

2015

Planning for a Community Supported Farmers Market in a Rural USDA Food Desert

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Walden University

College of Health Sciences

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Carrie Engelbright

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the review committee have been made.

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Walden University
2015

Abstract

Planning for a Community Supported Farmers Market in a Rural USDA Food Desert

by

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MS, Bellin College of Nursing, 2007

BS, University of Wisconsin Oshkosh, 2005

Project Submitted in Fulfillment
of the Requirements for the Degree of
Doctor of Nursing Practice

Walden University

May 2015

Abstract

A community initiative to develop and sustain a farmer's market can address insufficient access to fresh and affordable fruits and vegetables for individuals working and residing in a United States Department of Agriculture (USDA) designated food desert. This project addressed a particular USDA food desert in South Wood County, Wisconsin. The purpose of this project was to develop and plan for implementation and evaluation of a community-supported farmers market in South Wood County, with the goal to increase access to fruits and vegetables. Project objectives included development of a sustainable community infrastructure to support the market, development of policies and guidelines for creation and sustainment of the market, and development of implementation and evaluation plans for the overall market initiative. In collaboration with an interdisciplinary project team of community stakeholders, the above objectives were met and necessary products and plans were developed to direct the initiative over a 5-year period, with long-term evaluation planning extending to 10 years. The plan has been validated by external scholars with content expertise in the area, approved by the project team, and formally endorsed and approved by the Wood County Health Department. The market initiative has been approved for establishment in the community for the 2015 market season. Rooted in the socioecological model, a community supported farmers market can be a key catalyst for positive social change by improving the health of underserved populations who lack access to fresh, affordable fruits and vegetables. By using existing evidence relevant to the population's needs, the market will address disparities surrounding food access and affordability in a rural community affected by food desert conditions.

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Dedication

I would like to dedicate this project to my family. My husband and children sacrificed much during my years of continued education. My parents instilled in me the dedication and values necessary to be successful in my endeavors.

Acknowledgments

I would like to extend a gracious thank you to my advisor Dr. Stoerm Anderson and my committee member Dr. Edna Hull for your patience and guidance. I would also like to thank my peers for continuous support throughout this project.

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Section 1: Nature of the Project

Introduction and Nature of the Project

The problem addressed in this project is inadequate access to fresh and affordable fruits and vegetables and how it affects residents of a United States Department of Agriculture (USDA) designated food desert, namely Wisconsin Rapids located in South Wood County, Wisconsin. I have addressed this problem by assembling a project team and creating a development, implementation, and evaluation plan along with supporting guidelines and policies for a community-supported farmers market located within the desert. A community-supported farmers market has the ability to increase access to fresh and affordable produce, which can affect the health of this community and effect positive social change.

Background

A food desert is an area where access to healthy and affordable foods is restricted. According to the USDA food desert conditions are based on two attributes of the community: low access (LA) and low income (LI). South Wood County is a rural area in central Wisconsin, of which a portion is designated as a food desert by the USDA (Figure 1).

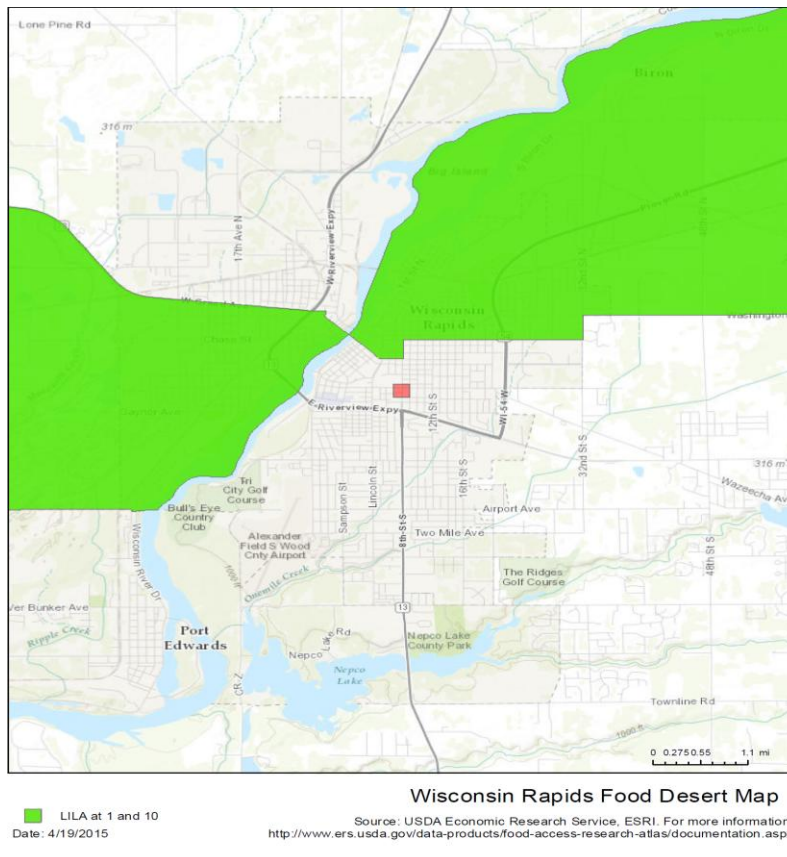


Figure 1. South Wood County USDA food deserts. This map represents the USDA designated food desert (noted in green) for the city of Wisconsin Rapids Wisconsin, queried from the USDA Food Desert Locator Tool. United States Department of Agriculture Economic Research Service. (2015). Food access resource atlas. Retrieved from: <http://www.ers.usda.gov/data-products/food-access-research-atlas/go-to-the-atlas.aspx>. Reprinted with permission from the US Department of Agriculture, Economic Research Service.

Restricted access correlates with other demographic and socioeconomic attributes of a community including educational and income levels as well as access to public transit or other sources of reliable transportation. The Economic Research Service (ERS)

under the direction of the USDA collects nationwide data on the existence and persistence of food deserts across the nation. A recent ERS study using 1990 and 2000 U.S. Census data, 2006 store location data, and 2005–2009 American Community Survey (ACS) data demonstrated a strong correlation between poverty and access to healthy foods (USDA ERS, 2012). In the study, Dutko, Ver Ploeg & Farrigan used regression analysis to determine which characteristics were associated with the low income variable and physical location. The researchers used a multivariate logit model to evaluate the impact of housing, ethnicity, unemployment, and poverty characteristics from 1990 to 2000. This research has identified more than 6,500 food desert tracts throughout the nation. An interactive map is housed on the USDA web site; users can enter an address and identify if the specified location is quantified as a food desert.

Regarding the correlation of low income to fresh and affordable produce access, according to Vital Signs, a publication put forth by the In courage Foundation of South Wood County, family income fell by greater than 10% in South Wood County whereas during the same time frame the nation saw a 5% loss and the state of Wisconsin saw an 8% loss. South Wood County income trends are projected to continue to fall due to manufacturing job loss and an increasing proportion of the community nearing retirement. Another economic indicator of this community is students that receive free or reduced fee lunches at public schools (economically disadvantaged students). In recent years this has dramatically increased in South Wood County from 22% in 2000 to 43% in the 2012–2013 school year (In courage Community Foundation, 2013, p. 9). Trending declining family income rates and increasing economically disadvantaged student rates

may exasperate restricted access to fresh and affordable fruits and vegetables in South Wood County.

There are many socioeconomic and environmental determinants that impact obesity rates, including decreased availability of green spaces, increased access to fast food, the lack of neighborhood safety, poverty, and being of an ethnic and racial minority. Correlation between inadequate access and consumption of fruits and vegetables and obesity has been noted in the literature. A recent Canadian study identified that the “lower the ratio of fast-food restaurants and convenience stores to grocery stores and produce vendors near people's homes, the lower the odds of being obese” (Spence, Cutumisu, Edwards, Raine, & Smoyer-Tomic, 2009). Increasing access to fresh fruits and vegetables by way of a farmers market is one intervention to help control obesity rates. Hood, Martinez-Donate, and Meinen (2012) noted, “Research indicates assisting with the local production of fruit and vegetables for local markets, and the promotion of direct farm-to-consumer supply chains, would be a wise investment in addressing unhealthy eating, obesity and related diseases” (p. 286).

Local Data

According to the Centers for Disease Control and Prevention (CDC, 2013), in Wood County, “the combined adult overweight and obesity rate is 64.4%, and 34% of third graders are overweight or obese. Only 50% of Wood County ZIP codes have grocery stores or farmers' markets and less than 25% of county adults meet the Federal government's guidelines for fruit and vegetable consumption” (para. 2). The CDC National Center for Chronic Disease Prevention and Health Promotion (2013) has published statistics on the median number of fruit and vegetable servings consumed per

day by state as well as the percentage of individuals who consume less than one serving of fruits and vegetables per day; for the state of Wisconsin those statistics are 1.1 servings (fruits) and 1.5 servings (vegetables), and 35.6% (fruits) and 26% (vegetables), respectively. As reported by the Healthy People Wood County 2010 document, of the adults residing in Wood County, “75.7% consume less than the U.S.D.A. recommended 5 fruits and vegetables a day” (p.15).

Problem Statement

Insufficient access to fresh and affordable fruits and vegetables negatively impacts the health of individuals residing in a USDA designated food desert. The problem that was addressed in this project is the insufficient access to fresh and affordable fruits and vegetables in South Wood County, Wisconsin. Insufficient access to fresh and affordable fruits and vegetables is a significant problem in public health nursing practice.

Purpose

The purpose of this project was to develop plans for a community-supported farmers market in a USDA designated food desert. Increased access to fresh and affordable produce can positively influence an obesogenic environment. There is currently a lack of information on the implementation and evaluation of a farmers market intervention to address a food desert in rural areas.

Goals, Outcomes, and Objectives

Goal

The goal of this project was to increase access to fruits and vegetables in South Wood County, Wisconsin, a USDA designated rural food dessert.

Outcomes

Residents and employees located in a food desert will report increased perceived access to fresh fruits and vegetables after the implementation of the farmers market.

Residents and employees located in a food desert will report a perceived decrease in the prices for fresh produce after the implementation of the farmers market.

Objectives

Project objectives included the development of a community infrastructure to support the market, policies and guidelines for the creation and sustainment of a market, and an implementation and evaluation plan.

Framework

The social ecological model, sometimes referred to as the socioecological model, can address the bountiful determinants related to restricted access to fresh fruits and vegetables. Stokols (1996) explained, “Social ecological analyses emphasize the dynamic interplay between situational and personal factors rather than focusing exclusively on environmental, biological, or behavioral determinants of well-being” (p. 286). This model has been successful in community and population health promotion programming, specifically nutrition based and obesity prevention health promotion programs. Haughton (2006) explained, “The social-ecological model provides a framework to design nutrition interventions targeted at the individual, interpersonal, organizational, community, and policy levels” (p. 3).

The model, which is rooted in the fields of sociology, psychology, and public health, recognizes that individual, relationship, community, and society influences all play an integral role on health choices and lifestyles as each layer is nested within the

others. It “offers a framework to account for the reciprocal interaction of individual behaviours and the environment in the development of obesity” (Willows, Hanley & Delormier, 2012, p. 2).

The nursing profession can apply this model to various health promotion initiatives that have multifaceted determinants. I applied this model as a holistic approach to address the needs of those residing in a USDA designated food desert. See Section 2 for a detailed explanation of the application of the socioecological model to this project.

Nature of the Project

This project was developed to create plans for a community-supported market that addresses the restricted access to fresh and affordable fruits and vegetables in South Wood County, Wisconsin. The project had continuous project team support throughout the development, implementation, and evaluation planning phases of the project. The World Health Organization (2009) noted, “Best practice principles for designing and implementing community-based interventions include strong community engagement at all stages of the process, careful planning of interventions to incorporate local information, and integration of the programme into other initiatives in the community” (p.12). Including and engaging community stakeholders positively impacted the success of the project planning which can also impact the futuristic implementation and sustainment efforts of the market.

Planning Detail

First, I assembled a project team of strategic community stakeholders to discuss the USDA food desert conditions and its impact on the community. This project team included members of the business community, residents of the community, nonprofit

organizations, academic institutions, vendors, and regulatory and governmental agencies. The project team convened and reviewed the current literature on rural food deserts, best practice interventions, current exemplars, the food desert condition's impact on the community, the viability of a farmers market in this community, and the potential impact of implementing a farmers market to alleviate such conditions.

A town hall meeting was held to inform those residing and working in the identified area of food desert conditions and the results of the literature review. Those invited to attend this town hall meeting included members of the community residing in the food desert representing various ages and income levels, local employers and employees, health care agencies, vendors, representatives from regulatory bodies, and members of the academic community including representatives from preschool, primary, secondary, and postsecondary institutions.

The project team collaboratively worked with me throughout the development of the policies, guidelines, and plans. The development and implementation plans were submitted to content experts for review. The project team and I revised the plans based on feedback and recommendations from the content experts. The revised, completed plans have been approved by the project team and the Wood County Health Department for endorsement and for future implementation of the project, which is outside of the scope of this Doctor of Nursing Practice (DNP) project.

Definitions

Food Desert

The USDA, United States Treasury Department, and the Health and Human Services Department have defined a food desert as “a census tract with a substantial share

of residents who live in low-income areas that have low levels of access to a grocery store or healthy, affordable food retail outlet” (United States Department of Agriculture: Agricultural Marketing Service, 2014, para. 3). The food desert specific to South Wood County, Wisconsin includes two swathes of land located in Wisconsin Rapids and outlying smaller communities.

Farmers Market

The USDA Agricultural Marketing Service (2007) defines a farmers market as “a common facility or area where several farmers or growers gather on a regular, recurring basis to sell a variety of fresh fruits and vegetables and other locally-grown farm products directly to consumers” (p.2). A farmers market can directly impact the local food system.

Local Food System

A local food system, sometimes known as a regional food system, has an ambiguous definition in the literature. As noted by the 2008 Farm Act, “the total distance that a product can be transported and still be considered a ‘locally or regionally produced agricultural food product’ is less than 400 miles from its origin, or within the state in which it is produced” (USDA Economic Research Service, 2010, p. iii); however, among local food markets, the term “local” can be associated with different geographic distances.

Low-Income Communities

The USDA (2014) has defined low-income communities as it applies to a food desert: “based on having: a) a poverty rate of 20 percent or greater, OR b) a median family income at or below 80 percent of the area median family income” (para. 4).

Low-Access Communities

The USDA (2014) has defined low-access areas as they apply to a food desert: “based on the determination that at least 500 persons and/or at least 33% of the census tract's population live more than one mile from a supermarket or large grocery store (10 miles, in the case of non-metropolitan census tracts)” (para. 5). South Wood County, Wisconsin is defined as nonmetropolitan by the USDA.

Obesogenic

The environmental landscape plays a role in the likelihood of obesity. In a systematic review of the association between environment and obesity, Mackenbach et al. (2014) noted that some environments are more obesogenic than others, meaning they are more likely to support poor nutritional behaviors leading to obesity in individuals or populations. Obesogenic environments typically have low access to supermarkets and local food systems that offer a large variety of food items at lower cost; they have greater access to small groceries or convenience stores that offer a limited food selection at high rates and high access to nutrient poor, high calorie, processed, convenience foods.

Assumptions

Lack of access to fresh and affordable fruits and vegetables are often a component of obesogenic environments, which has been correlated with obesity and its associated poor health outcomes. Recommendations abound to increase access to produce through community-based local food system initiatives such as a farmers market, and it is the assumption that increased access and affordability of produce will equate to increased consumption of produce and therefore decreased obesity rates and better health outcomes for the identified population.

Poverty is also correlated with obesogenic environments; it is assumed that poverty decreases the ability to purchase fresh produce, and therefore poverty increases the risk of obesity and its resulting poor health outcomes. It is also therefore the assumption that increasing the affordability of fresh fruits and vegetables increases access and will lead to better health outcomes.

It was the assumption of the project team that prices of produce will be less expensive at a farmers market than at a local retail outlet. This may not be an accurate assumption. This is an unknown variable until the actual creation of the farmers market.

These assumptions are necessary within the context of this project as they directly relate to the intervention of establishing a farmers market in a food desert, which addresses both low access and low income measures used in the definition of a food desert. It is assumed that by implementing a local and sustainable food system, the access and affordability of fresh produce will increase and in turn the health of the community will benefit.

Scope and Delimitations

The specific aspects of limited access to fresh and affordable fruits and vegetables were directly addressed by the creation of a community-supported farmers market planning project. The focus of this project was that of development. The need had been identified by the USDA as had the set of recommendations put forth to address the need; one of the USDA recommended interventions is the establishment of a farmers market to address food desert conditions. Specifically, a community-supported farmers market was chosen for this project so as to increase the likelihood of community involvement, social change, and sustainment; increasing stakeholder participation can better meet the needs

of the community and ensure its success. The community need and identified support needed for a successful launch of a market was also identified via project team conversations, specifically the voices of the vendor, resident and the local food system advocate from Central Rivers Farm Shed.

The boundaries of this project included collaborative efforts with those working and residing within the food desert community. A project team was assembled to review the current literature and best practice on rural food deserts and farmers markets and their potential impact on the community. A town hall meeting to inform the community was hosted for all residents and employees located in the desert region. Conversations with the project team members verified the community need and support for continuous sustainment. The project team assisted in the creation of the development, implementation, and evaluation plans based on the results of the literature review I provided.

Currently much of the quantitative literature focuses on implementing a farmers market in the urban landscape as opposed to rural to address food desert conditions. In the future, this planning project may benefit other low income rural communities residing in a food desert.

