (Metcalf et al., 2021, p. 444 ). Kerr et al. (2020) found statistically significant improvement in self-reported sleep quality, mood, and pain. Likewise, Berkowitz et al. (2019) found statistically significant changes in mental health and stress reduction following the participation of a food incentive program. Interrupted by COVID-19 pandemic stay at home orders, the study conducted by Heasley et al. (2021) produced mixed results in socialization. These findings suggest that food incentive programs that allow for social gatherings at markets or educational session have positive impacts on psychosocial status of the participant.

**Program Satisfaction**

Post-program evaluation and participant experience extends a comprehensive understanding of the benefits, gaps, and future recommendations for effective food incentive programs. Many studies in this review demonstrated positive program outcomes and participant satisfaction. Themes regarding program satisfaction revealed the importance in providing high quality foods, adequate funding, friendly staff, need for inclusivity (i.e. culturally appropriate foods), and benefits of having a nutrition education program (Berkowitz et al. 2020; Heasley et al., 2021; Kerr et al., 2020; Metcalfe et al. 2021). It is important to take these factors into consideration when designing a program that is acceptible to diverse populations.

**Barriers to Healthy Eating**

Several themes were identified in the literature that may provide insight as to why unhealthy eating among vulnerable populations exists. These include fresh food accessibility limited by cost, household size, functional disability, and transportation; cooking behaviors curbed by time constraints and unfamiliarity; bad eating habits influenced by cultural and familal norms (Thompson et al., 2022; Heasley et al., 2021; Metcalfe et al., 2021). These findings build upon existing knowledge of potential challenges and deterrents of healthy meal planning and should be considered when implementing or evaluating food provision programs.

**Strengths and Limitations**

The findings from this literature review offer substantial evidence that supports the benefits of food incentive programs on decreasing FI, promoting health status, and shaping dietary behaviors. There were several strengths and weaknesses identified in the literature critique. Some strengths included the assessment of biometric data reflecting cardiometabolic health (i.e. HbA1c, height, weight, BMI, blood pressure, and waist circumference), inclusion of randomized control groups to compare intervention findings with, use of validated tools, inclusion of nutrition education or cooking modules, offering recipes to guide cooking and shopping, and providing participants with education on budget planning, food storage, and encouraging family involvement in meal preparation. An additional strength that some studies incorporated were semi-structured interviews which provided useful information on participant perceptions of the program and identification of barriers that arose prior to or during the program.

Some weaknesses noted across the studies include time constraints and lack of longitudinal data, low participant enrollment and retention, disruption of the COVID-19 pandemic, lack of culturally inclusive meals, recipes, food choices, lack of monitoring lipid levels, fasting, and post prandial glucose measurements, weak assessments of mental health challenges and stress, lack of baseline assessment of consumption of processed foods, lack in physical activity education, and the significant lack in participant goal setting. Future implications for food incentive programs should address these limitations while continuing to promote the positive components that many of the studies highlighted.

**Organizational Assessment**

A macrosystem level strengths, weakness, opportunities, and threats (SWOT) analysis of the University of Detroit Mercy (hereby referred to as Detroit Mercy) McAuley School of Nursing (MSON) was conducted to evaluate the internal and external influences of food incentive program feasibility and sustainability.

**Strengths**

 There were a number of strengths identified when analyzing Detroit Mercy’s readiness to implement this project and goals to influence change within the community. A key strength is demonstrated within the Detroit Mercy’s mission statement which is pridefully rooted in Mercy and Jesuit traditions. The university’s mission is to “provide excellent student-centered undergraduate and graduate education in an urban context” which also “seeks to integrate the intellectual, spiritual, ethical and social development of students” (Mission and vision, n.d.). It is apparent that the university is dedicated in serving this mission by allowing MSON NUR 4350 Community Health Practicum students to be involved in the implementation process and NUR 7200 Doctor of Nurse Practice (DNP) students assist in developing the model for the program. An additional advantage of the organization is that the DNP student participating in the development of the project's model will take on the role of clinical adjunct faculty. This faculty member will guide the Community Health Practicum students during the implementation phase, acquiring direct understanding of both the accomplishments and obstacles of the program. This knowledge will prove valuable in the assessment of the program's effectiveness. A third strength is that the DNP chair is a certified diabetes educator who will provide oversight and guidance throughout the duration of the program. The knowledge and experience this individual brings is beneficial in motivating participants to make lasting lifestyle changes.

 Detroit Mercy receives robust backing from stakeholders and financial supporters. Noteworthy figures like the leaders of the Fitzgerald Block Club and administrators from the Theresa Maxis Senior Independent Living Facility are fully committed to the program's success and actively engaged in the recruitment procedures. Food incentive organizations such as Farmacy Foods and Fresh Prescriptions have shown interest in serving as food suppliers. The Fresh Prescriptions executive director has also shown personal interest in serving as a DNP organizational expert and mentor. Both organizations have donated funding to maximize program outcomes. The Ford Community Corps Partnerships (FFCP) is a primary financial stakeholder in this project and have agreed to fund this program over three academic semesters. Incorporating FCCP's participation, the project is obligated to meet service learning prerequisites. This entails having a student leader engaged as a guide for Community Health practicum students, aiding them in reflection activities and supporting various tasks tied to the program. An additional advantage is that the Detroit Mercy faculty member responsible for drafting the FCCP grant has shown keen interest in participating as a reader for the program evaluation. Moreover, the initiative has garnered backing from the university's crowdfunding liaison, who intends to establish a public donation platform. This platform will aim to reach out to Detroit Mercy faculty, students, alumni, and also the wider public across social media platforms, with the goal of collecting funds to bolster the ongoing viability of this project. Finally, Detroit Mercy possesses sufficient room to accommodate gatherings and furnish project necessities like personal protective equipment (PPE), printing, and supplies. In the event that the university cannot furnish these materials, the DNP student can tap into resources available through a home health care agency, potentially paving the way for a future collaboration with stakeholders.

**Weaknesses**

 When looking at the weaknesses of the organization, the program produces a few external concerns in the areas of model requirements, recruitment, and timing. One weakness is that there was conflicting information provided by the Fresh Prescriptions program on model development. Initially, the DNP students from Detroit Mercy's NUR 7200 Epidemiology and Population Health course were given the freedom to create their own program model, educational content, and participant surveys. However, it was subsequently required that the organization must follow the pre-existing program model offered by Fresh Prescriptions, and any alterations to educational materials or survey inquiries were not allowed. This situation could potentially impede the ability to establish goals and measure program results. Another drawback involved the size of the Fitzgerald neighborhood, which spans 11 blocks. At the outset, the objective was to enlist one participant per block. However, during the recruitment phase, it became evident that numerous participants were family members residing in the same households or on the same streets. This situation could potentially hinder the diversity and breadth of data collection. Another limitation involves time limitations within the Community Practicum course timetable. For instance, the students' schedules are structured in seven-week segments, allowing for only four to five weeks of home visits, which are further complicated by breaks, orientation, and presentation weeks. This situation might result in irregularities in forming therapeutic bonds with participants and gaps in the dissemination of educational content. Finally, this is Detroit Mercy’s first time participating in a program such as this, which could be seen as a weakness due to insufficient preparation and lack of experience in addressing potential challenges that might arise.

**Opportunities**

 There are several opportunities that have been identified during the analysis. One opportunity is for the Community Health Practicum students to create fundraising campaigns to support future funding of the project. Another opportunity is being able to connect vulnerable participants to community resources (i.e. 211 mobile unit for social work services, referrals to Detroit Area Agency on Aging, Meals on Wheels, home health services, primary care services, etc.). There is also the potential to improve patient-provider communication and relationship by notifying them of the participant’s involvement in the program and importance of monitoring biometric data. This program also has the potential to improve health outcomes and food security with the goal of establishing long-term partnerships with Farmacy Foods or Fresh Prescriptions to further help this community in the future.

**Threats**

 The primary challenges identified in this analysis encompass difficulties in recruiting and maintaining participants, as well as potential public health and environmental obstacles. To illustrate, there might be obstacles for Fitzgerald Block Club leaders when it comes to enlisting community members residing in residential areas. Should this occur, participants would instead be sought from the Theresa Maxis congregate facility. Additionally, ensuring the continued engagement of participants throughout the project duration presents a potential risk to the program's success, given that involvement is voluntary and time constraints could discourage participants from completing the program. Moreover, concerns related to public health (i.e. COVID-19, Influenza, and Monkeypox cases) could dissuade individuals from being willing to partake in home visits with nursing students. Lastly, winter weather and safety conditions could pose a threat to the feasibility of students conducting home visits.

**Rationale**

 When analyzing Detroit Mercy’s cost factors that are relevant to this project, finances are sufficient for both the Fall 2022 and Winter 2023 semesters. A break down of total program expenditures is outlined below (see Appendix A). It is projected that there will be a net income of $795.09 remaining after the implementation of the program. The unused money can be applied towards a fourth semseter of the food incentive program. If the FCCP grant is renewed each year, this cost analysis provides positive insight on future sustainability of the program if incentives are restricted to six weeks of prepared meals from Farmacy Foods and then 12 weeks of Fresh Prescriptions produce boxes.

 When considering the organizational assessment in relation to local context, population health, and fiscal or policy implications, it is evident that Detroit Mercy has the ability to make a significant impact in the Fitzgerald community with its food incentive program. The Fitzgerald community has a total of 40,905 inhabitants with the majority of the population being African American (87%) and 19.7% living below the poverty line (U.S. Census Bureau, 2020a). Mortality in the city of Detroit is due to multiple chronic conditions including: (1) cardiovascular disease, (2) cancer, (3) COVID-19, (4) unintentional injuries, (5) stroke, (6) chronic respiratory diseases, (7) Alzheimer's disease, (8), diabetes mellitus, (6) renal disease, (10) pneumonia & influenza (State of Michigan, n.d.). Food security policies and programs in Michigan has yielded favorable results on return of investments. For example, a pilot program providing bi-weekly, home-delivered groceries to FI patients for one year has reduced emergency department use by 41.5% and hospitalizations by 55.9% (Food security, 2022). Cost-savings of monthly medical and pharmaceutical expenses were also reduced by $263 per patient (Food security, 2022). Therefore, food incentivized programs have the potential to produce cost-effective and impactful food security solutions in Michigan (Food security, 2022).

**Purpose of the Project, Scope, Goals & Objectives**

The purpose of this project is to understand the impact of a fresh food and produce incentive program on the overall consumption of fruits and vegetables, cardiometabolic health, and dietary and physical activity behaviors among elderly and/or disabled, chronically ill residents living in the Detroit Fitzgerald community. The project also has a secondary aim to identify strengths and weaknesses in program efficiency, strengthen community partnerships, and offer recommendations for future program sustainability. The scope is a pilot program evaluation that will involve the implementation of two food incentive programs over the span of 18 weeks. The ultimate goal of this program evaluation is to determine whether this program successfully connected participants with healthy dietary choices, promoted the health and well-being of participants, and achieved self-efficacy and retention of learned dietary and physical activity education through personal goal-setting and accountability. Another goal is to sustain the fresh incentives program as a long-term community health practicum site for the Detroit Mercy prelicensure nursing students. This project includes several objectives that will offer insight in the program evaluation process:

* Determine if the consumption of well-balanced meals and fruits and vegetables have any impact on biometric data (i.e. weight, waist circumference, and blood pressure). Comparison of self-reported pre-and-post program fasting and post prandial blood glucose ranges, hemoglobin A1c, total cholesterol, and low-density lipoprotein levels were of interest in this evaluation, however, data was unable to be collected as intended.
* Determine if the program had an impact on consumption of fresh fruits and vegetables.
* Determine if the nutrition and physical education modules have any impact on cardiometabolic health, changes in dietary behavior, and improvement in self-management of comorbidities.
* Compare whether participants found freshly prepared meals more beneficial to their health/dietary behaviors than receiving fresh produce boxes.
* Identify if participant goals were accomplished. If not, why? Were there any new goals identified after participating in the program?
* Identify barriers to healthy eating.
* Evaluate the effectiveness and limitations of food incentive programs and make recommendations for future success and sustainability of such programs.

**Theoretical and Conceptual Framework**

 The theoretical framework that will guide this project is the social-ecological model. Social-ecological models are useful in “describing the interactive characteristics of individuals and environments that underlie health outcomes . . . to guide public health practice” (Golden & Earp, 2012, p.364). Additionally, the conceptual model, CDC “Framework for Program Evaluation in Health” will be used to direct the evaluation concepts of the project. This framework was developed to help public health professionals understand and further intergrate evaluation concepts and promote evaluation literacy and competency (Milstein & Wetterhall, 2000).

**Social-ecological model**

The social-ecological model offers a multifaceted approach to conceptualizing health interactions and behaviors which interplay between various levels of influences. These levels include:

* + - * Intrapersonal/Individual: activities include education, training, skills enhancement of target population.
* Interpersonal: activities include education, training skills enhancement of people who interact with target population (e.g. family members, friends, teachers, coworkers); modifications to home, family environments.
* Institution: activities include education, training, skills enhancement of institution members beyond target population and immediate contacts, including institutional leaders; modifications to institutional environments, policies, or services.
* Community: activities include education, training, skills enhancement of general community beyond target population and immediate contacts, including community leaders; modifications to community environments or services.
* Policy: activities include education, training, skills enhancement of general community beyond target population and immediate contacts specific to policy changes; creation or modification of public policies (Golden & Earp, 2012).

In relation to this project, the social-ecological model will be used to evaluate the influences of food incentive programs on each of these complex levels. For example, program implementation data will evaluate intrapersonal concepts that shape individual knowledge, attitudes, and beliefs on healthy eating, readiness for change, and self-efficacy. Interpersonal factors will be evaluated by considering social factors that impact food sovereignty. Institutional and community level assessments will be used to determine stakeholder support and interest for future sustainability. Finally, program evaluation findings can have the capacity to influence food security policy change on a local, state, or national level (see Appendix B).

**CDC Framework for Program Evaluation in Health**

 The CDC Framework for Program Evaluation in Health is comprised of two parts, steps in evaluation practice and standards for effective evaluation (Milstein & Wetterhall, 2000). The evaluation practice steps describe what evaluators do and the standards identify what needs to be achieved in order for the evaluation to be effective.

*Steps in Evaluation Practice*

 There are six steps in evaluation practice: engage stakeholders, describe the program, focus the evaluation design, gather credible evidence, justify conclusions, and ensure use and share lessons learned. Below is an application of the steps in context with the Detroit Mercy Fresh Incentive Program (see Appendix C, Figure 1 and 2):

1. Engage stakeholders: The project has gained the interest of several stakeholders which include: Detroit Mercy, Fitzgerald Community, Farmacy Foods, Fresh Prescriptions, Ford Community Corp Partnership, and Primary Care Providers (PCPs).
	1. At the university level, the organizational stakeholders include the MSON Community Health Practicum students, faculty (i.e. grant writer and reader for the project, DNP chair, DNP student/adjunct clinical professor), Fr. Tim Hipskind who is facilitating the service-learning requirement, and MSON administrators who are committed to making this program a sustainable community health practicum site.
	2. At the community level, the Fitzgerald Block Club leaders, Theresa Maxis administrators, and participants are the key stakeholders.
	3. Food partners such as Farmacy Foods and Fresh Prescriptions are committed to improving nutrition and health in this community.
	4. FCCP is offering two grants to fund the project. This stakeholder supports students and faculty who are interested in service-learning projects to meet the needs of metro Detroiters.
	5. The Eastern Market stakeholder is identified as Patrice Brown, Sr. Manager of Community Food Network that faciliates the Fresh Prescriptions Program. She also has interest in serving as the organizational mentor for this evaluation project.
	6. Engagment of PCPs is desired to strengthen patient-provider relationships of the participants and share program outcomes in efforts to gain support of fresh incentive programs.
2. Describe the Program: According to Milstein & Wetterhall (2000), aspects to include are “its need, expected effects, activities, resources, stage of development, and context, as well as the logic model that displays how the entire program is supposed to work” (p. 222). Many of these components are detailed in the purpose and methodology sections of this paper.
3. Focus the Evaluation Design: Evaluation pre-and-post program surveys have already been developed by the Fresh Prescriptions program and the NUR 7200 Epidemiology and Population Health DNP students included additional components to make Detroit Mercy’s implementation more unique.
4. Gather Credible Evidence: The project will collect biometric data and participant feedback using evaluation tools.
5. Justify Conclusions: At the end of the program, participant data will justify conclusions of program effectiveness.
6. Ensure Use and Share Lessons Learned: At the end of the program, evaluation findings will be shared to stakeholders and lessons learned will enforced for improvement.