Limitations

The project team that was comprised of strategic community stakeholders was assembled to review the literature surrounding USDA food desert conditions and its impact on the community. This project team included members of the business community, residents of the community, nonprofit organizations, academic institutions, and regulatory and governmental agencies. Adequate and even representation from the

above listed groups was ascertained; however, not all members of the project team were available to meet for each of the project team meetings. Although educational and business representatives were poised to engage, community resident participation was limited, which may have introduced bias to the creation of the development, implementation, and evaluation plans.

The town hall meeting to inform local residents of the food desert condition was a bit limited. The weather conditions were difficult for travel due to freezing rain. Attendance may have been affected by a large sporting event during the time of the presentation as well.

Measures to Address Limitations

The project team meetings were held at the Wood County Health Department board room. I also met with those individuals who could not attend the project team meetings one-on-one to discuss the meeting agenda and results of the discussion. This may have somewhat limited the group think at the team meetings.

Though community member representation at the project team meetings was scant, many of the educational, governmental, and business representatives of the project team were also members of the community who either reside or are employed within the food desert area. Many of the business representatives had clients living in the food desert area and kept the interests of those clients in mind during the meetings. Many of the clients served were part of the target population including those with income and transportation barriers.

The town hall meeting was held at the community engagement room of the local library, which is a family friendly location. Child care was provided at the library by the

Wood County Health Department AmeriCorps employee during the town hall meeting to increase participation rates.

Potential Bias

Bias could have occurred based on the representation of the project team. If any group is underrepresented at the project team meetings it may lead to project bias. Only one vendor accepted a project team position; however, another member of the project team was the farm-to-school coordinator, who has very close relationships with local vendors. A local food system representative from Central Rivers Farm Shed who has strong local farmer ties attended the project team meetings and was able to give great insight to the vendor perspective as well.

Significance

A community-supported farmers market can improve access to fresh and affordable fruits and vegetables to those working and residing in an identified food desert. A policy level approach to increasing access to fresh fruits and vegetables may in the long term prevent obesity and its associated chronic disease, hence improving the health of the community. This project can promote positive social change by the increasing community collaborations to address a local health concern. The results of this may assist other rural communities in establishing a farmers market in a USDA identified food desert. As the market grows within the community after the completion of this planning stage, several possible expansions can be considered by the future advisory committee presiding over the project.

Summary

A development, implementation, and evaluation plan for a community-supported farmers market can address poor access to fresh and affordable fruits and vegetables in a rural food desert community. Use of a community support concept can increase the likelihood of the future implementation and the sustainment of the market.

Section 2: Review of Literature and Theoretical and Conceptual Framework

Introduction

The problem that was addressed in the project is the insufficient access to fresh and affordable fruits and vegetables in South Wood County, Wisconsin. The purpose of this project was to develop a community-supported farmers market in a USDA designated food desert. The literature supports the establishment of a farmers market to address both low income and low access communities as a policy-level population health intervention to combat obesity and its related problems. There is a paucity of literature on the creation of a farmers market as an intervention for rural food desert communities.

Literature Search Strategy

Electronic databases utilized during the literature search were CINAHL and MEDLINE as a simultaneous search. Terms searched included: *food desert, farmer market, farm market, farmers market, obesity, obesogenic, environment, access, rural, local food system, social ecological, socioecological, nutrition, and policy* with the Boolean operator AND. Types of literature included were peer reviewed and editorials from peer-reviewed journals ranging from 2000 to the present in English. A Google search was utilized to obtain the governmental definitions, standards, practice guidelines, and the current recommendations.

Socioecological Framework

The socioecological model was the framework for this project. The socioecological posits that health behavior choices do not occur in a vacuum. Hughes (2006) explained, "This model explicitly recognizes the interplay of the various environments (physical, cultural, organizational, or policy environments) in which

populations live and the effect this has on population health” (p. 55). This model provided the project team with a framework that allowed for interventions that addressed multifactorial health problems at the various levels of the person’s environment. The short, medium, and long terms goals were crafted using this framework as a guide.

There are many different health implications a food desert can impose upon the individual, interpersonal relationships, the community, and society as a whole. This model recognizes that individual, relationship, community, and society influences all play an integral role on health choices and lifestyles as each layer is nested within the others (see Figure 2). Utilizing a societal level intervention can impact each level of the socioecological model to affect change for this health concern.



Figure 2. Socioecological model. From Centers for Disease Control. (2015). The socioecological model: A framework for prevention. Retrieved from <http://www.cdc.gov/violenceprevention/overview/social-ecologicalmodel.html>. Images from the CDC are public domain without specific permission requirements.

At the individual level, the risk factors for restricted daily fruit and vegetable intake are many and can include determinants such as geography, income, and educational level. As noted by authors applying the socioecological model to the health

problem of obesity in Canadian Aboriginal children, the individual level of this model is influenced by “non-modifiable biological factors such as age, sex and genes; early life events; knowledge, attitudes, and beliefs about a healthy weight; and self-efficacy, motivations and body image” (Willows et al., 2012, p. 5).

Strategies to address this level of influence can include individual educational interventions. Disseminating educational materials geared toward consumption of fresh produce to consumers of a community-supported farmers market can effectively deliver personalized education. Flyers, posters, and e-mails generated from individual worksite wellness committees can help educate employees on storage, preparation, and consumption of produce and its associated health benefits. These same materials can be disseminated to the community via social media marketing, flyers in children’s backpacks, and flyers at community events. These interventions can effect positive health behavior change when the individual internalizes the messages and applies the information to daily choices.

Authors of the Canadian childhood obesity research noted that the relationship level is affected by “family feeding and parenting practices, and peer and family support for active living and healthy foods” (Willows et al., 2012, p. 5). In this project, the peer interactions of the agencies and the residents of the community can positively impact the utilization of the market and hence the consumption of fresh produce. Peer support from coworkers, friends, and neighbors can increase the likelihood of engagement activities surrounding market utilization. Planned activities at the market supported by the community supporting agencies can engage employees and strengthen the peer-to-peer support of the market initiative. Planned activities at the market could also support and

strengthen peer relationships between community members to sustain the health behavior change. Interpersonal relationships have a powerful impact over health behaviors; engaging in a community-supported farmers market can influence these relationships. Hayden (2014) noted, “When a behavior becomes a social norm, it is acceptable and often expected that members of the social network engage in the behavior” (p. 239). Peer relationships and social norms trending towards the utilization of a farmers market could increase the consumption of fresh and affordable produce.

The community level of the model involves building partnerships, community organizing, and marketing or communication amongst those employed or residing in the food desert. At the community level the socioecological model supports the market initiative through strengthened relationships amongst the various governmental, for profit and nonprofit agencies, as well as residents of the community that are engaged in the market development, implementation, and sustainment. As noted by authors applying the socioecological model to community-based nutrition programming, “the greater the number and variety of community partnerships and the deeper the collaborations among these partners, the greater will the exposure of target audiences to social marketing messages and affordable and nutritious food” (Gregson et al., 2001, pp. S8–S9).

In the future implementation of the farmers market outside the scope of this project, increasing access to fresh and affordable fruits and vegetables can influence the dietary behaviors of the entire community. Social media can assist in engaging the community at large and integrating community involvement in the market. Local vendor connections (farmers) will be strengthened within the community via increased local

direct food sales. Strengthened local food systems can support a sustainable and healthy community and economy.

The societal intervention level of the model emphasizes policy, regulatory, and collective influences. According Hood, Martinez-Donate, & Meinen (2012) a policy level change can be one of the most effective interventions to address healthy food access problems at a population level. This level of the socioecological model can be used to influence direct food sale purchases in USDA designated food deserts, thereby increasing access to fresh and affordable produce.

The USDA Dietary Recommendations for Americans implores health care professionals to utilize the socioecological model to implement societal level change to affect the nutritional health of Americans. The recommendations note that “the [socioecological] framework promotes movement toward a society oriented to chronic disease prevention. Efforts to improve dietary intake and increase physical activity are more likely to be successful when using this type of coordinated system-wide approach” (USDA, 2010, p. 57).

Currently there is a paucity of quantitative evaluation information related to implementing farmers markets in rural USDA designated food deserts. Development and future dissemination of this community initiative as a template might assist other rural communities in replicating this initiative in other rural USDA designated food deserts.

Contextual Background

Wood County, Wisconsin is a vastly rural county with strong, historical agricultural ties. Wisconsin Rapids is the county seat located in the southeastern corner of the county, and Marshfield, Wisconsin is the other urban area located in the northwestern

portion of the county. Marshfield is an economically stable community in which a large health care system and University of Wisconsin Center act as a sound and established employment base. Wisconsin Rapids has relied heavily on manufacturing and service jobs, which has lent instability to the community. The landscape in between each city is rural farmland with small townships and unincorporated areas.

Based on U.S. Census Bureau 2012 estimates, approximately 45,000 people reside in South Wood County area, which demonstrates an overall 3% decline in size. Looking to specific demographics, however, the trends are a bit more alarming. Incentive Foundation (2013) noted, “Between 2000 and 2010, the population under 30 declined by over 10%, and the prime-working-age population between 30 and 59 years old declined 4%. At the same time, the population 60 years and older increased 20%” (p. 5). As the working age population shrinks, so too does the tax base associated with employment; a population growing older in turn utilizes more financial resources. This trend can continue to negatively impact the economic health of the community.

Wisconsin Rapids is the focal area of the food desert located within South Wood County. The total population of Wisconsin Rapids is approximately 18,000 residents as per 2010 census data. The community historically has thrived on manufacturing jobs in the paper industry. Within the last decade, many of these family-supporting jobs have vanished. Manufacturing in the cranberry industry prevails in this area, but these wages do not compare to those found in the paper industry. With the disappearance of paper industry manufacturing jobs, South Wood County now relies heavily on low wage manufacturing and service industry employment.

According to the U.S. Census Bureau's 2008–2012 American Community Survey, the median household income in Wisconsin Rapids is \$37,150, with 15.9% of the population living below the poverty level. Selecting a more narrow focus on poverty rates in Wisconsin Rapids reveals a significant disparity in poverty levels between the general population and families with children. In families with children under the age of five residing in the household poverty rates increase to 39%; a shocking 74% of families with a female head of household that have children under the age of five live in poverty (U.S. Census Bureau).

Financial need continues to grow in this area as evidenced by increasing percentages of food share recipients and Medicaid rates. In June of 2008 the total number of Food Share recipients in Wood County was 6,410; in June of 2014 that number had increased to 11,700 (Wisconsin Department of Health Services, 2014). In June of 2008 a total of 12,502 individuals were enrolled in BadgerCare Plus, Wisconsin's Medicaid program; by June of 2014 that number had increased to 43,490 (Forward Health Wisconsin, 2014).

A local technical college offers educational opportunities to Wood County residents; however, according to the U.S. Census Bureau's (2013) Community Facts, in Wisconsin Rapids, "48.8% of residents have a high school diploma or less, 11.8% of the population holds an Associate Degree, 9.3% hold a Bachelor's degree and 4.3% hold a graduate degree". The remaining population has some college experience but holds no degree. The higher the educational degree earned, the larger the annual income and the higher the likelihood of employment is. Baum, Ma, and Payea (2013) noted, "Median earnings of bachelor's degree recipients with no advanced degree working full time in

2011 were \$56,500, \$21,100 more than median earnings of high school graduates.

Individuals with some college but no degree earned 14% more than high school graduates working full time” (p. 5). Figure 3 demonstrates the disparity in wages based on degree attainment. Low educational attainment rates, a decrease in the number of family supporting manufacturing jobs, and an aging demographic population all contribute to the systemic low socioeconomic status that is an integral aspect of food desert conditions.

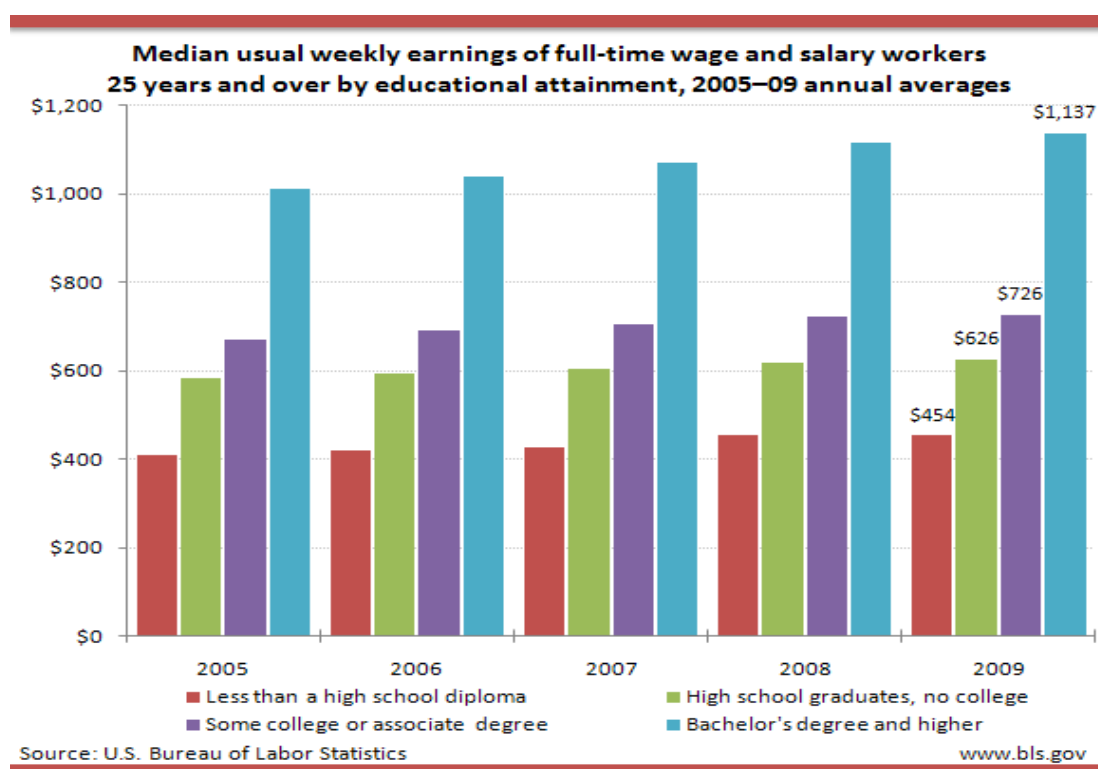


Figure 3. Median usual weekly earnings of full-time wage and salary workers by educational attainment. United States Bureau of Labor Statistics (2014). Back to college. Retrieved from: <http://www.bls.gov/spotlight/2010/college>. Images from the Bureau of Labor Statistics are public domain without specific permission requirements.

Context

The Wood County Health Department chairs a Chronic Disease Prevention Coalition; this coalition group focuses on nutrition, obesity and worksite wellness initiatives. While conducting my practicum experience, I have had the opportunity to work with this group. The group has endorsed the initiative to create a farmers market to address the food desert health concern of South Wood County Wisconsin, specifically Wisconsin Rapids. I worked with this group receiving guidance and community resource support throughout the initiative.

Scholarly Review of the Literature

Fruit and Vegetable Intake

Current literature links unhealthy dietary behaviors such as inadequate fruit and vegetable consumption to an increase in obesity as well as an array of chronic disease such as heart disease, diabetes, and high blood pressure. Conversely healthy dietary choices including the consumption of five to nine servings of fruits and vegetables per day demonstrate positive health outcomes such as a decreased rate of obesity and chronic illness. The USDA (2010) Dietary Guidelines for Americans noted that “consumption of vegetables and fruits is associated with reduced risk of many chronic diseases.

Specifically, moderate evidence indicates that intake of at least 2 ½ cups of vegetables and fruits per day is associated with a reduced risk of cardiovascular disease, including heart attack and stroke. Some vegetables and fruits may be protective against certain types of cancer” (p.35). Increasing access to affordable produce may increase the consumption and thus the health of the individual.

The Healthy Eating Index-2010 (HEI-2010) is a tool utilized by the USDA to assess compliance with the Dietary Guidelines for Americans. The tool comparatively measures nutrient density food consumption rates for the dates ranging from 2001 and 2002 to rates in 2007–2008. A section of this evaluation studies whole fruit and vegetable consumption. The results of this study indicated almost no change in the diet quality of Americans during this time frame, that the dietary intake of Americans is not optimal, and that this trend can be reversed in part by increasing fruit and vegetable consumption. The authors also noted that “Supporting these changes will require comprehensive approaches that engage every segment of society (i.e., individuals, families, schools, industry, government, and nongovernmental organizations) and reshape the environment so that the healthy choices become the easy, accessible, and desirable choices for everyone” (USDA Center for Nutrition Policy and Promotion, 2013). The creation of a community supported farmers market based on the socioecological model is one way to address this call to action on a comprehensive level.

A food desert is a geographical area with a combined restricted access to fresh and affordable fruits and vegetables and high poverty rates. Larson, Story, and Nelson (2009) explained, “Poor dietary patterns and obesity, established risk factors for chronic disease, have been linked to neighborhood deprivation, neighborhood minority composition, and low area population density (as found in more rural areas)” (p. 74). The national and state of Wisconsin average fruit and vegetable consumption rates fall far short of the recommended daily servings.

Restricted Access

Those residing in a USDA-designated food desert have restricted access to fresh and affordable produce. For these residents, access to a supermarket that offers the largest amount and most cost-effective produce is limited. The number of supermarkets in food deserts gives pause. In a recent systematic review of food deserts, Walker, Keane, and Burke (2010) noted that the poorest neighborhoods had almost 30% less supermarkets when compared to the highest income neighborhoods. Often the environment of a food desert is obesogenic as demonstrated by a combination of limited access to supermarkets and increased access to fast food restaurants and convenience stores, which offer high caloric and nutrient sparse food items. Healthy food options in these environments are limited or cost prohibitive for many residents. Larson et al. (2009) noted, “several studies have shown that better access to a supermarket is related to reduced risk for obesity, whereas greater access to convenience stores is related to increased risk for obesity” (p. 75).

For those residing in a rural food desert, the disparities are emphasized. The USDA (2012) noted, “Median family income is around 18 percent lower in rural food deserts than in non-food desert rural tracts. Accordingly, a higher percentage of households receives some form of public assistance in rural tracts identified as food deserts than in other rural tracts” (p. 11). Schmidt and Gomez (2010), in a study investigating vendor performance at farmers markets, also identified that household incomes are lower and poverty rates higher in rural areas as compared to urban areas. The USDA ESR regression analysis of food desert data demonstrated that in rural areas, the percentage of poor residents was a significant indicator of food desert status. This holds

true for South Wood County and Wisconsin Rapids, Wisconsin as demonstrated by the socioeconomic data indicated earlier in Section 2.

Smith and Morton (2009) conducted several focus groups to analyze the perspectives of rural food desert residents on food access concerns. The authors identified that persons living in rural food deserts not only had limited access to supermarkets, but along with that had limited access to a variety of food options. The limited food items that residents did have access to, healthy or not, were often cost prohibitive which compounded the negative health risks associated with food deserts. Results from the focus groups surrounding the topic of external food environment revealed that a lack of food retailer competition resulted in higher prices and a decreased quantity and variety of healthy food options. Transportation was also cited as a barrier to focus group attendees; some residents traveled outside of the community to purchase food, which in turn increased financial burdens. Transportation is not the only consideration when analyzing access to fresh produce for residents of a food desert. One must also consider the built environment as a social determinant of health including the safety of travel, the walkability of the community, lack of mass transit transportation systems, and safety concerns of individual neighborhoods.

In another recent qualitative study, Yousefian, Leighton, and Hartley (2010) also conducted focus groups to assess food shopping habits, barriers to obtaining food, food access, and healthy food perceptions with rural residents of a food desert. Researchers again found that cost, travel distance, and the quantity and quality of available food items were all themes that emerged as elements restricting access to healthy and affordable

food options for rural food desert residents, reinforcing the 2009 study results analyzing access perceptions of rural food desert dwellers.

Affordability

The affordability of fresh produce is important when purchasing food items for a household, especially within a food desert which is quantified as low income (a poverty rate of 20% or greater, or a median family income at or below 80% of the area median family income) by the USDA. A Canadian study conducted by Larsen and Gilliland (2009) analyzed the costs of food in a food desert before and after the implementation of a local farmers market. The study utilized the Ontario Nutritious Food Basket (ONFB), which is a standardized tool that measures the price and availability of nutritious foods in Canada. Over the 3 year time frame, ONFB prices for the comparative residents living near a supermarket increased by 9.12% whereas prices for residents of the food desert after the implementation of the market decreased by over 12%. The authors noted that “the findings indicate that the introduction of a farmers market can significantly decrease the economic costs of living in a neighbourhood without a supermarket” (Larsen & Gilliland, 2009, p. 1160).

Chain supermarkets have the ability to offer a larger variety of items at a less expensive price; fewer chain supermarkets in a food desert can equate to higher prices residents pay for fresh produce. Residents relying on smaller grocery stores or convenience stores that often only carry name brand products in smaller container sizes and a smaller variety and amount of fresh produce pay higher prices for the products. Chung and Meyers (1999) noted that non-chain, smaller stores are more likely to be located in areas with higher poverty rates whereas the larger chain supermarkets are more

likely to be located in more affluent neighborhoods. The authors of this study also analyzed food prices in Minnesota in a comparable manner to those conducting the Canadian food prices study. The authors compared food prices of a standard “food basket” which contains a fixed list of certain food items. The authors of this study compared food basket prices between smaller stores to chain supermarket stores, urban and suburban food stores, and food pricing for stores located in poor as compared to affluent neighborhoods. The results of this comparison revealed a significant price gap between chain and non-chain retailers and cost of food items compared between poor to affluent neighborhoods. A smaller price gap was identified between the urban and suburban retailers. The study reveals a decreased affordability of food items for those in poor areas with limited access to chain supermarkets.

In another Minnesota study comparing costs focused on food basket prices in both rural and urban settings, Hendrickson, Smith, and Eikenberry (2004) studied two rural and two urban areas that they chose based on the areas’ high poverty rates and limited access to grocery stores. They compared food basket prices with prices obtained from adjacent, more affluent neighborhoods with large grocery stores. Hendrickson et al. found that “in the two urban neighborhoods, a significant number of foods (26% and 52%) were significantly more expensive than the Thrifty Food Plan’s (TFP) market basket price (MBP). Additionally, a significant number of foods in the rural communities were more expensive (11% and 26%)” (p. 371) reinforcing the affordability concerns raised in the previous literature for those residing in a food desert, while also including the considerations of residing in a rural food desert. The affordability of foods for rural

residents are compounded when considering the additional transportation costs associated with traveling greater lengths to purchase food items.

Gaps in Literature

Arneson-McCormack, Nelson-Laska, Larson, & Story (2010) conducted a literature review of farmers markets and community supported agriculture (CSA) to determine evaluation needs of these interventions and future research. Of the sixteen studies reviewed most focused on those that utilized either the Supplemental Nutrition Assistance Program (SNAP), formerly known as food stamps, or the Women, Infant and Children (WIC) program voucher systems. In this literature review, authors of six of the sixteen studies stated that participation in farmers markets or community gardens was associated with increased fruit and vegetable consumption and an additional 3 of the studies found increases only in the consumption of vegetables. Few of the studies used objective measurement tools to assess the dietary intake of the participants which may demonstrate increased access but does not accurately link increased consumption of the produce. Also, the studies mostly focused on SNAP and WIC participants as opposed to the larger population of the community.

Much of the literature revolves around urban dwellings as opposed to rural settings. Although support for policy level interventions to alleviate food desert conditions abounds in the literature and from governmental agencies, it is most often directed towards the urban setting. For example, a recent literature review of food desert conditions focused strictly on the urban setting. Based on the current literature Walker, Keane, and Burke (2010) noted this and highlighted the need to call stakeholders and policy makers to action to create new policies that address urban food desert areas,

specifically calling to action food practices that increase access to affordable and nutrition foods for low income urban residents. Although supporting societal level interventions to change food desert conditions is recommended in this literature review, some of its recommended interventions may not be applicable to the rural food desert.

Research highlighting rural food deserts has been qualitative in nature and lacking in quantitative analysis (Yousefian, Leighton, and Hartley, 2010). Despite this lack of peer-reviewed evidence, content experts from the CDC and the USDA continue to recommend the implementation of farmers markets and CSA's to address food access concerns (USDA, 2009 & CDC, National Center for Chronic Disease Prevention and Health Promotion, 2013). A 2009 systematic review of food environment literature continued this support by listing suggested strategies for improving the availability of fruits, vegetables, and other health foods; of those strategies the establishment of farm markets was listed (Larson, Story & Nelson, 2009).

Nursing Practice Advancement

This project has public health nursing implications as it has the potential to advance the population health of a rural area affected by food desert conditions. Publication of this project can contribute to public health nursing literature and may shape future societal level policy change for those affected by food desert conditions in rural areas.

Summary and Conclusions

Use of the socioecological model can support a societal level intervention to affect the health of residents of a USDA food desert. The literature highlights the disparities of residents in low income and low access areas as compared to their

counterparts in more affluent and accessible communities. Implementing a farmers market could reduce access and affordability barriers in purchasing fresh fruits and vegetables.

Section 3: Methodology

Introduction

Insufficient access to fresh and affordable fruits and vegetables negatively impacts the health of individuals residing in a USDA-designated food desert. The problem that was addressed in this project is insufficient access to fresh and affordable fruits and vegetables in South Wood County, Wisconsin. The purpose of this project was to develop a community-supported farmers market infrastructure in a USDA-designated food desert. Access to fresh and affordable produce can positively influence an obesogenic environment. There is currently limited information on the implementation and evaluation of a farmers market intervention to address a food desert in rural areas. The goal of this project was to increase access to fruits and vegetables in South Wood County. Residents and employees located in a food desert will report increased perceived access to and affordability of fresh fruits and vegetables after the future implementation of the farmers market. Project objectives included creating a development plan, developing policies and guidelines for the creation and sustainment of a market, and the creation of an implementation and evaluation plan.

Overall Approach

The scope of this project was developmental in nature. I conducted this project by way of the following steps:

1. Assemble an interdisciplinary project team of community stakeholders.

The project team included representation from the following groups: Wood County Environmental Health Department, Wood County Women Infant and Children (WIC) program, the Wood County Health Department, Mid-State Technical College's

Worksite Wellness Committee, Wisconsin Rapids Housing Authority, the United Way's Hunger Coalition, River Cities High School (an alternative high school that offers services to an at-risk population), University of Wisconsin Extension, the Incentive Foundation (a community-building organization interested in the health of the community), Health and Human Services, the local YMCA, Central Rivers Farm Shed (a local sustainable food systems advocacy group), the Wood County Farm to School Coordinator, a vendor, and a resident of the desert; the resident self-reported being of low income and as residing within the food desert. The project team identified themselves as having the following positions from the identified organizations:

- Wood County Environmental Health - Sanitarian (2),
- Wood County WIC – Director,
- Wood County Health Department – Community Health Planner,
- Wood County Health Department - Farm to School Coordinator,
- Mid State Technical College – Faculty and worksite wellness committee member,
- Wisconsin Rapids Housing Authority – Director,
- United Way – “Hunger Coalition” subgroup member,
- River Cities High School – Faculty,
- UW Extension – Family Living Educator,
- Incentive Foundation – Resource Strategist,
- Health and Human Services – Food Stamp Eligible Grant Coordinator,
- YMCA – Director,
- Central Rivers Farm Shed – Project Coordinator,

- Local Farmer – Market Vendor,
- Resident of the food desert.

Each of the project team members either resides, is employed, or offers services to those residing in the food desert area. Many were able to participate in each of the team meetings. For those that were unable to participate at the meetings, I communicated with them either electronically, via telephone, or in scheduled face to face meetings at an alternate time and location to suit their availability.

2. Conduct a literature review of best practice to initiate and sustain a local farmer market and review the results with the project team.

I conducted a review of the literature on best practice in regard to initiating and sustaining a local farmers market. I reviewed governmental recommendations on developing and sustaining farmers markets and best practice models including information from the USDA Agricultural Marketing Service and the USDA Know Your Farmer, Know Your Food program. In addition to a review of the literature, I reviewed historical market creation perspective for various markets both locally and across the state and nation. I also reviewed established market mission and vision statements, goals, governing structures, policies and guidelines of prominent markets locally, statewide and around the nation. These markets included Wausau, Wisconsin; Dane County, Wisconsin; Seattle, Washington; The University of Utah; and a local market in an adjacent city, the Stevens Point, Wisconsin.

The Wausau, Wisconsin farmers market began 5 years ago as a worksite wellness initiative between two competing regional health care facilities. The two agencies'

worksite wellness committees worked cooperatively to start and sustain an annual farmers market for the health of their employees and their community. Operating one day per week with limited resources, the market continues being sustained by mainly hospital staff and volunteer support.

The Dane County Farmers Market in Madison, Wisconsin advertises its market as the nation's largest producer-only market. Brought together by local government and business in 1972, farmers formed a market on the state's capital estate; this market continues to thrive with over 300 vendors today. This was an exemplar of community organizing to create a sustaining market.

The Seattle market was established in 1993. It was initiated by a community volunteer and later supported with established relationships between local businesses and governmental agencies. This market also highlighted the importance of grassroots efforts to launch and sustain a market by way of volunteerism and community relationship building.

The University of Utah Sustainability Resource Center hosts an on campus market along with campus edible gardens. The University focuses on local food systems and sustainability within the community, utilizing available community space. This market contributed to the review of best practice by showcasing the importance of shared physical resources to better the health of the community by way of a farmers market.

Locally, Stevens Point, Wisconsin is an adjacent community that is comparable in size to Wisconsin Rapids, but does not reside in a USDA food desert. This community has a very strong farmers market with extensive historical roots that is integral to the community. The farmers market began in the community square in 1870 and continues to

this day, meeting daily during the growing season; the community also offers a winter farmers market throughout the year. This example demonstrated a local support of farmers markets and yielded excellent information in terms of sustainability in a rural community.

I relied on direction from the USDA's Know Your Farmer, Know Your Food (KYF2) program. This program is an actualized effort to execute President Obama's pledge to strengthen local and regional food systems. This program has a vast array of tools and resources for communities to utilize that can help to support and sustain local food systems including local food supply chains, farming system tools, farmers market publications and presentations, and the information on food deserts including the desert locator tool. In addition to the KYF2 program, I also reviewed best practice of creating a farmers market from the USDA Agricultural Marketing Services Program.

Results of my review including best practice, the food desert locator tool and established market ideas were shared with the project team at the first meeting on November 14, 2014. Topics also included how these resources and ideas might be applied to a rural community and more specifically the local community, including identified strengths and opportunities. Ideas on the development plan were discussed.

3. Create a development plan based on a review of current literature in conjunction with the project team.

Working with the project team, I crafted the development plan for the community supported market. The development plan takes into consideration the review of the current literature as well as the strengths and opportunities unique to the community. The

development plan is created with the understanding that the community will support the initiative in the future by way of a voluntary advisory board to be created and deployed after the Wood County Health Department has endorsed and content experts have validated the plans. The development plan includes a market guide, operations rules and policies, a budget, and a marketing plan (Appendix A).

4. Host a town hall meeting to inform citizens of food desert conditions.

Advertisement for the town hall meeting event was created by a local technical college marketing program student (Appendix B). I supplied the first year marketing students with the presentation information and author biography. I then requested students submit a flyer for the market event for review; after all submissions were received the marketing program faculty person and I chose the winning flyer. The event was advertised with the flyer through many communication routes including the Wisconsin Rapids elementary school Friday backpack program; the local YMCA's community presentation multimedia outlet; Constant Contact, an electronic community network list serve that local health care agencies and businesses subscribe to; the Parent Information and Education Resource (PIER) group newsletter; and to the local high schools.

On December 8, 2014 I hosted a town hall meeting at the local library in the community all purpose room to inform citizens of food desert conditions in the community. The AmeriCorps volunteer for the Wood County Health Department sponsored by the Wood County Chronic Disease Coalition provided child care in the children's section of the library for attendees during the event. I co-presented with the Wood County Farm to School coordinator to demonstrate an application of a community

supported local food system intervention designed to increase the health of the community. During the event, local foods from local vendors were showcased, local food programs and business that embrace local food systems were highlighted, and interventions to combat food desert conditions including farmers markets were reviewed. The event was held in the evening to better attract residents of the community. Despite black ice and freezing rain weather conditions as well as a Packer game, attendance was sound.

5. Develop an implementation plan including policies and guidelines for the creation and sustainment of a farmers market in conjunction with the project team.

The project team met a second time on December 5th, 2014 to craft the implementation plan (Appendix C). During this meeting the mission and vision (Appendix D), short term, medium term, and long term goals (Appendix E) for the market were created in conjunction with the implementation plan. The “Farmers Market Operational Rules and Policies” (see Appendix F), the “Market Manager Guide” (Appendix G), “Vendor Contract” (Appendix H), and the “Report of Market Violations” (Appendix I) documents were also created to support the implementation plan.

The mission, vision, and goals were directed by the definition of the food desert while keeping community idiosyncrasies and available resources in mind. The supporting policies and guidelines were driven by the review of the literature and national and state exemplars.

Some members of the project team were unable to make this meeting, and therefore I communicated with those individuals at alternate dates and times to discuss

plans during one on one meetings. The plans changed slightly based on these meetings, and consensus was then obtained by the project team via electronic means of communication.

6. Develop an evaluation plan in conjunction with the project team.

At the final meeting on December 19, the project team created evaluation plans based on the mission, vision, short, medium, and long term goals. The evaluation plans have a balance of qualitative and quantitative measures as this was indicated as an important element by the project team. Logistics of measurement and sustainability were discussed while keeping in mind available community resources. Funding opportunities and project sustainment were also discussed.

One of the measurement tools for the short term goals was adapted with permission from a University of Wisconsin Extension agent from Waukesha County, Wisconsin. I connected with the agent prior to the meeting to discuss the published tool and to gain consent for its use in our market. The tool was adapted with input from the project team to meet the needs of short term market goals specifically. I then contacted the Extension agent for approval to use the adapted tool, which was approved. All of other measurement tools were original products crafted collaboratively by myself and project team members.

7. Validate the proposed development and implementation plans via feedback from external content experts.

In the last 2 weeks of December 2014, I sent an initial e-mail to the following list of individuals at universities, agencies, and markets seeking feedback on the plans and supporting documents the project team created for the farmers market project:

- The Rice University Farmers Market,
- Seattle Neighborhood Farmers Market Alliance,
- The University of Utah Sustainability Center,
- Dane County Wisconsin Farmers Market,
- USDA: Farmers Markets and Local Food Marketing, and
- University of Wisconsin Extension Poverty and Food Security specialist.