*Standards for Effective Evaluation*

 The standards for effective evaluation include utility, feasibility, propriety, and accuracy. This program evaluation will support utility standards by identifying those who will be impacted by the evaluation, describing the information collected, ensuring accuracy in interpretation of findings, and clarity and timeliness of evaluation reports (Millstein & Wetterhall, 2000). Feasibility standards will be achieved by employing practical, nondisruptive procedures. Propriety standards will be achieved by ensuring this evaluation is ethical and the welfare of human participants is protected. Finally, accuracy standards are supported through gathering reliable participant information and using the proper methodologies and statistical analysis when interpreting data results (see Appendix C, Figure 3).

**Project Methodology**

**Design**

This program evaluation employs a mixed-methods research design, encompassing the gathering, examination, and integration of both qualitative and quantitative pre-and-post program survey data to understand the target phenomenon. Measurable data entails the analysis of biometric information, multiple-choice, and Likert-scale questions. Qualitative insights were derived from brief essay prompts or non-structured interviews, particularly if students were aiding participants in survey completion. The survey questions were formulated following the assessment tools utilized by Fresh Prescriptions and Farmacy Foods as well as additional questions added by the NUR 7200 DNP students.

**Setting**

The primary setting of the project was the Fitzgerald community in Northwest Detroit. Cycle 1 and 2 of the implementation took place in the residential neighborhoods spanning across four city blocks and Cycle 3 of the implementation took place in the Theresa Maxis congregate facility. Students performed assessments and provided the educational modules in the convenience of the participant’s homes. Home visits were a requirement to participate in the program, however, in the event of unforeseen circumstances (i.e. scheduling issues, public health emergencies, weather, or safety concerns) that may interrupt in-home visits, educational sessions can be conducted using alternative methods (i.e. telephone, virtual zoom calls, video recordings, or porch visits).

**Participants/Recruitment Strategies**

Participants in Cycle 1 and 2 of the implementation were recruited by Fitzgerald Block Club leaders. Interested individuals volunteered themselves or nominated other community members to participate in the program. Participants in Cycle 3 received an information session explaining program objectives and goals and participants signed themselves up to participate. Inclusion criteria included being a resident of the Fitzgerald community in Northwest Detroit, senior citizen or disabled status with at least one chronic metabolic condition (i.e. diabetes, prediabetes, hypertension, obesity, hyperlipidemia, etc.). Individuals should have demonstrated a desire to receive freshly cooked meals and/or boxes of produce along with educational modules, and be available for home visits conducted by nursing students on the designated clinical day. Although food insecruity was not a requirement in this pilot study, the validated Hunger Vital Sign tool was used to screen participants for food insecurity asking the following questions:

1. Within the past 12 months I/we worried whether our food would run out before we got money to buy more.
2. Within the past 12 months the food I/we bought didn’t last and we didn’t have money to get more.

**Intervention and Procedures**

The Detroit Mercy’s implementation of the fresh incentives program started by redesigning the original Fresh Prescriptions program materials and schedule. This has been completed by the NUR 7200 Epidemiology and Population Health DNP students in the summer semester of 2022. Redesigning the program was needed in order to accommodate the needs of the participants and NUR 4350 Community Health Practicum student schedule. A comprehensive population health needs assessment and windshield survey was conducted to identify community strengths, weaknesses, and factors that may prevent the adoption of healthy eating behaviors and physical activity. This assessment revealed that the Fitzgerald community lacked access to quality fresh produce markets, having been geographically restricted to fast food restaurants, liquor stores, and gas stations as primary centers for food sources. It was also observed that the Fitzgerald community lacked access to gymnasiums and a safe environment that promoted physical activity. These findings led to the redesigning of the education modules to offer participants an alternative to adopting healthier and realistic lifetyle changes. A stakeholders meeting was held between the food partners, university, DNP students, and block club leader to approve of the plan (see Appendix C, Figure 2).

Although the modification of nutrition education modules and evaluation surveys was prohibited by Fresh Prescriptions, the addition of supplemental education modules and survey questions was allowed. Therefore, the NUR 7200 DNP students added physical activity, coping with triggers, and emotional eating education modules to the curriculum to better serve the participant’s needs. Participants received a map of local farmers markets in the Detroit Community Markets and list of community resources. Additionally, participants received latex-free resistance bands, home exercise physical activity programs specific for elderly or disabled individuals, and a booklet entitled, *Exercise and physical activity for healthy aging: get fit for life*, by the National Institute of Aging to supplement their physical activity. In efforts to motivate participants to accomplish goals and promote accountability, the addition of S.M.A.R.T. goals tracking and flow sheets were added to the curriclum. Finally, pre-and-post program surveys were modified to evaluate outcome measures of the added education modules.

 The implementation of the project took place over three Cycles. Cycle 1 occurred between August 30, 2022 to October 18, 2022. During the first week of the program in Cycle 1, the Community Health Practicum students met with the adjunct clinical professor on campus for orientation. Program objectives, implementation plan, participant assigment, and course materials was disseminated on this day. Students made contact with participants and schedule home visit for week 2. During week 2, students conducted the initial home visits, obtained informed consent, performed initial head to toe assessments (including vital signs, weight, and waist circumference measurements), and collected pre-survey data including the documentation of self-reported biochemical markers. Participants were introduced to the program's outline and were furnished with a “welcome folder” that included written program materials, a timetable detailing the projected food delivery dates, and a schedule for educational sessions. Students then performed weekly-biweekly education sessions on the Detroit Mercy-specific education topics (i.e. physical activitiy modules, emotional eating, and coping with triggers) and participants received five freshly prepared meals per week for the first six weeks.

At the end of Cycle 1, the freshly prepared meals ceased and the program transitioned to Cycle 2 of the Fresh Prescriptions intervention with the same participants. Cycle 2 took place between October 19, 2022 to Decemeber 7, 2022 and was implemented by a new group of Community Health Practicum students. The implementation was similar to that of the first group starting with program orientation. However, the main difference in this cycle is that the participants received the Fresh Prescriptions specific education modules (i.e. food storage, MyPlate and portion sizes, nutrition labels, sugar and salt, and fats and oils) paired with six weeks of fresh fruit and vegetable box deliveries. The students performed weekly education sessions, assessments, obtain biometrics, assisted participants with goal tracking, and collected post-program survey data at the end of the program.

Cycel 3 of the implementation took place in the Theresa Maxis building with 11 new participants and a new group of Community Health Practicum students between January 10, 2023 to February 21, 20233. These participants received both the Detroit Mercy and Fresh prescriptions education modules, but only 6 weeks of fruit and vegetable boxes (see Appendix D).

**Table 1. Proposed Timeline**

Clinical practicum dates of implementation are listed below:

|  |  |  |  |
| --- | --- | --- | --- |
| Project | Day | Dates | Time |
| Farmacy Foods Intervention (Cycle 1) | Tuesdays | 8/30/2022- 10/18/2022 | 0800-1700 |
| Fresh Prescriptions Intervention (Cycle 2) | Wednesdays | 10/19/2022- 12/7/2022 | 0800-1730 |
| Fresh Prescriptions Intervention (Cycle 3) | Tuesdays | 1/10/2023-2/21/2023 | 0800-1700 |

**Ethical Considerations & Risks**

 This program evaluation was approved for exemption status by Detroit Mercy’s Institutional Review Board (IRB) and poses no risks, threats, or harm to participants. Because this evaluation analyzed data from previously de-identified data, participants were assigned a participant identification number (PUID) to maintain anonimity throughout the evaluation process. The implementation of the project was previously approved by the university provost in a signed Memorandum of Understanding between the FCCP grant and food partners (i.e. Fresh Prescriptions and Farmacy Foods). Evaluation records was retained safely in a Google Drive which was only accessible by the writer and program chair.