Those responding to the initial e-mail included the contact person from the University of Utah Sustainability Center, the Dane County Farmers Market, the USDA: Farmers Markets and Local Food Marketing, and the UW Extension Poverty and Food Security specialist. All content experts agreed to review the project plans with the exception of the Rice University Farmers Market and the Seattle Neighborhood Farmers Market. Upon agreement to provide feedback, I submitted a project abstract and a project plan detail which included the development, implementation, and evaluation plans combined with the policies and guidelines to support the plans. These documents were combined into one document with a table of contents to ease readability for the content experts.

Only the UW Extension Poverty and Food Security specialist and the USDA: Farmers Markets and Local Food Marketing representatives provided feedback from the original group that had agreed to provide feedback. To seek additional feedback due to the low response rate, I reached out to two more individuals who are employed through Aspirus Corporation, a health care system that serves central and northern Wisconsin. These two individuals were sought out for their expertise in both population health and

regional resource knowledge, in addition to past experience with a farmers market in Wausau, Wisconsin, located approximately one hour north of Wisconsin Rapids, Wisconsin. I met with each representative individually and reviewed the project plan detail which included the development, implementation, and evaluation plans combined with the guiding policies and guidelines to support the plans. Feedback was garnered and provided to the project team.

Project Rationale

Assembling an interdisciplinary project team of community stakeholders interested in supporting interventions to address local food desert conditions is a key aspect of project sustainability. Invited stakeholders included residents and employees of the food desert, local businesses with established worksite wellness coalitions that express an interest in supporting a market, vendors, representatives of academia including preschool, K–12 and postsecondary institutions, supporters of local food systems, and representatives from the Health Department and the Environmental Health Department. Conducting a literature review to identify current best practice on how to develop, implement, and evaluate a farmers market to address the desert conditions and then sharing this information with the project team fostered informed decision making with community influence specific to our unique attributes and challenges. Hosting a town hall meeting to inform community members of what a food desert is, what part of the community is affected by such conditions, and how the creation of a farmers market might ease access and affordability issues surrounding food security in the community has the potential to increase community awareness and call to action.

Along with project team contribution, I created the development and implementation plans for the market along with its associated policies and guidelines. I also created the market evaluation plan with their assistance. Hodges & Videto (2011) state that to solidify the success of community health project planning and implementation it is necessary to actively involve community stakeholders from the outset; it is also critical that the group of stakeholders include target population representation. For continued success the project should include an advisory panel during the implementation phase.

Working with a project team ensured equal representation and appropriate interventions during the development, implementation and evaluation planning throughout the tenure of this venture. Deverka et al., (2013) express that there are three different types of engagement in terms of community organizing including communication, consultation and participation. The first level of engagement, communication, involves a one way direction of information from facilitator to participant. The second type of engagement is consultation which engages the facilitator and participant in conversation. The third, fully actualized level of engagement is that of participation. During participation there is bidirectional communication amongst all participants which engages all stakeholders and features reciprocal learning and shared decision making amongst the team members. The project team meetings embraced participation level engagement throughout this project process.

One force that facilitated the development of a community-supported farmers market plan is that of project team engagement. Deverka et al. (2013) defined stakeholder engagement as “an iterative process of actively soliciting the knowledge, experience,

judgment and values of individuals selected to represent a broad range of direct interests in a particular issue, for the dual purposes creating a shared understanding and making relevant, transparent and effective decisions” (p. 184). A review of the literature in conjunction with applying best practice and incorporating input from the project team members can increase the likelihood of future project success.

Yet another important aspect that can support the success of this initiative is the local community foundation, Incourage Community Foundation of South Wood County, which funds local initiatives and also collects data on the region. This foundation could be crucial to the future creation and sustainment of the market. It can also share data on the economic and health indicators of the region that can assist with planning and evaluation efforts. The foundation supports community building in terms of both health initiatives and economic opportunity. The foundation is instrumental in revitalizing the area as many view this city as dying and old; the future market could potentially be an opportunity for foundation involvement to reinvigorate the mental, physical, and economic health of the community and may also serve as a funding opportunity should in the future launching of this project that which is outside the scope of this DNP project.

Project Team

The project team assisted me to incorporate current literature, best practice, state and national exemplars, and critical community influence to complete the market planning process. The project team included residents and individuals working in the food desert, vendors, for-profit and nonprofit businesses, governmental organizations, and representatives of academia including K–12 and postsecondary. The team also included representation from the Wood County Health Department and the

Environmental Health Department in an advisory capacity in respect to local regulatory issues.

Products of the DNP Project

I constructed a development, implementation, and evaluation plan including policies and guidelines in conjunction with the project team for the future creation of a community supported farmers market. The development, implementation, and evaluation plans have been validated by external content experts. Plans have been revised based on content expert feedback and submitted to the Wood County Health Department for formal endorsement and approval. Some members of the project team have expressed interest in transitioning into the advisory board for the future market and would like to see the plans executed for the summer 2015 market season, though this action is outside the scope of the DNP project.

Data and Participants

There were no participants and there was no data collection involved in this project. A literature review was conducted and discussed with the project team; the literature and publicly available municipal data (gathered from public, local government websites) served as evidence in this project. Community members voluntarily attended a town hall meeting to be informed of the definition and impact food desert conditions have on a community. The project team collaboratively worked on a voluntary basis along with the author to create the development, implementation, and evaluation plans and supporting guidelines and policies for the future creation of a farmers market outside of this DNP project.

Timeline

The project team was assembled and literature reviewed by early November of 2014 after permission was received by the author's project committee and the Walden University Institutional Review Board (IRB) to proceed with the project. The town hall meeting was hosted December 8, 2014. The project team began work on November 14, 2014 and the last project team meeting was held on December 19, 2014. On December 22, 2014 the development, implementation, and evaluation plans as well as the supporting guidelines and policies were submitted to external content experts to review. In January additional content expert feedback was solicited from regional content experts. Suggestions posed by content experts were reviewed by the project team and incorporated into the plan in the final week of January of 2015. The finalized plans were reviewed by the project team and then presented to the Wood County Health Department at which time approval and endorsement was ascertained.

Budget

The total budget for this project was \$83.50. The town hall meeting was conducted at the local library community engagement room, which has no fees associated with it. Local food samples that were distributed at the town hall meeting were donated by local vendors at no cost to the project team. The advertisement flyer for the town hall meeting was created by way of a school project. The childcare was made available through the WCHD AmeriCorps volunteer; the marketing for the town hall meeting was distributed both electronically and through the school system Friday back pack program. The hard copies that were distributed in the Friday back pack program totaled \$77.50 and were paid for by the Wood County Health Department Chronic Disease Prevention Coalition. Minimal copy costs (\$6.00) for agendas, policies, and plans associated with

project team meetings were borne by the hosting agency (Wood County Health Department), but most were sent out electronically to project team members to print prior to the meeting. Project team meetings were hosted at the Wood County Health Department conference room, which is free of charge.

Summary

The literature demonstrates a link between increased produce consumption with decreased obesity and its associated chronic illness. One way to increase access to fresh and affordable produce in a rural food desert is via the establishment of a farmers market. The development, implementation, and evaluation plans incorporate community member input and support this intervention. The plans have been validated by content experts who work with farmer's markets, with local food systems, and in population health. The plans have been approved by the Wood County Health Department as a societal level change to positively affect the health of the community, which in turn may advance public health nursing practice.

Section 4: Findings, Discussion, and Implications

Introduction

The project team consisted of community stakeholders with a vested interest in the health of the community. Stakeholders included representation from various nonprofit, governmental, academic, and for profit business organizations. Also included in the project team was a resident of the community who could offer firsthand knowledge of residing in a food desert within the lower socioeconomic strata of the community, as well as a local vendor that has participated in other farmer markets. A representative from a local food systems advocacy group also served to represent the vendors and residents alike. The project team reviewed best practice and current recommendations on farmer market creation and sustainment. The project team created robust development, implementation, and evaluation plans for a community supported farmers market with supporting guidelines and policies. The project plans were reviewed by national and regional content experts seeking validation.

Discussion of Project Products

Primary products of this project include the development, implementation, and evaluation plans. Also included are the guidelines and policies to support the plans and the mission, vision, short term, medium term, and long term goals for the project. These plans, guidelines, and policies were created based on a review of the literature, best practice, current national and state exemplars, and project team collaborations.

Development Plan

During the first project team meeting, I reviewed the reason for assembling, the overview of the food desert region located within Wisconsin Rapids, and possible interventions that the community could undertake to address such desert conditions. The interventions reviewed were discovered through my review of the literature, best practice models, governmental recommendations, and current exemplars.

The project team discussed at length the attributes and challenges for the community. Attributes include a rich history of farming tradition, the availability of many local farmers who already sell at other markets in the county and in surrounding counties, support of the local community foundation for community building initiatives, and the strong voluntary community support from those interested in the health of the community. Challenges include scarce resources, a lack of a mass transit system, and financial constraints for a fair portion of the populous. These were the main considerations during discussions that drove our choice of selecting a community supported farmers market as an intervention to address food desert conditions in our community. This intervention plays on the noted strength of voluntary community support from the various stakeholders at the project team table in combination with community supports and the strength of deep agricultural history and connections to small rural farmers. It also addressed the noted challenges including the lack of resources and strained individual financial resources of residents in the desert. The other challenge of transportation would have to be addressed in the planning of the market.

It was through this discussion, especially noting the challenges, that we as a team became more aware of how to best address the issues at hand, specifically the low access and low income constraints of living in a food desert. We were able to troubleshoot some

of these considerations prior to beginning the work on the development plan. For example, concerns brought to the table included: what if we have no vendors that want to come to the market, what if residents cannot access, do not want to access the market, or cannot afford the market, and what would the barriers of both vendors and residents be to not only the creation but also sustainment of this potential market? These questions and the discovery brought forth from this discussion guided our planning for this project.

Within this discussion at the first project team meeting, member input was vitally important, but none more so than the crucial input solicited from the resident who reported growing up in these conditions, from the local farmer, and from the Central Rivers Farm Shed local food system advocate. They brought excellent perspective that contributed greatly to the development of this project and directly answered many of the questions noted earlier. This discussion served as the foundation for our project planning.

The development plan (Appendix A) relies on the local regulatory definition of a farmers market and the state governing regulations surrounding its existence as its foundation. During this phase of the project team meeting the input from the regulatory agencies was invaluable. Each state and locale has differing licensing requirements in terms of food stuffs sold at markets and the requirement of a license for the hosting site through the city's zoning and planning. Addressing regulatory issues was the second area of discussion that was vital to the creation of this project. Without addressing these regulatory considerations, the plan could have been null and void as implementation would be doomed from its inception without these considerations. Having this consultative voice at the project team table allowed us to progress forward to the actual development plan detail.

The development plan that was created by the project team articulates step by step how the community would go about planning for the future implementation of a community supported farmers market including regulatory issues, identification of community need, site selection, budgeting, marketing plans, market manager responsibilities, physical layout planning, and vendor recruitment.

Implementation Plan

At the second project team meeting, we focused on creating the mission, vision (Appendix D), and goals (Appendix E) to support a future market's creation and sustainment. This was a complex conversation to determine what we truly wanted to accomplish with this market. As the facilitator for these project team meetings, I brought forth exemplars of other market mission and vision statements to the group. We also returned to the discussion from the first project team meeting to focus on what exactly we wanted to accomplish to meet the needs to addressing food desert conditions. Again as the team facilitator, I bore the responsibility of informing the team of the research behind the health concerns, but also to build consensus within the group. This was completed by allowing free discussion on the topic and informing the conversation when questioned on specific attributes or data of the health concern for the community. Allowing conversation to flow without the force of my opinion on the matter was vital to the sound creation of these items.

The mission statement we felt needed to address the definition and criteria of food desert conditions specifically. The agreed upon mission statement created was "To increase access to local foods and to meet the economic, health and food security needs of the community." As a team we felt that this mission statement captured both the low

income and the low access criteria of a food desert region. The vision statement was crafted to read, “We envision a strong local economy supported by community partnerships that increases direct food sales to the community. These sustainable food systems will increase the health of the community and the affordability of purchasing healthy food items.” Again, we felt it important to keep in mind the tenets of the food desert conditions including both low access and low income, but we also wanted to incorporate long term economic and health implications for our community for this intervention.

The goals for the market were divided up into three categories: short term, medium term, and long term. We as a team were aware of aligning the goals with the mission and vision, which in turn relies on the tenets of the food desert conditions.

The short term goals were to first and foremost to increase access to fresh and affordable produce and to decrease the costs associated with purchasing fresh produce for the residents of the food desert. Each of these goals addresses a component of the food desert definition. A farmers market has the ability to increase access to produce, and it was our hope that the market would be more affordable than the local grocery store prices. Our conversation did move toward the risk of a farmers market becoming a trendy spot that offered food sales at an increased cost as opposed to a lower cost option for residents. The group decided that during the evaluation planning process, we would have to measure costs to identify if this was occurring in the community.

The first medium term goal created by the team included the strengthening of community partnerships to support local food systems. There is a strong and rich agricultural history in central Wisconsin. As such, we felt as though specific to the

community of Wisconsin Rapids, we could support local farmers by strengthening community connections with the farmers via the market plan. The community connections we envisioned strengthening included those amongst governmental agencies, for profit and not-for-profit agencies, and residents of the desert. The relationships can be strengthened by way of a voluntary advisory committee steering the market and a market manager to act as liaison to the vendors and the residents accessing the market.

We also envisioned a market with vendors that will accept both SNAP EBT and WIC vouchers as this is the neediest population that is most at risk living within a food desert. The SNAP EBT and the WIC voucher reimbursement can be challenging to vendors at a farmers market in terms of not understanding the process and wait times for financial reimbursement. It would be the responsibility of the market manager and the advisory committee to forward this opportunity by way of seeking grant funding to ascertain the equipment, to educate the vendors on the process of accepting SNAP EBT and WIC vouchers, and to streamline the process to benefit the vendors. Strengthening these relationships amongst the advisory committee, market manager, vendors, and residents of the community can open up a new client base for the vendors, thereby increasing profits. It can also improve access to the neediest of residents.

The second medium term goal created by the team was to address the desire to increase the health of the community and decrease food costs through educational programming. These educational offerings center on selecting, preparing and preserving foods to the residents of the food desert. Throughout our discussions in both the first and second project team meetings we continuously reverted to the topic of education. While we all agreed that it was critical to increase access to fresh and affordable produce to the

community, especially lower income individuals and families, it would be for naught if the population was unaware of how to select, prepare and preserve these foods for consumption. This conversation was a running theme brought forth by project members, namely those that worked daily with the low income population. As a group we chose to emphasize this area of concern by incorporating the need for community education and engagement into our medium term goals.

It was noted in our conversation that gaining the knowledge of how to select, prepare and preserve foods can impact the family food budget by enabling the opportunity to purchase food items at their peak of freshness when those items are most affordable, and then preserving the items for later consumption. The University of Wisconsin Extension agent on the project team had expressed a desire to reinvigorate their meal preparation and food preserving classes in the community and promptly volunteered to steer the interventions for this goal. Other members of the project team discussed interventions to increase attendance at these educational offerings for the target audience. It was a great example of community networking to fill an identified need in the community through collaborative efforts.

The long term goals were described by some of the project team members as our “pie in the sky” dreams for our community. These consisted of expanding the market presence to outlying communities within the food desert region, eliminating USDA food desert conditions in South Wood County, and decreasing the incidence of chronic illness.

The first of the long term goals addresses the issue of the food desert boundaries themselves. There are two swathes of the food desert that encompasses Wisconsin Rapids area but then fans out to the outlying areas. These areas are largely rural unincorporated

areas where the transportation barriers of living in a food desert are accentuated. The team felt that this was an important area of concern. The community will not be getting any type of mass transit system in our area so it was determined that we should go to their communities. One member of the project team brought forth a current example of a mobile food truck to address this very matter. It was discussed that to eliminate food desert conditions this might be a viable answer to the conundrum of outlying area transportation barriers. It was also noted that “Feeding America” a group that offers free and low cost food items to food banks are now servicing Wisconsin with this very initiative and that it may prove viable to coordinate this model with our vision of the mobile market to meet these needs.

After addressing the outlying areas affected by the food desert it was felt that the long term goal should be to eliminate food desert conditions in our area. By increasing access to fresh and affordable produce it is the hope of the project team that by adding the market and the mobile market, the produce prices at local grocery stores may be positively affected through healthy competition. Extra financial considerations into the local economy may also positively impact the economic conditions of our community.

Decreasing the rate of chronic disease in South Wood County is the last long term goal the group identified. This was the root cause as to why the project team is meeting; why we had identified the food desert conditions as a public health concern. Food desert conditions are correlated with an obesogenic environment. Obesogenic environments play a role in the health of the community and increase the likelihood of chronic illness such as obesity, cardiovascular disease and diabetes. The project team discussed that the

ultimate goal of increased access to and affordability of fresh produce was indeed to cultivate a healthier community.

The implementation plan (Appendix C) itself is a step by step plan to successfully launch the market. This plan focuses on the creation of the volunteer advisory board that will sustain the market, as well as the hiring of the market manager and the launching of the market. The advisory board will be representatives that mirror the project team, those who have a vested interest in the health of the community and members of the target population. The advisory board will select a market manager who will be responsible for the planning, vendor relations, the day to day workings of the market and evaluation plan data collection. The market manager will directly report to the advisory board at quarterly meetings. The creation of the actual implementation plan was quite straightforward compared to the negotiation needed for group censuses on the mission, vision and goals.

To support the implementation plan the “Farmers Market Operational Rules and Policies” (See Appendix F), the “Market Manager Guide” (Appendix G), “Vendor Contract” (Appendix H) and the “Report of Market Violations” (Appendix I) documents were created by the project team. Examples of these documents were presented to the project team by the author based on a review of the literature, best practice and current state and national exemplars. The project team reviewed these examples and modified them to meet the specific needs of the community.

The “Operational Rules and Policies” garnered the most discussion from the group, namely for the allowable goods clause. This reverts back to the ambiguous definition of “local foods” noted in Section 1: Definitions. Local foods is defined as by the 2008 Farm Act “the total distance that a product can be transported and still be

considered a ‘locally or regionally produced agricultural food product’ is less than 400 miles from its origin, or within the state in which it is produced” (USDA Economic Research Service, 2010, p. iii) however, among local food markets the term “local” can be associated with different geographic distances. The project team felt as though 400 miles was far too generous and therefore to increase the likelihood of infusing local dollars and local foods the agreed upon definition was changed to fruits and vegetables, plants, fresh cut flowers, herbs, dairy and animal products no further than 200 miles from the market and from the state of Wisconsin. Nonfood items (such as crafts) and ready to eat foods such as egg rolls and doughnuts will not be allowed at this market as this does not align with our mission, vision and goals to ultimately increase the health of the community.

During this project team meeting the Wood County Environmental Health representatives on the board expressed concern over the lack of compliance with vendors at farmers markets in other areas of the county in terms of food processing and licensing. Therefore this was also addressed in the “Operational Rules and Policies” under “Vendor Requirements”. To address this concern further I worked individually with the Environmental Health Department to create an up to date “Wood County Health Department Farmers Market Frequently Asked Questions (FAQs)” (Appendix J) one page, two sided document that will be distributed to each of the vendors participating in the market. This document was later sent to the project team electronically for approval.

One other important consideration was the vendor stall fee embedded within the “Operational Rules and Policies”. It was noted by the project team that this should be relatively inexpensive so as to foster the relationships with the local vendors and to keep

prices low for the residents of the community. Therefore the stall fees were decided upon as \$15 annually for each vendor.

The “Market Manager Guide” (Appendix G), “Vendor Contract” (Appendix H) and the “Report of Market Violations” (Appendix I) were all approved by the project team without changes. The “Wood County Health Department Farmers Market Frequently Asked Questions (FAQs)” (Appendix J) was sent to project team members electronically and approved.

Evaluation Plan

The evaluation plans align with the mission and vision, and address each of the short term, medium term, and long term goals that were crafted by myself and the project team. The project outcomes including resident reported increased perceived access to and a perceived decrease in the prices for fresh produce fresh fruits and vegetables after the implementation of the farmers market were also primary considerations incorporated into the evaluation plans. The spirit of addressing USDA food desert conditions including its primary tenets of low access and low income was the fundamental consideration when crafting the evaluation plan. It was important to the project team that the plans both qualitatively and quantitatively measure the effectiveness of the farmers market intervention.

Qualitative analysis will involve assessing perceived access and affordability of the market attendees and food desert resident knowledge of and confidence in selecting, preparing and preserving foods after educational interventions. The quantitative analysis of the market will analyze comparative prices of designated healthy food basket items purchased from the farmers market, a local grocery and a farmers market from an

adjacent city outside of the food desert area; SNAP EBT customer usage at the market; and county statistics of overweight and obese resident percentages, as well as diabetes and cardiovascular disease rates in Wood County Wisconsin as reported by the Centers for Disease Control and Prevention (CDC).

Prior to the third project team meeting the author researched best practice and current tools to assess farmer market interventions. One was discovered for a farmer market intervention which was created by the UW Cooperative Extension - Waukesha County (south eastern Wisconsin). The author contacted the Commercial Horticulture Educator from Waukesha County who created the tool to seek permission to use this tool, which was granted. This tool was taken to the project team at the third team meeting and reviewed. It was determined by the project team that this tool could be used with some revisions. The revisions were made at the project team meeting. The author then updated the tool with the project team's recommended changes and sent it back to the Commercial Horticulture Educator from Waukesha County for review. She agreed to the changes and felt it an appropriate application to the community supported farmers market project. Permissions were noted at the bottom of this tool titled the "Farmers Market Customer Access Survey Tool" (Appendix K).

The short term evaluation measures include surveying a minimum of 10 market attendees each market day of the market season using the "Farmers Market Customer Access Survey Tool" and comparing the prices of designated healthy food basket items purchased from the farmers market, a local grocery and a farmers market from an adjacent city outside of the food desert area. The project team discussed the logistics and costs associated with traditional paper surveys based on past experiences from several of

the project team members. It was decided that the survey would be delivered in electronic form at the market site with either a smart phone or a tablet using a platform such as “Survey Monkey” as this will increase efficiencies of the data collection and evaluation process and decrease long term copy costs.

The other measurement tool was developed to address the costs associated with purchasing fresh produce. As noted in the implementation planning the project team wanted to ensure that the prices at the market would benefit the residents of the food desert area, thus it was decided upon to model after a Canadian study intervention to create a food basket comparison tool. The chosen foods used for comparison pricing were taken from the Central Rivers Farm Shed Food Atlas “What’s in Season” tool and were chosen each month based on the peak season of the foods. The project team felt it important to compare prices of the monthly identified food basket to those of the closest grocery store and to a farmers market in close proximity to Wisconsin Rapids but outside of a food desert. There was consensus from the group to compare those prices to the market in Stevens Point Wisconsin, one of our exemplars noted earlier.

It was determined by the project team that the first medium term goal to strengthen community partnerships through local food systems would be measured by gauging the following outcomes: maintaining an average of ten vendors each scheduled market day, market manager reporting to the advisory committee at the completion of each market season, quarterly advisory committee meetings, a composition of the advisory that is represented by at least five community organizations interested in the health of the community, a minimum of five local businesses sponsoring or supporting the market annually by way of financial contribution or direct marketing, and

implementing the use of SNAP EBT for customers and vendors of the market (Appendix L). The team felt strongly that continuous relationship building springing from these outcomes would offer sustainability to the project by way of these measures.

The second medium term goal aims to increase the health of the community and decrease food costs through educational programming on selecting, preparing and preserving foods to the residents of the food desert. The integral partnership to address this goal is the University of Wisconsin Extension office. The desire of the University of Wisconsin Extension to reinvigorate the cooking and preserving classes is vital to the success of attaining this goal. The University of Wisconsin Extension agent project team member reviewed the “Selecting, Preparing and Preserving Foods Survey” found in the medium term evaluation plan (Appendix L) in terms of feasibility and felt that it could accurately measure the perceptions of class attendees in a fruitful manner. The project team also agreed that the survey tool aligned with this medium term goal. In addition to the University of Wisconsin Extension courses and survey data, the market would host a minimum of 4 special events each season to educate customers on selecting, preparing and preserving food items that can be purchased directly at the market. Ideas included local chef demonstrations and children’s field trips with integrated educational activities for the special event planning.

The long term evaluation plan (Appendix M) was a bit more challenging for the project team. The first long term goal of expanding the market presence to the outlying communities within the desert region was determined to be measured by the creation and sustainment of a mobile market visiting outlying areas three times per week. The discussion of grant writing options to acquire the mobile market along with local business

and United Way support was identified. Also, the Feeding America mobile market may be another area for the committee to investigate to reach these outlying areas.

The second long term goal of eliminating the USDA designated food desert area in South Wood County would be a bit easier to measure. This would be evidenced by the USDA food desert locator map house online at the USDA web site, indicating no food desert in this census tract.

The final long term goal is to reduce the chronic disease rates in South Wood County. Knowing that this would be easy to measure as per the data sets available to the Wood County Health Department the project team still struggled with this measure. As we are aware from the socioecological model there are many modifying variables that affect the health of the community including obesity and chronic disease rates.

Decreasing the impact of an obesogenic environment may or may not affect the rates of obesity and chronic illness, though the team operated under this assumption for the duration of this project. It was assumed that increasing access to fresh and affordable produce can help to increase the health of the community by decreasing obesity rates and its associated health risks.

Content Expert Feedback Influence

The first content expert from the University of Wisconsin Extension state office offered feedback encouraging the group to use the logic model for the program planning. The University of Wisconsin Extension is known nationwide for utilization of this model and is a large proponent. She cautioned on the reliance of grant funding and the strong need for volunteerism to support the plans. She also encouraged locating and using already existing survey tools in lieu of those crafted by the project team. The project team

felt as those these tools, though untested for validity and reliability would best meet the needs of our community project plan.

The second content expert from the USDA questioned much of our plan including the feasibility and sustainability. Many of the same themes emerged from the feedback presented by the content expert from the University of Wisconsin Extension. The author and the project team feel that the feedback given by both of these content experts were a direct result of the author's attempt at brevity in communication with the experts. It was my intention to condense the large amount of material from this project so as to increase the likelihood of expert comment. As a result of the desire for brevity I neglected to give adequate background information to inform the reader of this project's spirit and perspective. After reviewing the comments from both, much could have been addressed by giving more information prior to submitting the project plans for review.

In light of this and the response rate of only two content experts from my original six that I had solicited information from, I located two regional content experts with educational and employment background in population health. Both are employed at Aspirus Health Corporation, a regional health center serving central and northern Wisconsin. One is employed in the food desert location and is familiar with South Wood County community resources and nuances. The second content expert works in a community approximately one hour north of the desert region who has employment experience working with a farmers market in Wisconsin and also specializes in population health.

I met with each individually to explain the historical perspective of the project team, the spirit of the project, the review of the literature, and the rationale of our

planning choices. Both voiced positive feedback on the feasibility and sustainability of the project as well as the possible positive impact to the community itself.

A critique that emerged from one of the conversations was the need to address a liability concern within the vendor contract. The content expert consulted with her legal department and then offered corrective language to address the concern. This was taken to the project team and agreed upon to amend the contract based off of this feedback.

It is my estimation that the content expert feedback solicited regionally was more meaningful to the group as these individuals came with perspective unique to this community, specifically a rural community, as well as having the advantage of the one on one conversation to understand the contextual perspective of the project plans. The project team agreed with this assumption. This assumption embodies the notion that “best practice principles for designing and implementing community-based interventions include strong community engagement at all stages of the process, careful planning of interventions to incorporate local information, and integration of the programme into other initiatives in the community” (World Health Organization, 2009).

Implications for Practice

Creating the development, implementation and evaluation plans for a community supported farmers market can inspire local social change by way of community building as well as investing in the local agricultural economy and fostering improved health outcomes by increasing access to fresh and affordable local produce. It is assumed that increasing access to fresh and affordable produce can help to increase the health of the community by decreasing obesity rates and its associated health risks. Incorporating

educational interventions can facilitate increased usage of the fresh and affordable produce. A societal based change rooted in the socioecological model such as this project can impact the food desert community as a whole.

Much of the literature surrounding USDA food deserts discusses the urban setting. This project can add to the body of knowledge specific to food deserts in the rural setting. While there are many community specific aspects to the development, implementation and evaluation plans crafted by the project team, concepts could be applied to other rural USDA food desert communities, or at the very least serve as a template for creating and sustaining other community supported farmers markets in rural USDA food desert settings.

Strengths and Limitations

Strengths

The initial review of the literature to locate best practice, the sharing of that information with gathered stakeholders that are vested in the health of the community, and soliciting stakeholder input greatly strengthened the presented project plans. Representation of the target population by way of a local vendor and a resident of the desert that has self-identified as low income resulted in rich direct input to the project. All of the project team members either resided or were employed in the desert area, and most provided services to the target population of the area, which gave unique and robust perspective to the planning process. Vetting the planning details with content experts, especially those with regional knowledge lends validity and reliability to this project.

Limitations

The development of farmers markets to address the problems of decreased access to fruit and vegetable consumption, obesity and chronic disease is a commonly cited intervention in the literature and by governmental agencies such as the USDA and the CDC, however there is a paucity of quantitative research that directly links access to farmers markets to lowered obesity and chronic disease rates. It is the assumption that increased access to fresh and affordable nutritious foods will correlate to an increased consumption of fresh and nutritious foods. Authors of a 2010 literature review note that “Despite the fact that some evidence exists for the positive effects of farmers' markets and community gardens on community-building and other social outcomes, at this time there is limited research assessing the specific health benefits of farmers' markets and community gardens” (Arneson-McCormack, Nelson-Laska, Larson & Story, 2010, p. 408). The authors call for additional well-designed studies to prove the efficacy of this intervention. Implementing a community supported farmers market does not concretely equate to increasing the health of the community. The quantitative and qualitative evaluation plans of this project addresses the call to action from Arneson et al. to more properly measure the impact of a farmers market in a low income and low access community.

Another limitation to the project is the lack of community specific data collection prior to the start of this project. The project was supported by a review of the literature, a review of national, state and local statistics and an already vested support by the community for such a community based endeavor. Others intending to duplicate this in their own community may place a higher level of onus to grow interest more organically by collecting data to demonstrate individual community specific need.

The low response rate for content expert feedback as compared to the number of requests was a limitation. This was addressed by seeking additional content experts to review and validate the plans.

Author Self-Analysis

Practitioner

The American Association of Colleges of Nursing (AACN) recognizes DNP graduates as demonstrating advanced nursing practice as applied to a specialty area. As a practitioner of the nursing profession, this project has heightened my ability to enhance the health of the community by way of public health nursing practice. Public health nursing focuses on systems change for the health of the aggregate community as opposed to other nursing practices which focus on individual interventions. This project embraces policy level change and also harnesses the power of community members and resources to address a challenging and multifaceted public health concern. It expanded my skill set as practitioner to utilize local, state and federal data sets and to collaboratively work with residents and community partners to address a large scale health concern.

Scholar

As a scholar I have refined my literature review and critical analysis of research skill sets. Conducting a comprehensive review of the literature along with investigating governmental recommendations and current practice exemplars assisted me in the development of my project idea and interventions. Disseminating that information to an interdisciplinary project team facilitated integration of best practice with community needs which aligns with the 2006 AACN Essentials Doctoral Education for Advanced Nursing Practice I - Scientific Underpinnings for Practice, Essentials III - Clinical

Scholarship and Analytical Methods for Evidence-Based Practice, and Essentials VI - Interprofessional Collaboration for Improving Patient and Population Health Outcomes. I plan to seek publication of my scholarly work in the Virginia Henderson e-Repository so as to disseminate these findings for the larger nursing audience.

Project Manager

As a project manager I have grown exponentially. Generally speaking I have always gravitated towards tackling large projects as they are personally rewarding. I have in the past failed to incorporate as much interdisciplinary input as truly needed for an all-encompassing project that maximizes various resources. This input can increase the likelihood of project success and sustainability.

First, breaking down this large project into steps and then into sections with input from faculty and my committee helped me to lay a solid foundation. Gathering community and target population representation at the project team table to discuss this health concern was quite beneficial. There were times that I had felt the project should go down a certain path, but was re-routed by input from the project team. This input made for a much stronger project that I feel will be accepted, and eventually achieved and supported by the community it is intended to help.

Often times evaluation considerations are an afterthought to a program; I have been guilty of poor evaluation planning in the past. This project helped me to focus on evaluation planning that might otherwise have been not as robust or as timely. I understand the importance of evaluation planning and data gathering so as to either prove or disprove the efficacy of an intervention.

Future Professional Development

This project experience has helped me to identify some long-term professional goals and it has also helped me to refine the skills needed to achieve those goals. My first goal is to ascertain grant funding to launch and sustain the community supported farmers market by May 2015. Working on this project and developing my scholarly role will support my grant writing expertise to achieve this goal. I will work diligently with community stakeholders for this initiative, local funders and the USDA to determine the best funding options. I will also work with local entities to identify a fiscal agent to channel the grant dollars through.

My second goal is to compile the evaluation data from the market and then use those data to contribute to the body of nursing literature by publishing and presenting these results. To achieve this goal the advisory committee for this initiative will hire a competent and reliable market manager. The market manager is responsible for day to day data collection and records maintenance efforts as per the evaluation plans. I will work closely and collaboratively with this individual to first train the individual on data collection efforts and then I will work closely with this individual on a weekly basis to ensure reliability and validity of the data. Once the data are collected I will analyze these and craft a scholarly artifact seeking publication. I would also like to present this material at a nursing, public health or wellness conference.

My third goal is to co-author a literature review on the application of the Academic Health Department to a rural health department. I have been working diligently since this summer on reviewing the literature and crafting a scholarly product with two colleagues on this topic during my practicum experience. I am also assisting our local health department director on the actual transition of our Wood County Health

Department to an academic health department. We are cataloguing our efforts in this arena and hope to publish the results of our literature review, but also to focus our efforts on the actual transition; though the actual transition may take several years. Again I feel as though this project helped me to refine my scholarly writing and project management skills; this will be advantageous when crafting a future publication submission and assisting in the transition of the health department to an academic health department.

Summary

Assembling a project team of interdisciplinary professionals and members of the target population in combination with a robust review of the literature and best practice significantly enhanced the creation of plans to support a future a community supported farmers market to address USDA food desert conditions in the rural community of South Wood County, Wisconsin. External validation by content experts reinforced the feasibility of the plans as an intervention to combat such conditions. Embracing systems change to address a public health concern can positively impact the health of a community.

Section 5: Scholarly Product

I am seeking publication of my DNP project in the Henderson e-Repository within the Doctor of Nursing Practice Papers community. I am a current Sigma Theta Tau International (STTI) member and would like to contribute to this open access nursing repository to further the nursing profession, specifically public health nursing practice. The Henderson e-Repository is a free database for nurses and therefore publication can impact the larger global nursing community. I will submit the following scholarly product as a manuscript for publication in the Henderson e-Repository.