**Measures/Instruments/Tools**

Pre-and-post program survey data was collected using Google Forms with restricted access to the writer and program chair, Farmacy Foods and Fresh Prescriptions survey weblinks. Printed copies were provided to nursing students to assist participants with learning, functional, or technological limitations in completing pre-and-post program surveys. Quantiative data was statistically analyzed and qualitative data was reveiwed for themes.

Data was collected on the following:

1. Participant demographics: name, age, ethnicity, income, zip code, number of household members, disabilities, past medical history, allergy profile.
2. Physical assessment/Biochemical markers: height, weight, body mass index, waist circumference, blood pressure, and self-reported hemoglobin A1c, fasting blood glucose ranges, 2 hour post prandial glucose ranges, total cholesterol, and low density lipoprotein levels.
3. 5-point Likert-style and multiple choice questions will assess readiness for change, understand barriers to healthy eating or access, current eating behaviors (consumption of fruits and vegetables), perceptions of education modules.
4. Short essay questions identified program perception and participant experience, attainment of goals, and recommendations for future implementation.

**Analysis**

Descriptive analyses determined percentages, means, and standard deviations of participant demographics, self-report of chronic metabolic conditions, annual household income, enrollment in food assistance programs, priorities, motivation, preferred learning modality, shopping difficulties, and dietary consumption. Due to the small sample, a non-parametric two-Tailed Wilcoxon signed rank test was conducted to examine the differences between pre-and-post program biometrics (i.e. weight, waist circumference, systolic and diastolic blood pressures, health rating, physical activity, dietary consumption and practices. Intellectus Statistics (Intellectus, Clearwater, FL, 2021) was used as an aid to statistical computation. Intellectus and Microsoft Excel (Microsoft, Redmond, Washington, 2018) were used to create figures and graphs. A *p* value of <0.05 will be accepted as evidence of statistical significance throughout. Content analysis was used to identify thematic schemes of participant end-of-program experience, goal attainment, and recommendations for future implementation.

**Participant Demographics**

 The sample included a total of 22 participants (*n*=16 female, 72.73%; *n*=6 male, 27.27%), predominantly identifying as African American/Black descent (*n*= 19, 86.36%), with ages ranging from 32 to 92 years old (*M* 67.82, *SD* 12.93). Half of the participants resided within the Fitzgerald community spanning four city blocks and the other half resided in a congregate senior independent living facility. More than half of the participants attained at least a high school diploma (*n*= 13, 59.09%), some high school (*n*=3, 13.64%), and advancement to higher education such as an Associates, Bachelors, or Master’s degree (*n*= 6, 27.27%). Annual household income before taxes and without inclusion of supplemental assistance was commonly reported to be around $10,000.00 to $14,999.00 (*n*= 7, 31.82%) (see Table 2). The Hunger Vital Sign food insecurity screening tool displayed that a majority of the participants denied they were food insecure (*n*= 2, 9.09% answered “yes” to the question “within 12 months, I/we worried whether food would run out before we go money to buy more”; *n*=3, 13.64% answered “yes” to the question “within 12 months, I/we worried the food I/we bought didn’t last and we didn’t have money to get more”) (see Table 3). Chronic conditions such as HTN (*n*= 17, 77.27%), HLD (*n*= 13, 59.09%), and DM (*n*=10, 45.45%) were also reported. Half of the participants (*n*=11) conveyed receiving supplemental food assistance through federal EBT, PEBT, SNAP, or WIC programs. Participation in additional nutrition support programs such as Double Up Food Bucks (*n*=2, 9.09%), Senior Market Fresh (*n*=1, 4.55%), and Meals on Wheels (*n*= 1, 4.55%) were also reported.

**Table 2. Demographics**

|  |  |  |
| --- | --- | --- |
| Variable | *n* | % |
| Gender |
|  | Male | 6 | 27.27 |
|  | Female | 16 | 72.73 |
| Ethnicity |
|  | African American/Black | 19 | 86.36 |
|  | Two or more races/ethnicities | 1 | 4.55 |
|  | Native American/American Indian | 1 | 4.55 |
|  | Caucasian/White | 1 | 4.55 |
| Education |
|  | Some High School | 3 | 13.64 |
|  | High School | 13 | 59.09 |
|  | Associate’s Degree | 3 | 13.64 |
|  | Bachelor’s Degree | 1 | 4.55 |
|  | Master’s Degree | 2 | 9.09 |
| Income |
|  | $10,000 to $14,999 | 7 | 31.82 |
|  | $15,000 to $19,999 | 4 | 18.18 |
|  | $20,000 to $24,999 | 2 | 9.09 |
|  | $25,000 to $29,999 | 2 | 9.09 |
|  | $35,000 to $39,999 | 1 | 4.55 |
|  | $50,000 to $59,999 | 1 | 4.55 |
|  | Prefer not to say | 5 | 22.73 |
| *Note.* Due to rounding errors, percentages may not equal 100%. |

**Table 3. Food Insecurity Screening**

|  |
| --- |
| Hunger Vital Sign |
|  | Variable | *n* | % |
|  | Within 12 months, I/we worried whether food would run out before we go money to buy more |  |  |
|  |  | Yes | 2 | 9.09 |
|  |  | No | 22 | 90.91 |
|  | Within 12 months, I/we worried the food I/we bought didn’t last and we didn’t have money to get more |  |  |
|  |  | Yes | 3 | 86.36 |
|  |  | No | 19 | 13.64 |
| *Note.* Due to rounding errors, percentages may not equal 100%. |

**Objective 1: Determine if the consumption of well-balanced meals and fruits and vegetables have any impact on biometric data (i.e. weight, waist circumference, and blood pressure).**

Since the participants in cycle 1 of the intervention received six weeks of freshly prepared meals following six weeks of produce boxes paired with education modules in cycle 2, while the participants in cycle 3 only received six weeks of produce boxes and the same education modules, biometric data was analyzed separately to observe any differences between the two groups. When looking at the impact of freshly prepared meals on biometrics alone (cycle 1), there were no statistically significant changes in weight (*p*= 0.959), waist circumference (*p*= 0.172), systolic blood pressure (*p*= 0.575), and diastolic blood pressure (*p*= 0.074).

Subsequently, the impact of produce boxes and education modules on both subgroups demonstrated a nonsignificant change in weight (cycle 2: *p*= 0.286; cycle 3: *p*= 0.155), waist circumference (cycle 2: *p*= 0.062; cycle 3: *p*= 0.109), systolic blood pressure (cycle 2: *p*= 0.359; cycle 3: *p*= 0.374). However, statistical significance was observed in diastolic blood pressure among cycle 2 participants in comparison to their counterparts (cycle 2: *p*= 0.040; cycle 3: *p*= 0.261). Despite the lack of statistical significance, it is important to note that not all participants set goals for weight loss or reduction in blood pressure during their time in this program (see Table 4).

**Table 4. Statistical Significance of Pre-and-Post Program Biometrics**

|  |  |  |  |
| --- | --- | --- | --- |
| Variable | Cycle 1: Freshly Prepared Meals | Cycle 2: Produce Boxes & Education | Cycle 3: Produce Boxes & Education |
| Weight (lbs) | *p*= 0.959 | *p*= 0.286 | *p*= 0.155 |
| Waist Circumference (in) | *p*= 0.172 | *p*= 0.062 | *p*= 0.109 |
| Systolic Blood Pressure | *p*= 0.575 | *p*= 0.359 | *p*= 0.374 |
| Diastolic Blood Pressure | *p*= 0.074 | *p*= 0.040 | *p*= 0.261 |

Similarly, the program yielded promising results in weight reduction for 45.45% (n=10) of the participants, with an overall loss ranging from -0.3 lbs to -7.7 lbs (*M*= -4.03 lbs) within a brief period. This subgroup, experiencing weight loss, demonstrated statistical significance (*p*= 0.005, *M*= -4.03 lbs). Notably, at the outset of the program, six out of 10 participants set weight loss goals and achieved significant success by the program's end (*p*= 0.028, *M*= -3.48 lbs). Surprisingly, the remaining four participants who didn't set specific weight loss goals still managed to lose weight (*p*= 0.068, *M*= -4.85 lbs). 80% (*n*=8) of the individuals who lost weight indicated they were “ready” and motivated to make changes. On the other hand, four other participants who set weight loss goals initially were unsuccessful, gaining anywhere from 0.1 to 4.3 lbs by the end of the program (p= 0.068, M= +1.65 lbs). Three of these individuals indicated they were “ready” and motivated to make changes. These findings underscore the potential advantages of goal-setting and readiness, and further support the benefits of adopting healthy eating and activity habits learned through the education modules (see Table 5).