Intended Audience

The intended audience of this publication is any nurse that desires open and free access to current nursing literature. This repository “is an open-access digital academic and clinical scholarship service that freely collects, preserves, and disseminates full-text nursing research and evidence-based practice materials” (Virginia Henderson Global Nursing E-Repository, 2014, para. 1). It is an international clearinghouse so that any nurse, whether residing in the United States or abroad will have access to this project paper. Specifically this publication is intended for nurses interested in best practice to address rural food desert conditions.

Proposal Title

Planning for a Community Supported Farmers Market in a Rural USDA Food Desert

Abstract

The purpose of this project was to develop a community supported farmers market plan in a rural USDA designated food desert. Increased access to fresh and affordable produce can positively influence an obesogenic environment. Project

objectives included developing a community infrastructure to support the market, developing policies and guidelines for the creation and sustainment of a market, and the creation of a development, implementation and evaluation plan.

Methods

A project team of community stakeholders was assembled including the local Health Department, Environmental Health; Housing Authority; K-12 and post-secondary academia; the Women, Infant and Children (WIC) program; the United Way Hunger Coalition; Central Rivers Farmshed; University of Wisconsin Extension; Health and Human Services; the YMCA; the Encourage Community Foundation, the Farm to School Coordinator; a vendor and a resident of the food desert. The project team collaboratively crafted community supported farmers market development, implementation and evaluation plans in addition to a mission, vision, short term, medium term and long term goals for the market, and guidelines and policies to support these plans. The plans were validated by content experts in food systems and population health.

Discussion

Current literature links unhealthy dietary behaviors such as inadequate fruit and vegetable consumption to an increase in obesity as well as an array of chronic disease such as heart disease, diabetes and high blood pressure. Conversely healthy dietary choices including the consumption of five to nine servings of fruits and vegetables per day demonstrate positive health outcomes such as a decreased rate of obesity and chronic illness. Increasing access to affordable produce may increase the consumption of healthy foods and thus the health of the individual. Insufficient access to fresh and affordable fruits and vegetables is a significant problem in public health practice and negatively

impacts the health of individuals residing in a United States Department of Agriculture (USDA) designated food desert.

A food desert is characterized as an area where access to healthy and affordable foods is restricted. According to the USDA food desert conditions are based on two attributes of the community: low-access and low – income. The literature supports the establishment of a farmers market to address both low income and low access communities as a policy level intervention to combat population health obesity problems. There is a paucity of literature on farmers market interventions in rural food desert communities.

Conclusions

Developing a community supported farmers market can improve access to fresh and affordable fruits and vegetables to those residing in an identified food desert. A systems level approach to increasing access to fresh fruits and vegetables may prevent obesity and its associated chronic disease, hence improving the health of the community. This can promote positive social change by increasing community collaborations to address a local health concern. The results of this project may assist other rural communities in establishing a farmers market in a USDA identified food desert.

Problem

The problem of inadequate access to fresh and affordable fruits and vegetables affects residents of a United States Department of Agriculture (USDA) designated food desert, namely South Wood County, Wisconsin. Insufficient access to fresh and affordable fruits and vegetables negatively impacts the health of individuals. Insufficient

access to fresh and affordable fruits and vegetables is a significant problem in public health nursing practice.

Purpose

The purpose of this project was to develop a community supported farmers market plan in a USDA designated food desert. Access to fresh and affordable produce can positively influence an obesogenic environment. There is currently a lack of information on the implementation and evaluation of a farmers market intervention to address a food desert in rural areas.

Goals

The goal of this project is to increase access to fruits and vegetables in South Wood County, Wisconsin, a USDA designated rural food dessert. After implementation of the community supported farmers market, residents and employees located in a food desert will report increased perceived access to fresh fruits and vegetables and a perceived decrease in the prices for fresh produce. The project objectives included developing a community infrastructure to support the market, and the creation of a development, implementation and evaluation plan and the policies to implement and sustain a community supported farmers market.

Outcomes

The anticipated outcomes of this project include residents of the food desert reporting an increased perceived access to fresh fruits and vegetables and a perceived decrease in the prices for fresh produce after the implementation of the farmers market. These outcomes are a primary consideration within the evaluation plans crafted by the project team.

Significance

According to the CDC in Wood County Wisconsin “the combined adult overweight and obesity rate is 64.4%, and 34% of third graders are overweight or obese. Only 50% of Wood County ZIP codes have grocery stores or farmers' markets and less than 25% of county adults meet the Federal government's guidelines for fruit and vegetable consumption” (CDC, 2013, para.2). The CDC National Center for Chronic Disease Prevention and Health Promotion has published statistics on the median number of fruit and vegetable servings consumed per day by state as well as the percentage of individuals that consume less than one serving of fruits and vegetables per day; for the state of Wisconsin those statistics are 1.1 servings (fruits) / 1.5 servings (vegetables), and 35.6% (fruits) / 26% (vegetables) respectively. As reported by the Healthy People Wood County 2010 document of the adults residing in Wood County “75.7% consume less than the U.S.D.A. recommended 5 fruits and vegetables a day” (p. 15).

Evidence Informing the Project

A food desert is characterized as an area where access to healthy and affordable foods is restricted. According to the USDA food desert conditions are based on two attributes of the community: low-access and low – income. South Wood County is a rural area in central Wisconsin of which a portion is designated as a food desert by the USDA.

Restricted access correlates with other demographic and socioeconomic attributes of a community including educational and income levels as well as access to public transit or other sources of reliable transportation. The Economic Research Service (ERS) under the direction of the USDA collects nationwide data on the existence and persistence of food deserts across the nation. A recent ERS study using 1990 and 2000

U.S. Census data, 2006 store location data, and 2005–2009 American Community Survey (ACS) data demonstrated a strong correlation between poverty and access to healthy foods (USDA ERS, 2012). In the study, Dutko, Ver Ploeg & Farrigan used regression analysis to determine which characteristics were associated with the low income variable and physical location. The researchers used a multivariate logit model to evaluate the impact of housing, ethnicity, unemployment, and poverty characteristics from 1990 to 2000. This research has identified more than 6,500 food desert tracts throughout the nation. An interactive map is housed on the USDA web site; users can enter an address and identify if the specified location is quantified as a food desert.

Current literature links unhealthy dietary behaviors such as inadequate fruit and vegetable consumption to an increase in obesity as well as an array of chronic disease such as heart disease, diabetes and high blood pressure. Conversely healthy dietary choices including the consumption of five to nine servings of fruits and vegetables per day demonstrate positive health outcomes such as a decreased rate of obesity and chronic illness. The 2010 USDA Dietary Guidelines for Americans note that “consumption of vegetables and fruits is associated with reduced risk of many chronic diseases. Specifically, moderate evidence indicates that intake of at least 2 ½ cups of vegetables and fruits per day is associated with a reduced risk of cardiovascular disease, including heart attack and stroke. Some vegetables and fruits may be protective against certain types of cancer” (p. 35). Increasing access to affordable produce may increase the consumption and thus the health of the individual.

The Healthy Eating Index-2010 (HEI-2010) is a tool utilized by the USDA to assess American’s compliance with the Dietary Guidelines for Americans. The tool

comparatively measures nutrient density food consumption rates for the dates ranging from 2001 and 2002 to rates in 2007-2008. A section of this evaluation studies whole fruit and vegetable consumption. The results of this study indicated almost no change in the diet quality of Americans during this time frame, that the dietary intake of Americans is not optimal and that this trend can be reversed in part by increasing fruit and vegetable consumption. The authors also note that “Supporting these changes will require comprehensive approaches that engage every segment of society (i.e., individuals, families, schools, industry, government, and nongovernmental organizations) and reshape the environment so that the healthy choices become the easy, accessible, and desirable choices for everyone” (USDA Center for Nutrition Policy and Promotion, 2013). The national and state of Wisconsin average fruit and vegetable consumption rates fall far short of the recommended daily servings as noted previously. The creation of a community supported farmers market based on the socioecological model is one way to address this call to action on a comprehensive level.

Guiding Model

The socioecological model assumes that health behavior choices do not occur in a vacuum. “This model explicitly recognizes the interplay of the various environments (physical, cultural, organizational, or policy environments) in which populations live and the effect this has on population health” (Hughes, R., 2006, p. 55). It provides a framework that allows interventions to address multifactorial health problems at the various levels of the person’s environment. This model was chosen due to the vast health implications a food desert can have on the individual, interpersonal relationships, the community and society as a whole. This model has been successful in community health

promotion programming, specifically nutrition based and obesity prevention health promotion programs. “The social-ecological model provides a framework to design nutrition interventions targeted at the individual, interpersonal, organizational, community, and policy levels” (Haughton, B., 2006, pg. 3).

The model which is rooted in the fields of sociology, psychology and public health recognizes that individual, relationship, community and society influences all play an integral role on health choices and lifestyles as each layer is nested within the others. The nursing profession can apply this model to various health promotion initiatives that have multifaceted determinants. It is applied as a holistic approach to address the needs of those residing in a USDA designated food desert.

The USDA Dietary Recommendations for Americans implores health care professionals to utilize the socioecological model to implement policy level change to affect the nutritional health of Americans. The recommendations note that “the [socioecological] framework promotes movement toward a society oriented to chronic disease prevention. Efforts to improve dietary intake and increase physical activity are more likely to be successful when using this type of coordinated system-wide approach” (USDA, 2010, p. 57).

Approach

This project was a community supported market to address the restricted access to fresh and affordable fruits and vegetables in South Wood County, Wisconsin. The project had continuous project team support throughout the development, implementation and evaluation planning phases of the project. “Best practice principles for designing and implementing community-based interventions include strong community engagement at

all stages of the process, careful planning of interventions to incorporate local information, and integration of the programme into other initiatives in the community” (World Health Organization, 2009). Including and engaging community stakeholders positively impact the future success of the project including sustainment efforts.

First a project team of strategic community stakeholders was assembled to discuss the USDA food desert conditions and its impact on the community. This project team included members of the business community, residents of the community, non-profit organizations, academic institutions, and regulatory and governmental agencies. The project team convened and reviewed the current literature on rural food deserts, its impact on the community, and the potential impact of implementing a farmers market to alleviate such conditions.

A town hall meeting was held to inform those residing and working in the identified food desert of food desert conditions and the results of the literature review. Those invited to attend this town hall meeting included members of the community residing in the food desert representing various ages and income levels, local employers and employees residing in the food desert, health care agencies, vendors, representatives from regulatory bodies, and members of the academic community including representatives from primary, secondary and post-secondary institutions.

The project team and I collaboratively worked throughout the creation of the policies and guidelines, and the development, implementation and evaluation plans. The development, implementation, and evaluation plans were submitted to content experts for review. The project team and I revised the plans based on feedback and recommendations

from the content experts. The revised, completed plans were approved by the project team and the Wood County Health Department for endorsement.

Interdisciplinary Project Team

A project team of community stakeholders was assembled including the local Health Department, Environmental Health; Housing Authority; K-12 and post-secondary academia; the Women, Infant and Children (WIC) program; the United Way Hunger Coalition; Central Rivers Farmshed; University of Wisconsin Extension; Health and Human Services; YMCA; the Incourage Community Foundation, the Farm to School Coordinator; a vendor and a resident of the food desert. The project team collaboratively crafted community supported farmers market development, implementation and evaluation plans in addition to a mission, vision, short term, medium term and long term goals, guidelines and policies to support the market.

Project Products

Primary products of this project include the development, implementation, and evaluation plans. Also included are the guidelines and policies to support the plans and the mission, vision, short term, medium term, and long term goals for the project.

Development Plan

The development plan relies on the local regulatory definition of a farmers market and the state governing regulations surrounding its existence as its foundation. The plan articulates step by step how the community may go about planning for the implementation of a community supported farmers market including identification of community need, site selection, budgeting, marketing plans, market manager responsibilities, operational rules and policies, physical layout planning, and vendor

recruitment. Along with the development plan the mission, vision and goals were crafted to support the market creation and sustainment.

Implementation Plan

The implementation plan is a step by step plan to successfully launch the market. This plan focuses on the creation of the community volunteer advisory board that will sustain the market, as well as the hiring of the market manager. The advisory board will be representatives that mirror the project team, those who have a vested interest in the health of the community and members of the target population. The advisory board will select a market manager who will be responsible for the planning, vendor relations, the day to day workings of the market and evaluation plan data collection. The market manager will directly report to the advisory board at quarterly meetings.

Evaluation Plan

The evaluation plans align with the mission and vision, and address each of the short term, medium term, and long term goals that were crafted by the project team. The overall project outcomes including resident reported perceived increased access to and perceived decrease in the prices for fresh produce after the implementation of the farmers market were also primary considerations. These outcomes were incorporated into the evaluation plan, specifically the short term goal evaluation plan.

In keeping with the socioecological model to guide the project team, we also felt it important to include other components into the evaluation plan to comprehensively address all aspects of USDA food desert conditions. These were addressed in the medium and long term goal evaluation plans. These other components of the evaluation plans included strengthening community partnerships to support local food systems and

decreasing food costs through educational programming on selecting, preparing and preserving foods to the residents of the food desert (medium term goals) and expanding the market presence to outlying communities within the food desert region, ultimately eliminating USDA food desert conditions in South Wood County, and to decrease the incidence of chronic illness in the community (long term goals).

The plans both qualitatively and quantitatively measure the effectiveness of the farmers market intervention. Qualitative analysis will involve assessing perceived access and affordability of the market attendees and food desert resident knowledge of and confidence in selecting, preparing and preserving foods after educational interventions. The quantitative analysis of the market will analyze comparative prices of designated healthy food basket items purchased from the farmers market, a local grocery and a farmers market from an adjacent city outside of the food desert area; Supplemental Nutrition Assistance Program (SNAP) Electronic Benefit Transfer (EBT) customer usage at the market; and county statistics of overweight and obese resident percentages, as well as diabetes and cardiovascular disease rates in Wood County Wisconsin as reported by the Centers for Disease Control (CDC).

Summary

Creating a development, implementation and evaluation plan for a community supported farmers market can address restricted access to fresh and affordable fruits and vegetables in a rural food desert community. Use of a community support concept can increase the likelihood of implementation and sustainment. Basing interventions on the Socioecological Model can address the multifaceted health problems associated with residing in a rural USDA food desert area.

References

- Arneson-McCormack, L. A., Nelson-Laska, M. N., Larson, N., & Story, M. (2010). Review of the nutritional implications of farmer's markets and community gardens: A call for evaluation and research efforts. *American Dietetic Association, 110*(3), 399–408.
- Baum, S., Ma, J., & Payea, K. (2013). Education pays 2013: The benefits of higher education for individuals and society. *College Board*. Retrieved from: <http://trends.collegeboard.org/sites/default/files/education-pays-2013-full-report.pdf>
- Centers for Disease Control and Prevention. (2013). Community profile: Wood County, Wisconsin. Retrieved from http://www.cdc.gov/nccdphp/dch/programs/CommunitiesPuttingPreventiontoWork/communities/profiles/obesity-wi_wood-county.htm
- Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. (2013). *State indicator report on fruits and vegetables*. Retrieved from <http://www.cdc.gov/nutrition/downloads/State-Indicator-Report-Fruits-Vegetables-2013.pdf>
- Chung, C., & Myers, S. L. (1999). Do the poor pay more for food? An analysis of grocery store availability and food price disparities. *Journal of Consumer Affairs, 33*(2), 276–296. doi: 10.1111/j.1745-6606.1999.tb00071.x
- Deverka, P., Lavalley, D., Desai, P., Esmail, L., Ramsey, S., Veentra, D., & Tunis, S. (2012, March). Stakeholder participation in comparative effectiveness research:

Defining a framework for effective engagement. *Journal of Comparative Effectiveness Research*, 1(2), 181–194.

Gregson, J., Foerster, S. B., Orr, R., Jones, L., Benedict, J., Clarke, B.... Zotz, K. (2001).

System, environmental, and policy changes: Using the social-ecological model as a framework for evaluating nutrition education and social marketing programs with low-income audiences. *Journal of Nutrition Education*, 33(Supplement 1), S4–S15. doi:10.1016/S1499-4046(06)60065-1

Forward Health Wisconsin. (2014). *Wisconsin Medicaid members by county/tribe for each month and year*. Retrieved from:

<https://www.forwardhealth.wi.gov/wiportal/portals/0/staticContent/Member/caseloads/481-caseload.htm>

Haughton, B. (2006, January–March). Applying the social-ecological model to nutrition issues that promote health and prevent disease. *Family and Community Health*, 29(1), 3–4.

Hayden, J. (2014). *Introduction to health behavior theory* (2nd ed.). Burlington, MA: Jones & Bartlett Learning.

Hendrickson, D., Smith, C., & Eikenberry, N. (2006). Fruit and vegetable access in four low-income food deserts communities in Minnesota. *Agriculture and Human Values*, 23, 371–383. <http://dx.doi.org/10.1007/s10460-006-9002-8>

Hood, C., Martinez-Donate, A., & Meinen, A. (2012, December). Promoting healthy food consumption: A review of state-level policies to improve access to fruits and vegetables. *Wisconsin Medical Journal*, 111(6), 283–288.

- Hughes, R. (2006). A socioecological analysis of the determinants of national public health nutrition work force capacity: Australia as a case study. *Family and Community Health*, 29(1), 55–67. Available from <http://journals.lww.com/familyandcommunityhealth/>
- Incourage Community Foundation. (2013). *Vital signs: Measuring the Vitality of the South Wood County area*. Retrieved from <http://incouragecf.org/wp-content/uploads/2013/06/VitalSigns061813finalOPT1.pdf>
- Larson, K., & Gilliland, J. (2009, June 22). A farmer's market in a food desert: Evaluating impacts on the price and availability of healthy food. *Health & Place*, 15, 1158–1162. <http://dx.doi.org/10.1016/j.healthplace.2009.06.007>
- Larson, N., Story, M., & Nelson, M. (2009). Neighborhood environments: Disparities in access to health foods in the U.S. *American Journal of Preventative Medicine*, 36(1), 74–81. <http://dx.doi.org/10.1016/j.amepre.2008.09.025>
- Mackenbach, J., Rutter, H., Compernelle, S., Glonti, K., Oppert, J., Charreire, H., ... Lakerveld, J. (2014, March 6). Obesogenic environments: a systematic review of the association between the physical environment and adult weight status, the SPOTLIGHT project. *BMC Public Health*, 14(233), 1–15. <http://dx.doi.org/10.1186/1471-2458-14-233>
- Schmit, T. M., & Gomez, M. I. (2010, October 30). Developing viable farmers markets in rural communities: An investigation of vendor performance using objective and subjective valuations. *Food Policy*, 36, 119–127. <http://dx.doi.org/10.1016/j.foodpol.2010.10.001>

- Sohi, I., Bell, B., Liu, J., Battersby, S., & Liese, A. (2014). Differences in food environment perceptions and spacial attributes of food shopping between residents of low and high food access areas. *Journal of Nutrition Education and Behavior*, 46(4), 241–249. <http://dx.doi.org/10.1016/j.jneb.2013.12.006>
- Spence, J., Cutumisu, N., Edwards, J., Raine, K., & Smoyer-Tomic, K. (2009, June 18). Relation between local food environments and obesity among adults. *BMC Public Health*, 9(192). <http://dx.doi.org/10.1186/1471-2458-9-192>
- Stokols, D. (1996, March–April). Translating social ecological theory into guidelines for community health promotion. *American Journal of Health Promotion*, 10(4), 282–298. Retrieved from <https://webfiles.uci.edu/dstokols/Pubs/Translating.PDF?uniq=-z4d46s>
- United States Department of Agriculture: Agricultural Marketing Service. (2007). *How to start a farmers market* [Presentation]. Retrieved from <http://www.ams.usda.gov/AMSV1.0/getfile?dDocName=STELDEV3022129&acct=wdmgeninfo>
- United States Department of Agriculture: Agricultural Marketing Service. (2014). Food deserts. Retrieved from <https://apps.ams.usda.gov/fooddeserts/foodDeserts.aspx>
- United States Department of Agriculture Economic Research Service. (2010). *Local food systems: Concepts, impacts, and issues* (Economic Research Report 97). Retrieved from http://www.ers.usda.gov/media/122868/err97_1_.pdf
- United States Department of Agriculture Economic Research Service. (2012). *Characteristics and influential factors of food deserts* (Economic Research Report 140). Retrieved from <http://www.ers.usda.gov/media/883903/err140.pdf>

United States Department of Agriculture Center for Nutrition Policy and Promotion.

(2013). *Diet quality of Americans in 2001–02 and 2007–08 as measured by the Healthy Eating Index-2010* (Nutrition Insight Report – 51). Retrieved from <http://www.cnpp.usda.gov/Publications/NutritionInsights/Insight51.pdf>

United States Department of Agriculture. (2013). *Know your farmer, know your food*.

Retrieved from

http://www.usda.gov/wps/portal/usda/usdahome?navid=KYF_MISSION

United States Department of Agriculture & the United States Department of Health and

Human Services: (2010). *Dietary Guidelines for Americans*. Retrieved from

<http://www.cnpp.usda.gov/Publications/DietaryGuidelines/2010/PolicyDoc/PolicyDoc.pdf>

United States Census Bureau: (2013). Fact finder: Community facts. Retrieved from:

http://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml

Virginia Henderson Global Nursing e-Repository. (2014). *About the Henderson*

Repository. Retrieved from:

<http://www.nursinglibrary.org/vhl/pages/aboutus.html>

Walker, R. E., Keane, C. R., & Burke, J. G. (2010, April 21). Disparities and access to

healthy food in the United States: A review of food deserts literature. *Health &*

Place, 16, 876–884. <http://dx.doi.org/10.1016/j.healthplace.2010.04.013>

Willows, N., Hanley, A., & Delormier, T. (2012, February). A Socioecological

framework to understand weight-related issues in Aboriginal children in Canada.

Applied Physiology, Nutrition and Metabolism, 37(1), 1–13.

<http://dx.doi.org/http://dx.doi.org.ezp.waldenulibrary.org/10.1139/h11-128>

Wisconsin Department of Health Services (2014). Eligibility Management (Income

Maintenance) - FoodShare Wisconsin Data. Retrieved from:

<http://www.dhs.wisconsin.gov/EM/rsdata/index.htm>

Wood County Health Department. (2010). *Healthy People Wood County*. Retrieved from

<https://www.co.wood.wi.us/Departments/Health/Doc/HealthyPeopleWoodCtyCHIP.pdf>

World Health Organization. (2012). *Population-based approaches to childhood obesity*

prevention. Retrieved from

http://www.who.int/dietphysicalactivity/childhood/WHO_new_childhoodobesity_PREVENTION_27nov_HR_PRINT_OK.pdf

Yousefian, A., Leighton, A., Fox, K., & Hartley, D. (2011, April 8). Understanding the

rural food environment--perspectives of low-income parents. *Rural and Remote Health, 11*(2), 1–11.

Appendix A: A Community Supported Farmers Market Development Plan

1. Identify local regulations surrounding farmers markets.

A farmers market is defined by the Wood County Health Department (WCHD):

I “Farmer’s market” means a building, structure, or place where 2 or more individuals gather on a regular, recurring basis to sell, directly to the consumer, any of the following:

1. Raw agricultural commodities that are grown, harvested, or collected by the individual.
2. Food that is prepared by the individual.

As an agency creating a farmers market there are no regulations impacting its creation in respect to regulation and licensing, however the creation of the market must be vetted by the community’s zoning department based on the location chosen. The zoning department will ensure the safety by verifying that the physical land housing the market is not toxic or unsafe to patrons of the proposed market.

Vendors are regulated on an individual basis by the Wood County Health Department – Environmental Health sector. Vendors selling fresh produce that is not processed do not need to meet licensing requirements. Vendors selling food items that are processed or agricultural products other than produce must be licensed by the Health Department follow specific regulations based upon the goods beings sold. Refer to the Farmers Market Vendor Requirements FAQ document to details. Regulations change from year to

year based on state government changes so it is best to support a relationship between vendors and the Health Department to address these changes and any questions that may arise.

2. Identify local need for increased access to fresh and affordable produce.

The city of Wisconsin Rapids and surrounding areas are documented by the USDA as a food desert. A USDA food desert is quantified by a combination of low access and low income residents. This condition warrants the need for increased access to fresh and affordable produce for its citizens.

3. Inform the community of food desert conditions.

On December 8th 2014, members of the community were invited to partake in a presentation on USDA food deserts and how that condition affects the population of Wisconsin Raids, WI. Interventions to combat such conditions were also reviewed including the intervention of a community supported farmers market.

4. Gather community stakeholders.

A project team has been assembled to address this issue and to assist in the creation of the development, implementation and evaluation plan for the market. The stakeholders include representatives from:

- K-12 academia
- Post-secondary academia
- Incourage Community Foundation
- YMCA

- Wood County Health Department
- Environmental Health Department
- Women, Infant and Children (WIC) program
- Housing Authority
- Health and Human Services
- Farm to School Coordinator
- United Way Hunger Coalition
- University of Wisconsin Extension Office
- Farm Shed – local food systems community organizer
- Local vendor
- Resident of the food desert

5. Create an advisory committee.

After the creation of the development, implementation and evaluation plans for the market and the acceptance to move forward with the initiative, an advisory committee will be created to guide the market through those plans to see the market come to fruition. The advisory committee will serve in a voluntary capacity.

6. Determine advisory committee appointment terms.

Advisory committee terms would be staggered to ensure leadership continuity from year to year. Appointments would be accepted by the appointee in one, two or three year teams.

7. Investigate start up and grant funding opportunities.

Through the United States Department of Agriculture (USDA) “Know your farmer know your food” campaign there are several grant opportunities including the Farmers Market Promotion Program (FMPP), the Specialty Crop Block Grant Program (SCBGP), the Agriculture and Food and Research Initiative (AFRI): Improved Sustainable Food Systems, and Community Food Projects (CFP). Stemming from the 2014 Farm Bill the Food Insecurity Nutrition Incentives Program (FINI) also offers grant monies for governmental and non-profit organizations to increase access to produce to the low income population.

Locally the newly acquired Aspirus community hospital has announced the creation of \$100 million endowment fund to support the health needs of the community. The Incourage Foundation of Wisconsin Rapids also offers grants for local community building efforts.

8. Create a mission and vision statement.
9. Create a listing of goals to be achieved by the market.
 - a. Short term goals (1-3 years)
 - b. Long term goals (4-6 years)
 - c. Impact goals (7-10 years)
10. Determine the operating budget and fiscal agent.

If no grant support is ascertained:

The budget should be minimal as vendors will utilize their own market wares such as the any tents, tables or coolers required. No licensing fees are required for the market; those costs are borne by the vendors. Marketing can be via social media venues which have no

associated costs. The market manager can be filled by work study position secured through the local community college and paid through federal financial aid dollars. The advisory committee would serve to oversee the market planning, implementation and evaluation processes in a volunteering capacity. If grant dollars are awarded:

The market manager could be a paid part time position housed under the fiscal agent listed on the grant application. Marketing would be more robust adding flyers to the Friday nutrition back pack program in the school district, advertisements in the local print media and signage. Supplemental Nutrition Assistance Program (SNAP) electronic benefit transfer (EBT) monitors would be purchased for vendor use to support SNAP food purchases. An internet connection would be secured for the use of SNAP Point of Sale (POS) machines. After the site location is chosen beautification efforts could enhance the esthetics of the site. The advisory committee would serve to oversee the market planning, implementation and evaluation processes in a volunteering capacity.

	Per Unit	Total Cost
Fiscal Agent Administrative Costs	Coordination, manager payroll responsibilities, grant reporting 2 hour /week for 24 weeks @ \$35 / hour	\$1680 + \$420 fringe = \$2100
Market Manager	12 hours per week for 24 weeks @ \$13/hr.	\$3744 + \$936 fringe = \$4680
Print Marketing	1200 flyers @.05 / flyer	\$60
Media Marketing	One advertisement per month for 5 months	\$1,250
Wireless Credit/Debit POS devices	\$300 per unit for 10 vendors	\$3000
Internet connection for POS	\$100 per month for 5 months	\$500

devices		
Market Location Beautification	Trash receptacles, site cleanup and beautification efforts	\$1200
Market Signage	4 signs @ \$500 each	\$2000
Hand hygiene stations	2 @ \$200	\$400
		\$15,190

11. Create operational rules and policies.

12. Select a site.

Site selection will be an effort conducted by the advisory committee. The site should be near a major road and easily visible with safety and walkability as a consideration and located within the food desert area. The advisory committee must ascertain permission and long term commitment from the site management prior to proceeding. Engaging in a contract to secure the site is recommended.

13. Identify a market manager and the manager assignment schedule.

If no grant support is ascertained:

The market manager position can be posted at the community college as a work study position for Health and Wellness Promotion students. This will aid the community supported farmers market in terms of workload surrounding the market and also allow the student to develop a skill set with practical application to aid in his/her transition from academia to employment. Work study appointments are paid through the federal work study program. Candidates must be approved to receive federal work study funds prior to interviewing for the position. Interviews would be conducted via the advisory committee. After group consensus an employment offer would be made to the candidate for the

position of market manager. The market manager would commit to 12 hours per week from April through September. The manager must be on market grounds one hour prior to the start time of the market, throughout the duration of the market and until all vendors have left the location for the day. The manager would be responsible for vendor recruitment, retention, record maintenance, special events coordination, rule and policy enforcement, safety on market grounds, and evaluation data collection. The manager will serve as the liaison between vendors, consumers and the advisory committee.

If grant dollars are awarded:

The market manager position can be posted to the community online via the job center. Interviews would be conducted via the advisory committee. After group consensus an employment offer would be made to the candidate for the position of market manager. The market manager would commit to 12 hours per week from April through September. The manager must be on market grounds one hour prior to the start time of the market, throughout the duration of the market and until all vendors have left the location for the day. The manager would be responsible for vendor recruitment, retention, record maintenance, special events coordination, rule and policy enforcement, safety on market grounds, and evaluation data collection. The manager will serve as the liaison between vendors, consumers and the advisory group. Hourly wages would be paid for through the grant via the fiscal agent.

14. Create a market manager guide.

The market manager guide includes the operational rules and policies for the market. It also includes the vendor contract and an operational checklist to follow for each market day.

15. Develop a marketing strategy.

Advertising for the market shall occur no less than two months prior to the start of the market season. The market shall be advertised through press release to local print media, via the Central Rivers Farmshed Food Atlas guide, printed local flyers, and on social media venues. A Facebook page will be created specifically for the market detailing location, hours of operation and special event programming. The Facebook page and local flyers can be developed free of charge by the local community college's marketing students.

16. Address vendor recruitment.

Vendors shall be recruited by the market manager. Recruitment will begin no later than two months prior to the start of the market. Recruitment efforts will include outreach efforts to vendors via the farm to school coordinator, vendors listed in the Central Rivers Farmshed Food Atlas guide and Central Rivers Farmshed.

17. Determine vendor stall size.

A standard market tent is 10' X 10'. Therefore each stall should measure no smaller than 15' X15' to ensure adequate space between vendors.

18. Design the physical market layout (stall arrangement) to include safety and walkability.

Two choices recommended by the USDA are available and can be used as the foundation for this market; however, the market layout will highly depend upon the site location chosen by the advisory group. Refer to the USDA stall arrangement map.

FOOD DESERT:

*Join us on Dec. 8th, at 6 pm
McMillan Library all purpose room*

Farm to School Operations in Wisconsin Rapids

*Farm to School in
Wood County... Four Years &
Growing... See the Many Faces
of Farm to School in Your
Area Schools, From School
Gardens to Local Produce
in the Cafeteria Line.*

Presented by: Sue Anderson

*Sue Anderson has worked in food
procurement for the Wood County
Farm to School program since Nov. 2011.
connecting local farmers with food service
directors & addressing barriers for using
local foods in schools. She is a local food
enthusiast, backyard gardener, Master Food
Preserver & Environmental educator.*

Food Desert Conditions in Wisconsin Rapids

*Wisconsin Rapids is a
USDA Food Desert area.
Find out what that means & how
that affects our community. We will
explore what we can do as a
community to alleviate these
conditions in our area.*

Presented by: Carrie Engelbright

*Carrie Engelbright has worked as a
nurse in long term care & public health.
She has served as faculty for the last 7 years
in the Nursing Assistant Programs
& most recently in the new Health &
Wellness Promotion Program at MSTC. Carrie
is currently completing her Doctor of Nursing
Practice degree in Systems Leadership
focusing on rural food desert conditions &
local interventions to combat such conditions.*

***There will be FREE local foods to sample
& FREE onsite childcare available!***

Appendix C: Community Supported Farmers Market Implementation Plan

To implement the farmers market development plan the advisory committee must collaboratively execute the following items:

1. Create an advisory committee that is represented by at least five community organizations interested in the health of the community. A minimum of one vendor, one customer of the market, and one community member will also serve on the committee.
2. Assign advisory committee appointment terms and set the meeting schedule.
3. Approve and execute the development plan. The development plan was crafted via the project team to ensure the plan is not only best practice but also considers the community's needs.
4. Seek a market manager. If grant funds are secured the market manager position must be posted via job center. If grant funds were not secured the market manager position must be posted at the local community college. The advisory committee will interview appropriate candidates and collaboratively make a selection of the best candidate for the position.
5. Hire the market manager. The market manager upon hire will meet with an advisory committee representative to discuss the details and the responsibilities of the position.
6. Launch the market.

Appendix D: Mission, Vision and Goals for the Community Supported Farmers Market

Mission:

To increase access to local foods and to meet the economic, health and food security needs of the community.

Vision:

We envision a strong local economy supported by community partnerships that increases direct food sales to the community. These sustainable food systems will increase the health of the community and the affordability of purchasing healthy food items.

Appendix E: Goals for the Community Supported Farmers Market

Goals:

Short term

By the end of the 2016 market season:

1. Increase access to fresh and affordable produce.
2. Decrease costs associated with purchasing fresh produce for the residents of the food desert.

Medium term

By the end of the 2020 market season:

1. Strengthen community partnerships to support local food systems.
2. Increase the health of the community and decrease food costs through educational programming on selecting, preparing and preserving foods to the residents of the food desert.

Long term

By the end of the 2025 market season:

1. Expand market presence to outlying communities within the food desert region.
2. Eliminate USDA food desert conditions in South Wood County.
3. Decrease the incidence of chronic illness.