**Table 5. Weight Loss**

|  |  |  |
| --- | --- | --- |
|  | Significance | Summary Statistics |
| Total weight loss (*n*= 10) | *p*= 0.005 | Pre: *M*= 202.10 lbsPost: *M*= 198.07 lbsRange of pounds lost: -0.3 lbs to -7.7 lbsAverage pounds lost: -4.03 lbs  |
| Intentional weight loss with success(*n*= 6) | *p*= 0.028 | Pre: *M*= 207.35 lbsPost: *M*= 203.87Range of pounds lost: -0.3 lbs to -5.6 lbsAverage pounds lost: -3.48 lbs |
| Unintended weight loss(*n*= 4) | *p*= 0.068 | Pre: *M*= 194.22 lbsPost: *M*= 189.38 lbsRange of pounds lost: -1.1 lbs to -7.7 lbsAverage pounds lost: -4.85 lbs |
| Unsuccessful with weight loss despite having goal(*n*= 4) | *p*= 0.068 | Pre: *M*= 262.40 lbsPost: *M*= 264.05 lbsRange of pounds gained: +0.1lbs to +4.3 lbsAverage weight gain: +1.65 lbs |

*Recommendation*

 Comparing lab values was a crucial aspect of this study, but it proved to be a formidable challenge to acquire them consistently. While some participants submitted their lab values for HbA1c, FBG, 2-hour post-prandial glucose, LDL, and total cholesterol during the initial assessment, several failed to provide updated values within three months after completing the program. Obtaining lab results from healthcare providers presented difficulties for some participants, despite being notified of their enrollment in the study. Additionally, certain individuals faced obstacles with their insurance companies, as they were not covered for lab redraws within a short timeframe.

To bridge this gap, food incentive programs could consider incorporating the use of point-of-care fingerstick glucometers, HbA1c meters, and total cholesterol meters. These advanced tools could significantly streamline the process of obtaining vital lab data, ensuring a more comprehensive and consistent assessment of participants' health status throughout the program.

**Objective 2: Determine if the program had an impact on the consumption of fresh fruits and vegetables.**

 The consumption of fruits and vegetables in addition to salty/greasy foods and sweetened beverages were compared between the two groups at pre-and-post implementation. The findings were not statistically significant among cycle 1 and 2 participants in weekly fruit consumption (*p*= 0.397), vegetable consumption (*p*= 0.674), salty/greasy foods (*p*= 0.931), and sweetened or diet beverages (*p*= 0.533). Cycle 2 participants showed significant improvements in weekly fruit (*p*= 0.005) and vegetable (*p*= .032) consumption but no substantial differences in salty/greasy food consumption (*p*= 0.473) or intake of sweetened or diet beverages (*p*= 0.204) (see Table 6).

**Table 6: Dietary Changes**

|  |  |  |
| --- | --- | --- |
| Variable | Cycle 1 & 2 | Cycle 3 |
| Number of times fruit consumed in one week | *p*= 0.397pre: *M*= 5.00post: *M*= 6.73 | *p*= 0.005pre: *M*= 2.27post: *M*= 7.55 |
| Number of times vegetables consumed in one week | *p*= 0.674pre: *M*= 7.18post: *M*= 6.09 | *p*= 0.032pre: *M*= 3.09post: *M*= 9.73 |
| Number of times salty or greasy foods/snack consumed in one week | *p*= 0.931pre: *M*= 3.73post: *M=* 4.55 | *p*= 0.473pre: *M*= 2.55post *M*= 1.73 |
| Number of times sweetened or diet beverages consumed in one week | *p*= 0.553pre: *M*= 4.92post: *M*=5.27 | *p*= 0.204pre: *M*= 1.82post: *M*= 4.55 |

*Theme 1: Program introduced participants to new fruits, vegetables, and recipes*

The analysis of post-program data revealed a compelling theme centered around the introduction of novel fruits, vegetables, and recipes that had not been part of participants' diets before. The produce boxes provided an avenue for participants to explore and embrace a variety of delightful additions to their culinary repertoire. Some of the newfound favorites included squash, spinach, zucchini, asparagus, cauliflower, cabbage, mango, and kiwi, which they now plan to incorporate regularly into their meal planning.

Participants who received prepared meals expressed genuine satisfaction with dishes featuring curry and beef. This positive experience inspired them to experiment with different flavors, recipes, and spices like turmeric. Notably, two participants even saved the containers in which the prepared meals were delivered, as they found the labels listed the ingredients, facilitating future recreations of these delectable recipes.

A remarkable 18 participants enthusiastically reported their commitment to sustainably increase their fruit and vegetable intake, ensuring they maintain a well-balanced and wholesome diet. The program's impact on broadening their dietary horizons and fostering healthier eating habits was evidently embraced.

*Recommendation*

 To enhance the effectiveness of food incentive programs, it is advisable to incorporate recipe cards or booklets into the deliveries. These resources would prove invaluable in guiding participants on how to prepare meals using unfamiliar ingredients. While the Fresh Prescriptions program already offers a website that showcases the seasonality of produce and corresponding recipes, it is essential to recognize that elderly or disabled populations with limited technological abilities may struggle to navigate the online platform. As an alternative, the inclusion of note cards detailing the produce and suggesting various ways to prepare them could serve as a user-friendly solution, ensuring all participants can easily access and benefit from these valuable culinary resources.

**Objective 3: Determine if the nutrition and physical education modules have any impact on cardiometabolic health, changes in dietary behavior, and improvement in self-management of comorbidities.**

 Participant self-perceived health rating was measured on a 5-point likert scale from “poor” to “excellent” at pre-and-post program implementation, however, these findings were not statistically significant (*p*= 0.088). Conversely, 5-point likert scale questions rated “strongly disagree” to “strongly agree” asking whether participants believed that “diet and exercise contributes to a healthy lifestyle” showed substantial significance (*p*= 0.005). Moreover, participants believed that “eating a well-balanced meal and staying physically active reduces high blood sugar, blood pressure, and cholesterol”, which also indicated significance (*p*= 0.012). Assessment of the food storage module, which provided education on methods to promote preservation and freshness of produce, revealed a significant increase in participant knowledge (*p*= 0.04).

Measurement of moderate to strenuous exercise minutes performed in a week significantly increased by the end of the program (*p* < 0.001). Participants demonstrated more variation in exercise minutes performed at post-program evaluation as opposed to the beginning, in which most of the participants admitted to exercising 0-30 minutes per week (*n*=18, 81.8%) (see Figure 1 and 2). It is noteworthy that after the intervention, 31.8% (*n*=7) participants performed more than 90 minutes of moderate to strenuous exercise a week, in congruence with the American Heart Association (AHA) recommended goal of 150 minutes per week, which was included in the learning module. Content analysis found that 81.8% (*n*=18) participants reported they used the resistance bands and 13.6% (*n*=3) found them helpful in increasing arm strength and range of motion. One participant stated, “it increased my strength and I can now raise my arm above my head to do my hair now”. This feedback provides insight into the importance of providing age and functionally appropriate exercise plans, infographs, demonstrations, evidence-based information, and cost-efficient tools to promote physical activity.

**Figure 1. Pre-survey Physical Activity Minutes**



**Figure 2. Post-survey Physical Activity Minutes**



*Theme 2: Education modules and in-person visits increased self-awareness and promoted accountability of one’s health*

 Content analysis illustrated the benefits the nutrition and physical activity modules had on self-awareness and accountability. Participants frequently reported that the modules helped them become more self-aware of their health and what they are putting into their bodies. It encouraged them to make dietary changes, such as including more fruits and vegetables in every meal, increasing physical activity, becoming more concientious of reading nutrition facts labels, monitoring portion sizes, and becoming more cognizant of sodium, sugar, fats, and oils intake. Another interesting finding was that all of the participants found the in-person home visits by the nursing students to be motivating, enagaging, and helped keep them accountable to making changes by achieving and continuing goals. One participant stated that the weekly visits were helpful “because we take blood pressure, weight, and waist circumference and it let’s me watch my progress”. Another stated that the students “measured biometric values and motivated me to exercise and kept me accountable”. This feedback offers insight into the importance of promoting engagement and providing tracking tools to monitor progress.