Appendix F: Farmers Market Operational Rules and Policies

The Community Supported Farmers Market is governed by a group of community members either residing or employed within the food desert area. Group members serve in a voluntary capacity. The advisory committee is comprised of individuals interested in supporting the health of the community via local food systems. The operational rules of the market are created and enforced via the advisory committee. The market manager serves as the liaison between the advisory committee, consumers and vendors. Contact the market manager for any questions regarding the market operations rules. If the concern is not addressed or if there is an unresolved matter you may contact a member of the advisory committee for further information. Contact information for the market manager and the advisory committee can be found on the vendor contract.

The market season calendar will be published by February 21st each calendar year. Within that document the season dates as well as times will be included. The market manager will contact each vendor to renew the contract and review the calendar.

Vendor Application Process

Vendor applications will be accepted starting February 21st of each calendar year. A maximum number of vendors will be allowed in the market. The stalls will be assigned on a first come first served basis based on the date of the submitted vendor contract along with vendor fees paid in full. The vendor contract must be completed and submitted to the market manager along with the \$15 fee. Retain a copy of the vendor application for your records.

Vendor Requirements

Licensing is the responsibility of the vendor. Licenses are purchased through the Wood County Health Department. A Wood County Health Department FAQ sheet will be given to the vendor at the contract signing to help determine licensing requirements. Should the vendor have any licensing questions not answered by the FAQ sheet it is the responsibility of the vendor to contact the Wood County Health Department for further clarification.

It is recommended that the vendor carry product liability insurance. Product liability insurance covers the foods sold at a farmers market. The vendor can speak to an insurance agent for further information on product liability.

If a scale is used for purchasing items the amount must be visible to the purchaser. The scale must be able to be calibrated and it must meet the minimum standards set forth by the National Institute of Standards and Technology.

Prices must be visible at all times. Signage indicating the name of the farmer and / or grower / producer must be visible at all times. Signage must be housed within the vendor stall assignment area.

A stall fee of \$15 is due at the time of contract signing. This is an annual fee. If the vendor requests two stall spaces the fee increases to \$30 annually.

The vendor must attend a minimum of 10 market dates within a season. This assures consumers of a consistent variety of food items.

Vendor Stall Assignments

Vendor stalls will be assigned based at the time the vendor contract is submitted along with the \$15 annual fee. Stall assignments will be on a first come first served basis. The vendor can reserve up to two stall spaces. An additional \$15 fee will be assigned due at the time of the contract for the second stall space.

Allowable Goods

All goods must be locally grown. Local is defined less than 200 miles from its origin and within the state of Wisconsin. Fruits and vegetables, plants, fresh cut flowers, herbs, dairy and animal products are allowable items at the market. Dairy products, canned goods, baked goods and other processed foods must be made in accordance with Wood County Health Department licensing requirements. Crafts and resale items are not allowed merchandise.

Market Day Procedures

Vendors may set up in the assigned stall no earlier than one hour prior to market start time. The vendor should stay the duration of the scheduled market time or until merchandise is sold out. Selling hours will be between the times of 8:00 am and 3:00 pm. It is expected that the vendor afford for cleanliness, making sure to clean up area at the end of the day and taking home one's own trash. The vendor is expected to be respectful towards the consumer, the hosting site and fellow vendors.

Safety

Vendors will afford for the safety of self, the consumers and other vendors while on market property. Any unsafe practices will be addressed by the market manager.

Pet Policy

No pets are allowed during the set up time, actual market hours or the clean up immediately following the market with the exception of service animals.

Smoking Policy

There is no-smoking on market grounds during the set up time, actual market hours or the clean up immediately following the market.

Operational Rule Enforcement Process

Should a vendor violate any operational rules a report should be made to the market manager. The market manager will be onsite for the one hour preceding the market, the duration of the market and until the last vendor has vacated the premises for the day. The market manager will address the concern with the vendor and come to a mutual agreement to resolve the issue. If the concern is resolved, the market manager will place the report of violations form within the vendor contract file. If the concern is not resolved the market manager will complete a report of violations and submit the report to the advisory committee. At the next advisory meeting the committee will review the complaint and submit a recommendation of penalty. The vendor will receive a notice via mail of the penalty. The market manager will enforce the penalty. Penalties will accrue as follows:

1st violation – the vendor may not participate in the next upcoming market day.

2nd violation – the vendor may not participate in the next 2 upcoming market days.

3rd violation – the vendor may not participate in the rest of the market season. A stall fee refund will not be awarded.

4th violation – the vendor will not be allowed to participate in the next market season.

A vendor may appeal the penalty process by submitting a letter to the advisory committee. At the next advisory committee meeting the vendor shall present to petition the penalty incurred. A decision and communication with the vendor of the group decision will occur within ten business days of the meeting. The advisory committee retains the right to terminate the vendor contract based on the “Operational Rule Enforcement Process”.

Appendix G: Market Manager Guide

Role: The market managers role is to serve as the liaison between vendors, consumers and the advisory committee.

Section 1 – Contact Information

Placeholder – After the advisory committee has been created the contact information will be listed here.

Section 2 – Prior to the start of the market

Assemble your vendor contracts into one location so that the contact information is readily available.

Arrive 60 minutes prior to the start of the market. Ensure the grounds are free of debris and litter.

Vendors can set up no greater than 60 minutes prior to the posted start time of the market. Ensure each vendor is in their appropriate stall and that the vendor has signage noting the name of the individual or farm represented.

Set up cones in the parking lot to prevent traffic within the market and place signage in the appropriate places.

Section 3 – During the market

Ensure the vendors follow Wood County Health Department protocol as per the FAQ sheets. If vendors are not abiding by these protocols discuss the concern to resolve the

matter directly with the vendor. If the vendor does not comply complete a report of the violation(s) and advise the vendor of the penalty for the violation(s).

Document which vendors are in attendance at the market each market day.

Section 4 – The completion of the market

Ensure farmers are cleaning their assigned stall space and taking any trash with them.

Collect the cones and signage. Tidy the area.

Submit any report of violations to the advisory committee.

Section 5 – Other responsibilities outside of the market day

The market manager is responsible for vendor recruitment, retention, record maintenance, vendor stall fee collection, special events coordination, safety, and evaluation data collection as requested by the advisory committee.

Appendix H: **Vendor Contract**

Vendor Name: _____ Phone #: _____

Address:

Products for Sale (circle all that apply):

Fresh produce	Preserved Foods	Dairy Products	Animal
Products			
Honey	Maple Syrup	Flowers	Plants

- I will attend a minimum of 10 scheduled market dates.
- I have read through and acknowledge the “Market Operational Rules” governing this farmers market. I will abide by said rules at all times.
- I agree to not hold the market, market manager, advisory committee, or host site responsible for injuries or accidents that might occur while at the market.
- I have read through the Wood County Health Department Farmer’s Market FAQ and will abide by the licensing regulations set forth. If I have further questions I know that it is my responsibility to contact the Wood County Health Department at 715-421-8911 directly to address those questions.
- I have reviewed the market day procedures and have identified my vendor stall location in cooperation with the market manager.
- I understand the process for reporting violations, penalties for violations, suspension or removal of the vendor from the market and the vendor appeal process and will abide by these processes.
- All products for sale will be local (within 200 miles of the market and within the state of Wisconsin).

Vendor Signature _____ Date _____

Market Manager Signature _____ Date _____

Stall Fee Paid _____ Manager Initials _____ Vendor Initials _____ Date _____

Appendix I: Report of Market Violations

Date of incident: _____

Vendor: _____

Violation: (circle one) First Second Third Fourth

Description of Occurrence:

Discussed with the vendor: Yes No If no, provide the reason:

Occurrence resolved? Yes No If no, provide the reason:

Does the vendor wish to appeal? Yes No

Manager signature: _____ Date: _____

Vendor signature: _____ Date: _____

If the occurrence is resolved, place this form in the vendor's contract file. If the occurrence is not resolved submit to the advisory committee immediately for review.

Appendix J: Wood County Health Department Farmers Market Frequently Asked

Questions (FAQs)

Food Item	Licensing Requirement	Examples	Special Considerations
Fruits and vegetables	None	Uncut fruits and vegetables	None
Canned or processed foods that are either: <ul style="list-style-type: none"> ● Naturally acidic ● Acidified by fermenting or pickling 	None	Sauerkraut Pickles and pickled vegetables Salsas and chutneys Jams and jellies Applesauce	Foods must have a pH of 4.6 or lower Must be labeled “This product was made in a private home not subject to state licensing and inspection” Must be labeled with name and address of the canner, the date of canning, and ingredients listed in descending order of prominence.
Canned or processed foods that have a pH of 4.6 or greater	License required	Beans Corn Peas	Small scale commercial processing of low acidic foods is discouraged due to the risk of botulism.
Honey	A food processing license is required for honey. Exception: If the honey is “RAW”, not heated to 160°F to inhibit crystallization, no license is	Pure honey	Honey must not contain any added color, flavor or ingredients. The label must include: <ul style="list-style-type: none"> ● Product name ● Business name and address ● Net weight ● Ingredients ● Grade: (“Ungraded” or graded as per DATCP standards)

	required.		for WI Fancy, WI No. 1 or WI No. 2 for comb honey or Extracted honey)
Maple syrup	No	Pure maple syrup	The label must include: <ul style="list-style-type: none"> ● Product name ● Business name and address ● Net weight ● Ingredients ● Grade: (WI Fancy, WI Grade A or WI Manufacturer's Grade as per USDA color standards for maple syrup)
Untreated Juice	No	Pressed apple cider	Must be consistently refrigerated at 41°F or below Must be labeled with the warning: "This product has not been pasteurized and therefore may contain harmful bacteria that can cause serious illness in children, the elderly and persons with weakened immune systems".
Eggs	Yes	Farm fresh eggs	Eggs can only be sold directly to the consumer. Must be consistently refrigerated at 41°F or below Label requirements: <ul style="list-style-type: none"> ● Name and address of packer, distributor or processor ● Grade and size or "ungraded and uninspected"

			<p>statement</p> <ul style="list-style-type: none"> • Date of Pack • Expiration/sell by date (not to exceed 30 days including day of pack) <p>See the WCHD for details.</p>
Livestock	Yes	Beef Pork	A retail food establishment license is required. See the WCHD for details.
Poultry	Yes	Chicken Turkey	All birds must be butchered and processed at a licensed meat establishment. See the WCHD for details.
Rabbits	Yes	Rabbit	Must be processed at a licensed food or meat processing plant. Must be labeled “not inspected”. Label must include name and address of the producer and the net weight. See the WCHD for details.
Bakery Items	Yes	Cookies, cakes, breads	Items must come from a licensed retail food establishment or food processing plant. See the WCHD for details.

Appendix K: Evaluation Plan for Short Term Goals

By the end of the 2016 market season:

1. Increase access to fresh and affordable produce.
2. Decrease costs associated with purchasing fresh produce for the residents of the food desert.

Short Term Goal #1 Measurements

- a. The market manager will survey a minimum of 10 market attendees each market day of the market season using the “Farmers Market Customer Access Survey Tool”.

Customers accessing the market will be randomly chosen and asked to participate in the survey process. The survey is anonymous. The market manager will be trained on how to approach and elicit rich feedback from attendees. The data will be collected and maintained on an electronic device. Summative data will be presented to the advisory committee at the completion of the market season.

Farmers Market Customer Access Survey Tool

Market Date _____

1. How did you learn about this market? (Check all that apply)

Drive by		Newspaper		Word of mouth	
Events calendar		Signage		Social media	

2. How often do you visit this market?

First time		Weekly		Occasionally	
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3. Does this market increase your access to fresh foods?

Yes		No	
-----	--	----	--

4. Without this market would you have barriers to accessing fresh foods?

Yes		No	
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5. How far do you travel to access this market?

0-5 miles		6-10 miles		10 + miles	
-----------	--	------------	--	------------	--

6. Why do you shop at this farmers market? (Check all that apply)

Affordability of items		It is more accessible than a store		Quality of products	
Freshness of items		I like to support local farmers		Sense of community	

Any additional comments:

Adapted with permission from the UW-Extension Farmers' Market Customer Survey - Kristin Krokowski, Commercial Horticulture Educator and Rose Skora, Agriculture Educator (12/2014).

Short Term Goal #2 Measurements:

- a. The market manager will compare the prices of designated healthy food basket items purchased from the farmers market, a local grocery and a farmers market from an adjacent city outside of the food desert area. Items for each monthly basket are chosen based on the *Central Rivers Food Atlas* “What’s in Season” tool.

Item pricing at the market will be calculated based on the mean of three vendor prices. The local grocery pricing will be obtained from the grocery outlet located closest to the farmers market. The adjacent market comparison prices will be sampled from the Stevens Point farmers market, a market located outside of the food desert. The items from the Stevens Point farmers market will also be calculated based on the mean of three vendor prices. Market and grocery items will be conventionally grown items as opposed to organically grow to prevent the skewing of comparison data.

On the 15th of each month the market manager will shop prices of in season produce as identified in the Healthy Food Basket (HFB) listing. If the market does not occur on the 15th of the month the closest market day will be selected for the comparison pricing. Comparative pricing will occur in the months of June, July, August and September of each year. Items not traditionally listed in weights and measures will be estimated by relative size by the market manager conducting the pricing analysis.

Data will be entered into an excel spread sheet to compare individual prices of food items as well as the total price of the HFB for each month. Summative data will be presented to the advisory committee at the completion of the market season annually.

Healthy Food Basket (HFB) Listing

June

Radishes – 1 lb.	Strawberries – 1 pint
Rhubarb – 1 lb.	Carrots – 1 lb.
Large leaf spinach – 1 large bunch	Lettuce (romaine) – 1 large head

July

Blueberries – 1 pint	Kale – 1 large bunch
Broccoli – 1 large head (equivalent to ~1 lb.)	Sugar snap peas – 1 lb.
Cucumbers – 3 medium (equivalent to ~1 lb.)	Summer squash - 3 medium (equivalent to ~1 lb.)

August

Beets – 1 lb.	Cantaloupe – 1 medium
Sweet corn – 4 ears	Tomatoes – 1 lb.
Green beans – 1 lb.	Watermelon – 1 large

September

Apples – 3 lbs.	Potatoes – 5 lbs.
Eggplant – 1 large (equivalent to ~1 lb.)	Sweet peppers – 3 (equivalent to ~1 lb.)
Yellow onions – 1 lb.	Swiss Chard – 1 large bunch

Appendix L: Evaluation Plan for Medium Term Goals

By the end of the 2020 market season:

1. Strengthen community partnerships to support local food systems.
2. Increase the health of the community and decrease food costs through educational programming on selecting, preparing and preserving foods to the residents of the food desert.

Medium Term Goal #1 Measurements

- a. An average of ten vendors will attend each scheduled market day. Records will be maintained by the market manager and reported to the advisory committee at the completion of each market season.
- b. The advisory committee shall meet quarterly and be represented by at least five community organizations interested in the health of the community. A minimum of one vendor, one customer of the market, and one community member will also serve on the committee.
- c. A minimum of five local businesses will sponsor or support the market annually by way of financial contribution or direct marketing.
- d. The advisory committee and market manager shall secure and implement a mechanism to support the use of Supplemental Nutrition Assistance Program

(SNAP) Electronic Benefit Transfer (EBT) for customers and vendors of the market.

Medium Term Goal #2 Measurements

- a. A minimum of 4 special events each season will be hosted at the farmers market to educate customers on selecting, preparing and preserving food items that can be purchased directly at the market.
- b. The advisory committee and market manager shall partner with the University of Wisconsin Extension to offer three classes each market season on selecting, preparing and preserving food classes.
- c. The market manager will survey participants of the classes using the “Selecting, Preparing and Preserving Foods” survey tool upon the completion of each class. Results of the survey will be tabulated and presented to the advisory committee and the UW Extension office at the completion of the market season.

Selecting, Preparing and Preserving Foods Survey

Date of Class: _____

Title of Class: _____

How did you learn about this class? (Check all that apply)

The farmers market		Newspaper		Word of mouth	
Events calendar		Signage		Social media	

After completing this class do you feel:

You are more comfortable with selecting, preparing and/or preserving fresh foods?

1= Not at all 2=Somewhat 3 = Yes, very much so

That it is important for your family to save money on your monthly food bill?

1= Not at all 2=Somewhat 3 = Yes, very much so

You can save money on your monthly food bill by correctly purchasing, preparing and preserving fresh foods?

1= Not at all 2=Somewhat 3 = Yes, very much so

That knowing the information from this class can help you make healthier food choices?

1= Not at all 2=Somewhat 3 = Yes, very much so

That purchasing, preparing and preserving your own foods will help you to be a healthier person?

1= Not at all 2=Somewhat 3 = Yes, very much so

Additional comments:

Appendix M: Evaluation Plan for Long Term Goals

By the end of the 2025 market season:

1. Expand market presence to outlying communities within the food desert region.
2. Eliminate USDA food desert conditions in South Wood County.
3. Decrease the incidence of chronic illness.

Long Term Goal #1 Measurements

- a. The advisory committee will secure grant dollars to ascertain equipment for and to sustain a mobile food market.
- b. The mobile food market will visit three outlying communities on a weekly basis.

Long Term Goal #2 Measurement

- a. Food desert conditions in South Wood County will be eliminated as per the USDA qualifying criteria and the food atlas mapping tool.

Long Term Goal #3 Measurements

- a. Decrease the incidence of overweight and obesity in Wood County Wisconsin by 5% from 2015 to 2025.
- b. Decrease the incidence of cardiovascular disease in Wood County Wisconsin by 3% from 2015 to 2025.
- c. Decrease the incidence of diabetes in Wood County Wisconsin by 3% from 2015 to 2025.