*Recommendation*

Ultimately, the survey tools were limited in evaluating retained knowledge gained from each education module, physical activity impact, and did not specifically measure self-management of comorbidities. The Fresh Prescriptions surveys only asked two questions related to food storage and plating methods, which were covered topics in the learning modules. However, the qualitative data revealed that participants valued the lessons learned in several other educational handouts, such as the nutrition facts label, portion/serving sizes, and salt/sugar modules being the most frequently reported. It may be helpful to include questions on the survey tools that assess retention of each learning objective in the program. For example, sodium intake is a central dietary modification in the management of cardiac diseases and the Fresh Prescriptions education module includes evidence-based AHA recommendations on this topic. Because approximately 77% of this study’s participants are medically diagnosed with hypertension, assessing whether participants retained education related to the daily recommended sodium intake at pre-and-post program evaluation may provide insight into better management of cardiometobolic health.

Previous implementation of the Fresh Prescriptions program only assessed biometrics at pre-and-post program evaluation, however, in the Detroit Mercy implementation, participants were given biometric tracking logs in which weight, waist circumference, and blood pressure were recorded on a weekly basis and retained in the homes. Some participants took initiative to log their blood pressures on days not being seen by the nursing students. This allowed participants to monitor progress and stay motivated to reach goals. Weekly measurement of biometrics suggests potential benefit in goal attainment and management of cardiometabolic health.

Finally, it is worth noting that the Detroit Mercy implementation stood out from the evaluated food incentive programs by incorporating physical activity modules, which were not traditionally included in either programs. The results of the study demonstrate a significant improvement in the number of weekly exercise minutes performed and participants' perceptions of the impact of physical activity on cardiometabolic health. The diverse approaches used to deliver physical activity education, including tailored home exercise plans for elderly and disabled individuals, evidence-based booklets and pamphlets, the use of resistance bands, and physical demonstrations, proved highly beneficial in enhancing strength and range of motion among the participants. This feedback indicates that delivering physical activity education in a manner that aligns with the participants' specific needs and functional abilities can effectively promote their overall health and well-being. Furthermore, the use of validated assessment tools like the Rapid Assessment of Physical Activity (RAPA) is essential for conducting a comprehensive evaluation of exercise habits in the older adult population and should be integrated into future evaluation surveys.

**Objective 4: Compare whether participants found freshly prepared meals more beneficial to their health/dietary behaviors than receiving fresh produce boxes.**

As mentioned previously, neither intervention produced statistically significant changes on biometrics with respect to changes in diastolic blood pressures among Cycle 2 participants, therefore it is not justisfied to state that one program produced better outcomes than the other. However, content analysis illustrated perceptions of satisfaction and recommendations for future implementation.

*Theme 3: Quality, quantity, and versatality were important to participants*

 Participants in Cycle 1 and 2 of the intervention were asked whether if they preferred the freshly prepared meals over the produce boxes. 36.36% (*n*= 4) favored the prepared meals, 18.18% (*n*=2) desired the produce boxes, 27.27% (*n*=3) enjoyed having both, and 18.18% (*n*=2) did not respond. Participants favoring prepared meals reported that convience in preparation was most helpful and quantity and quality issues of produce boxes were a major deterrant. Participants preferring produce boxes over the prepared meals indicated that they enjoyed having the freedom to prepare meals to their liking with the ingredients provided and one participant stated that the fruits and vegetables were “more nutritional and helped my digestive system and gave me more energy”.

Upon analyzing feedback from all participants regarding the food provided during the program, it became evident that improvements are needed in the quality, quantity, versatility, and choice of offerings. During Cycle 2 of the intervention, participants faced various challenges with food quality and quantity due to vendor-related issues, leading to inconsistency in meeting quality standards. Many reported receiving bruised and soft fruits and vegetables with a limited shelf-life, resulting in wastage. Moreover, the distribution of fruits and vegetables did not align with the recommended ratio, potentially affecting the statistical significance of fruit and vegetable consumption. The seasonality of produce during Michigan's harsh winter months also contributed to issues with quality and variety.

In contrast, participants in Cycle 3, receiving deliveries from a different vendor familiar with Fresh Prescriptions practices, had no complaints regarding food quality. Additionally, participants expressed a desire for more autonomy in selecting the produce they receive, especially considering the COVID-19 pandemic's and winter off-market season’s impact on the availability of produce. To enhance the meal/box delivery programs in the future, participants suggested having the option to pre-select fruits, vegetables, or meals from the available stock. These insights should be taken into consideration for future implementations to enhance the overall effectiveness and satisfaction of the intervention.

*Recommendation*

 Food incentive programs should establish standardized criteria for food quality, quantity, and variety to guarantee uniformity and cater to participant preferences effectively. Participants express a strong desire to have autonomy over their food choices, valuing both high-quality and ample quantities of consistent foods throughout the program's duration. Given that locally grown produce is subject to seasonal variations, it is important to inform participants in advance that the available produce may not precisely align with what they typically find in large chain grocery stores.

To ensure consistency and satisfactory outcomes, these programs should conduct regular quality checks and establish pricing standards across different vendors, particularly in light of growing concerns about inflation. This way, participants can rely on a steady supply of fruits and vegetables, fostering a sense of security and trust in the program.

To accommodate individual meal or produce preferences, implementing an ordering system could prove beneficial. Allowing participants to pre-select their food choices at the outset of the program would grant them a sense of control and enable a more tailored experience. While the study successfully introduced participants to new foods and recipes, providing them with a degree of control in food options becomes crucial, especially since they cannot personally handpick items from farmers' markets or customize their meals, as observed in the traditional implementations of Fresh Prescriptions and Farmacy Foods programs.

**Objective 5: Identify if participant goals were accomplished. If not, why? Were there any new goals identified after participating in the program?**

 Participants were asked to identify personal goals they sought to achieve by participating in this meal subscription plan, how motivated they were to accomplish such goals, and which learning modalities were most appealing. The most frequently reported benefits sought were to improve health (*n*=18, 81.82%), gain energy (*n*= 13, 59.09%), lose weight (*n*=10, 45.45%), and develop healthier eating habits (*n*= 8, 36.36%). Motivation to make desired changes were rated as “ready” (*n*= 15, 68.18%), “cautious” (*n*=2, 9.09%), or “taking it easy” (*n*=5, 22.73%). It is important to note that not every participant shared the same goals nor the same level of motivation which may have influenced variations in biometric outcomes. Although the Fresh Prescriptions program encourages goal-setting, participants were not required to establish goals in order to participate in the program, therefore measurement of goal attainment was not directly measured. As an alternative, self-perception of goal achievement was marginally captured in the Detroit Mercy qualitative evaluation.

*Theme #4: Different learning modalities and in-person visits were helpful in achieving goals*

 Content and descriptive analysis found that 81.81% (*n*=18) participants reported they accomplished their personal goals and newly identified goals include to continue dietary changes such as increasing fruit and vegetable intake, choosing healthier snacks, controlling portion sizes, and exercising more. An interesting finding was the influence of different learning modalities on outcomes. Initially, more than half of the participants reported that visual or hands on learning was their preferred method of receiving education (*n*= 13, 59.09%), with the remaining participants stating one on one in-person meetings (*n*=6, 27.27%), self-driven (*n*=4, 18.18%), and virtual (*n*=2, 9.09%) were there preferred methods of receiving educaiton. At the end of the program, all of the participants (*n*=22, 100%) found that the one-on-one in-person meetings with the nursing students were most helpful in their learning and success and 40.09% (*n*=9) reported that all modalities were useful. This signifies the importance of having different teaching methods in place. Particularly, one on one in-person teaching sessions showed most benefit in this population.

*Recommendation*

 Food incentive programs seeking to influence change and assist participants to reach goals should have appropriate screening tools in place in its recruitment process. This will ensure participant readiness for change and foster the likelihood of success. The “Readiness to Change Questionnaire” developed by the National Diabetes Prevention Program is a valuable screening tool that assesses participant’s readiness to make changes related to nutrition and physical activity (“National diabetes prevention”, n.d.). To see meaningful impacts on biometrics, dietary and exercise habits, it would be beneficial to only recruit participants demonstrating commitment and sharing similar goals.

The evaluation also highlighted the significance of personalized instruction and support from educators within the participants' homes. Unlike the traditional implementation of the Fresh Prescriptions program, which usually involved group education sessions in public settings like farm stands, clinics, community centers, or classrooms, Detroit Mercy's approach pioneered in-home education experiences, fostering closer interactions. The benefits of this method were twofold. Firstly, it resulted in a 100% participant retention rate because it made education easily accessible, and participants could learn comfortably within the familiar surroundings of their homes. During these sessions, some participants even engaged actively by showing items from their pantries and asking questions about nutrition facts. Secondly, by visiting the participants' homes, the students gained valuable insights into the social determinants of their health. This allowed them to connect participants with various community resources. For instance, one participant experienced a home-damaging incident during a storm, and the students were able to link them with the Michigan 2-1-1 social support services. Another participant faced physical limitations and required assistance with daily activities, prompting the students to provide information on skilled home health care services. These in-home visits offered an additional layer of care by providing a unique perspective into the participants' living environments. In cases where face-to-face meetings were not possible, the students offered alternative methods such as video recordings of the educational modules, video phone conferences, or telephone calls. This personalized and innovative approach to teaching was of utmost importance to this specific population.

**Objective 6: Identify barriers to healthy eating.**

Food deserts are widespread in the city of Detroit, particularly in the Fitzgerald community, which faces geographical constraints and lacks easy access to grocery stores. To address this issue, participants were provided with a map pinpointing Detroit community farmers markets affiliated with Fresh Prescriptions vouchers and various government food assistance programs. A thorough descriptive analysis was conducted, comparing shopping patterns and difficulties before and after implementing the program.

Before the intervention, the majority of participants relied on chain supermarkets as their primary shopping sites (pre: *n*=17, 77.27%; post: *n*=19, 85.36%). However, after the program, there was a noteworthy increase in the utilization of local farmers markets in the Detroit area (pre: *n*=5, 22.73%; post: *n*=9, 40.91%), indicating a positive impact on supporting these markets.

Participants faced several challenges when trying to obtain fresh fruits and vegetables within their community, including poor food quality (pre: *n*=8, 36.36%; post: *n*=4, 18.18%), limited food choices (pre: *n*=7, 31.82%; post: *n*=3, 13.64%), transportation difficulties (pre: *n*=5, 22.73%; post: *n*=6, 27.27%), and high costs (pre: *n*=4, 18.18%; post: *n*=3, 13.64%). However, the program resulted in a significant improvement in accessing fruits and vegetables (*p* value < 0.001). The number of participants facing trouble acquiring these healthy foods decreased, with fewer respondents indicating they "never" had trouble (pre: *n*=8, post: *n*=12) and more reporting "sometimes" (pre: *n*=11, post: *n*=9).

In conclusion, the initiative effectively increased the use of local farmers markets and positively impacted the ease of obtaining fresh produce, helping to combat the food desert problem in the Detroit area.

*Recommendation*

 Food incentive programs should empower participants by equipping them with a comprehensive directory of community resources, thereby enhancing their awareness of available social support programs. This proactive approach aims to alleviate the challenges posed by social determinants of health and food accessibility. The inclusion of a Detroit community farmers market map proved to be immensely valuable to participants, providing a clear guide to locate fresh fruits and vegetables within their own neighborhood. Moreover, this initiative serves as a means to bolster the efforts of local independent urban farmers.

The positive impact of these programs was evident as several participants attested to frequenting the markets without prior knowledge that they could redeem supplemental food assistance benefits there. Furthermore, shopping at these markets offers the added benefit of accessing food at wholesale prices.

To further augment their support, participants were also furnished with a comprehensive list of community resources, with a special emphasis on services provided by esteemed organizations such as Michigan 2-1-1, Detroit Area Agency on Aging, Meals on Wheels, and home health care services. These invaluable resources function as bridges, connecting participants to a wide range of social work services, including financial aid, housing assistance, and food support. Additionally, they cater to caregiver support and offer skilled nursing, physical, and occupational therapy services, catering to those who may require additional assistance in managing comorbidities or improving their functional status.

**Objective 7: Evaluate the effectiveness and limitations of food incentive programs and make recommendations for future success and sustainability of such programs.**

 Detroit Mercy's execution of the Farmacy Foods and Fresh Prescriptions food incentive initiatives offered valuable insights into the remarkable advantages, constraints, and opportunities for enhancement. Adhering to the CDC Framework for Program Evaluation, the study effectively engaged stakeholders, clearly defined program objectives and activities, concentrated the evaluation on various aspects influencing participant outcomes and satisfaction, collected reliable evidence using pre-and-post program surveys, goals, and biometric tracking sheets, supported conclusions, and communicated findings to relevant stakeholders.

**Benefits**

In summary of the program's advantages, this assessment revealed that setting goals and demonstrating readiness increases the likelihood of weight reduction., The programs introduced participants to new fruits, vegetables, and recipes, while exercise education significantly boosted physical activity levels. The incorporation of various learning methods, especially one-on-one in-person visits with weekly biometric tracking, effectively kept individuals engaged, motivated, and accountable for their health. Lastly, freshly prepared meals offered convenience and encouraged the exploration of new flavors, while the use of produce boxes promoted creativity and supported local farmers.

**Constraints**

 The evaluation revealed various shortcomings of the programs. Firstly, the six-week duration was deemed insufficient by some participants and arranging in-person visits posed scheduling challenges. To ensure a personalized learning experience within the participants' homes, educators must exhibit flexibility in scheduling meetings and be innovative in providing alternatives, such as recording videos or conducting virtual visits for those unable to attend in person. Another limitation was the absence of statistically significant changes in overall weight, waist circumference, blood pressure, and the consumption of fresh fruits, vegetables, and unhealthy foods and beverages. Furthermore, it was not possible to compare biometric lab values due to several factors. The programs' weaknesses were further highlighted by issues concerning the quality, quantity, and the participants' lack of autonomy over their food choices.

**Recommendations**

 To improve program success and ensure sustainability for future implementations, the evaluation identifies areas for providers to address. Despite the majority of participants in this study coming from disadvantaged socioeconomic backgrounds with incomes below the national poverty line, many individuals denied experiencing food insecurity. One reason for this may be the presence of inherent shame or embarrassment among students who helped participants complete the surveys. These participants faced technical and functional limitations to complete surveys independently online or on paper, which made them rely on assistance. As a result, some of them may have felt uneasy about openly revealing their financial and food insecurity concerns, notably, five participants declined answering income-related questions. Additionally, the programs lacked an inclusion criterion based on participants' readiness to make changes. To enhance effectiveness, it may be beneficial to limit participation to food-insecure individuals who demonstrate motivation and readiness for change. The use of validated screening tools for food insecurity, such as the Hunger Vital Sign, and assessments for readiness to change, like the Readiness to Change Questionnaire, were recommended.

A limitation of the study was the relatively short period of time the individuals participated in the program, making it difficult to collect data over a longer period of time, which may provide a clearer perspective of impact on biometrics. Considering the challenges of comparing biometric lab values, investing in point-of-care fingerstick meters to monitor HbA1c, glucose, and total cholesterol could provide valuable insights to the true impact of these programs. Increasing the frequency of weight, waist circumference, and blood pressure measurements can boost participant self-awareness and accountability.

The program implemented by Detroit Mercy nursing students involved the inclusion of physical activity modules, which should be complemented with nutrition education in food incentive programs. Tailoring exercise modules to meet the specific needs of the population and employing validated tools like the RAPA to assess their impacts were suggested. Providing personalized in-home visits and various learning modalities were important to this population and should be considered in future implementations.

To build trust and satisfaction in food incentive programs, it is essential to establish standardized criteria for food quality, quantity, and methods that promote autonomy in choosing foods. In addition, connecting participants to community resources can foster sustainable outcomes and mitigate the effects of social determinants of health that may adversely impact poor eating or physical activity habits.

Finally, it is recommended that programs recognize and boost participants' morale by presenting them with end-of-program certificates, acknowledging their commitment to improving their health through holistic interventions. Providing participants with a comprehensive summary of their biometric results, dietary and physical activity habits, whether positive or negative, can highlight their progress or lack thereof and potentially aid them in identifying new goals to pursue after the program. Sharing these certificates and summaries with their healthcare providers can strengthen the provider-patient relationship, leading to increased accountability, sustained achievements, and support in reaching new health objectives.

**Sustainability Plan**

Sustainability for this project has high chances for success. Gaining the continued support from Ford Community Corp partnership as well as collaboration with community partners is strong. FCCP has shown interest in funding another cycle and the Fresh Prescriptions program has affiliations with several primary care clinics and health insurance plans and systems such as Meridian Health Plan and Henry Ford Health System. This study was also featured on the university’s online news article gaining interest of faculty, students, an alumni. Marketing efforts by Detroit Mercy earned an additional $2,925.00 to go towards future implementations. The program chair and reader for this project were awarded $11,000.00 from the Faculty Research Award (FRA) which will further support future implementations. Recruitment of clinical adjunct faculty to continue implementation are also in place.

**Implications for Practice**

 The implications for food incentive programs has many potential benefits. These include improving health outcomes by encouraging dietary changes and lifestyle modifications, increasing physical activity, expanding community partnerships between Detroit Mercy, Farmacy Foods, Fresh Prescriptions, and FCCP, and promoting food justice by increasing utilization of local farmers market. In addition, this community health practicum experience, service learning, and reflection requirement produced a meaningful impact on the nursing student’s professional development. These students gained first hand experience as a community health nurse, strengthened assessment skills of not only a patient’s physical condition, but also their psychosocial and enviornmental status, and be able to draw connections of social determinants of health and Healthy People 2030 goals. Moreover, the students exemplified Mercy and Jesuit traditions by demonstrating commitment to social justice and serving disadvantaged popualtions with culturally sensitive care; values that are imperative in the next generation of nurses.

**Conclusion**

 Detroit Mercy's pilot of the food incentive programs offered valuable insights into the factors contributing to successes, challenges, and areas for improvement. It is evident that these programs have significant potential to achieve positive health outcomes within a short timeframe. Equipping participants with adequate tools, support, and resources can play a pivotal role in influencing health changes and promoting overall well-being. To maintain participant interest, trust, and commitment, stakeholders must be open to constructive criticism and adopting necessary changes, both for the participants and the implementing organizations. Effectively communicating participant outcomes, challenges, and recommendations can enhance program success. Moreover, non-federally qualified implementation partners should allocate budgets to cover the financial requirements of the program, including time, supplies, food products, and compensation of educators, to ensure sustained participation, especially considering that most of these programs rely on grant funding. Overall, this program evaluation successfully achieved the objectives outlined in this paper.

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**Appendices**

Appendix A: Fresh Incentive FCCP Budget

|  |
| --- |
| **Fresh Incentives FCCP Budget****Dr. Karen Mihelich****Fall 2022-Winter 2023** |
|  |  |
| **Program Income** |
| Explorer Model 2021-2022 |  $2,500.00  |
| Mustang Model 2021-2022 |  $2,990.00  |
| Explorer Model 2022-2023 |  $2,500.00  |
|  **Total Program Income** |  **$7,990.00**  |
|  |  |
|  |  |
| **Program Costs Fall 2022** |
| Student Coordinator |  $1,500.00  |
| Faculty Partner Dr. E. Webber |  $250.00  |
| Eastern Market Boxes |  $990.00  |
| Farmacy Food Prepared Meals |  $1,430.00  |
| Material costs Afsana Uddin  |  $49.80  |
|  *Folders* |  *$18.82*  |
|  *Batteries* |  *$14.69*  |
|  *Therabands* |  *$16.29*  |
| MSON Printing |  $100.00  |
|   |  |
|  **Total Program Costs Fall 2022** |  **$4,319.80**  |
|  |  |
| **Program Costs Winter 2023** |
| Student Coordinator |  $1,500.00  |
| Faculty Partner Dr. E. Webber |  $250.00  |
| Eastern Market Boxes |  $990.00  |
| Projected Material costs Afsana Uddin |  $35.11  |
|  *Folders* |  *$18.82*  |
|  *Therabands* |  *$16.29*  |
| MSON Printing |  $100.00  |
|   |   |
|  **Total Program Costs Winter 2023** |  **$2,875.11**  |
|  |  |
| **Remaining Program Income** |  **$795.09**  |

Appendix B: Social-Ecological Model



Appendix C: CDC Framework for Program Evaluation in Health

Figure 1: Steps in Evaluation Practice

Figure 2: Stakeholder Mapping



Figure 3: Standards for Effective Evaluation

Appendix D: NUR 4350 Community Health Practicum/Program Schedule

**Cycle 1:**

**Farmacy Foods (5 meals/week x 6 weeks). Students will be in the home on Tuesdays.**

**(Week 1) Tues, August 30th:** Clinical Orientation CF 212 0800-1700, Windshield Survey

**(Week 2) Tues, Sept 6th:** **Student home visits**: **Enrolling participants to program, Pre-survey**

**(Week 3) Tues, Sept 13th:** Off-site learning opportunity; *Prepared Food Delivery #1*

**(Week 4) Tues, Sept 20th: Student home visits:** UDM Education #1 on Physical Activity; *Prepared Food Delivery #2*

**(Week 5) Tues, Sept 27th:** **Student home visits:** UDM Education #2 on Emotional Eating from CDC Diabetes Prevention Program; *Prepared Food Delivery #3*

**(Week 6) Tues, Oct 4th:** **Student home visits:** UDM Education #3 Coping with Triggers from CDC Diabetes Prevention Program; *Prepared Food Delivery #4*

**(Week 7) Tues, Oct 11th:** **Fall Break Oct 11-12- NO CLINICAL;** *Prepared Food Delivery #5*

**(Week 8) Oct 18th:** **Student presentations;** *Prepared Food Delivery #6;* prepare to order food boxes for next week using Fresh Rx app; Joel to assist

**Cycle 2:**

**Fresh Prescriptions/Eastern Market (1 box/week x 6 weeks) Students will be in the home on Wednesdays.**

**(Week 9) Oct 19th:** Clinical orientation CF 212 0800-1730; Windshield Survey; *Box #1*

**(Week 10) Oct 26st:** **Student home visits:** FrRx Education #1, #2, & 3 on Food Storage, My Plate, and Portion Sizes; *Box #2*

**(Week 11) Nov 2nd:** **Student home visits**; FrRx Education #4 on Nutrition Labels, *Box #3*

**(Week 12) Nov 9th:** **Student home visits:** FrRx #5 Education on Sugar & Salt; *Box #4*

**(Week 13) Nov 16th:** **Student home visits:** FrRx Education #6 Fats & Oils; **Post-survey** *Box #5*

**(Week 14) Nov 23rd:** **Thanksgiving break 11/24-11/28- NO CLINICAL**; *Box#6*

**(Week 15) Nov 30th:** **Student home visits: Remaining** **Post-survey**

**(Week 16) Dec 7th:** **Student presentations**

**Cycle 3:**

**Fresh Prescriptions/Eastern Market (1 box/week x 6 weeks) Students will be in the home on Tuesdays.**

**(Week 1) Jan 10th:** Clinical orientation CF 212 0800-1700; Windshield Survey

**(Week 2) Jan 17th:** **Student home visits:** **Enrolling Participants into Program, Pre-survey,** FrRx Education #1 & Food Storage; *Box #1*

**(Week 3) Jan 24th:** **Student home visits**; UDM Education #1 Physical Activity & FrRx Education #2 on Nutrition Labels, *Box #2*

**(Week 4) Jan 31st:** **Student home visits:** FrRx Education #3 & #4 on My Plate and Portion Sizes; *Box #3*

**(Week 5) Feb 7th:** **Student home visits:** FrRx Education #5 & 6 on Sugar & Salts; Fats & Oils; *Box #4*

**(Week 6) Feb 14th:** **Student home visits:**  UDM Education #7 on Emotional Eating/Coping with Triggers from CDC Diabetes Prevention Program (optional); **Post-survey** *Box #5*

**(Week 7) Feb 21st:** **Student presentations,** *Box #6*