CONTRASTING RURAL AND URBAN KANSAS CHRONIC DISEASE RISK REDUCTION PHYSICAL ACTIVITY AND NUTRITION GRANTEES

by

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Abstract

A major public health objective is to reduce the risk of the population for chronic disease. To achieve this goal in the U.S., the Centers for Disease Control and Prevention provides funds to states to distribute to local communities. How states can assist local communities in their public health efforts is not well understood. Furthermore, the little evidence that does exist is based on research conducted largely in urban areas with higher-income populations (Barnidge, et al., 2013; Frost, Goins, Hooker, Bryant, Kruger, & Pluto, 2010). "One size fits all" technical assistance delivered by state health departments does not always fit the needs of every community due to contrasting population densities in the state. With health disparities between rural and urban populations on the rise, public health practitioners in rural areas face great challenges improving the health of residents (Singh & Siahpush, 2014). Thus, public health practitioners at the state and local level must adapt the evidence-base to fit the characteristics of rural areas.

The Kansas Department of Health and Environment (KDHE) is a state level health agency serving the residents of Kansas. The mission of KDHE is to protect and improve the health of all Kansans and the environment in which they live (KDHE, 2014). Within KDHE is the Division of Public Health, which houses the Bureau of Health Promotion. This report covers projects and learning objectives conducted during a field experience for fulfillment of a Master in Public Health degree at Kansas State University. Research and projects were completed within the field experience timeframe and were conducted as part of the Physical Activity and Nutrition Program within the Bureau of Health Promotion.

Detailed results from qualitative interviews held with Chronic Disease Risk Reduction (CDRR) physical activity and nutrition (PAN) grantees in Kansas counties were provided in this report. The primary aim of the project was to contrast the needs between rural and urban county health departments and to develop guidelines to improve state technical assistance efforts to CDRR grantees. Rural county barriers included lack of human capital and resources, lack of interest in physical activity and nutrition initiatives among local leaders, and lack of opportunities for training. Both urban and rural grantees expressed a strong need for better access to best practice examples for communities similar to theirs. Facilitators for rural grantees were partnerships with foundations or organizations, good trail systems, and a strong "sense of

community.” Facilitators for urban grantees included the availability of resources and access to PAN-inducing environments. Qualitative interviews and feedback may fill an important role of altering and improving technical assistance efforts in states which have a wide array of population densities.

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Preface

In partial fulfillment of the degree of Master of Public Health at Kansas State University, a field experience in the public health field must be completed. This report serves the purpose to describe the major projects completed during the field experience, explain the organization in which the field experience was completed, and discuss how the core competencies required for the Master of Public Health degree fit in with the overall field experience. The report is organized in four chapters, each having their own reference section.

Chapter one describes two related projects, which were the main focus for the duration of the field experience hours. First, an introductory literature review provides background on the varying barriers, facilitators, and recommendations to health in rural and urban communities. The literature review is followed by the second project, which consists of qualitative interviews with both rural and urban grantees in the State of Kansas. Methods of conducting the interviews, results, discussion and recommendations are described. To help inform the improvement of technical assistance to rural and urban grantees, the literature review and interviews were compiled into a report that was disseminated to employees in the Bureau of Health Promotion (BHP) at the Kansas Department of Health and Environment (KDHE).

The second chapter is a description of the field experience setting, the Physical Activity and Nutrition (PAN) program within the BHP at KDHE. This chapter also features an overview of the field experience and an explanation of the learning objectives agreed upon prior to beginning field experience hours and other projects worked on and products developed.

The third chapter describes a smaller project developed for the BHP at KDHE, an introductory literature review on healthy vending strategies. This literature review aimed to assist in the planning phases of the installation of healthier vending options and policies in the five

state office buildings in downtown Topeka, Kansas. An evaluation plan was developed by KDHE BHP staff following the completion of field experience hours. A portion the review of literature is included in the plan.

Finally, the fourth chapter describes a reflection on the overall experience and a discussion on the core competencies of the Master of Public Health program. Learning experiences are summed up and final thoughts are discussed.

Chapter 1 - Chronic Disease Risk Reduction Physical Activity, Nutrition and Obesity Technical Assistance Qualitative Assessment

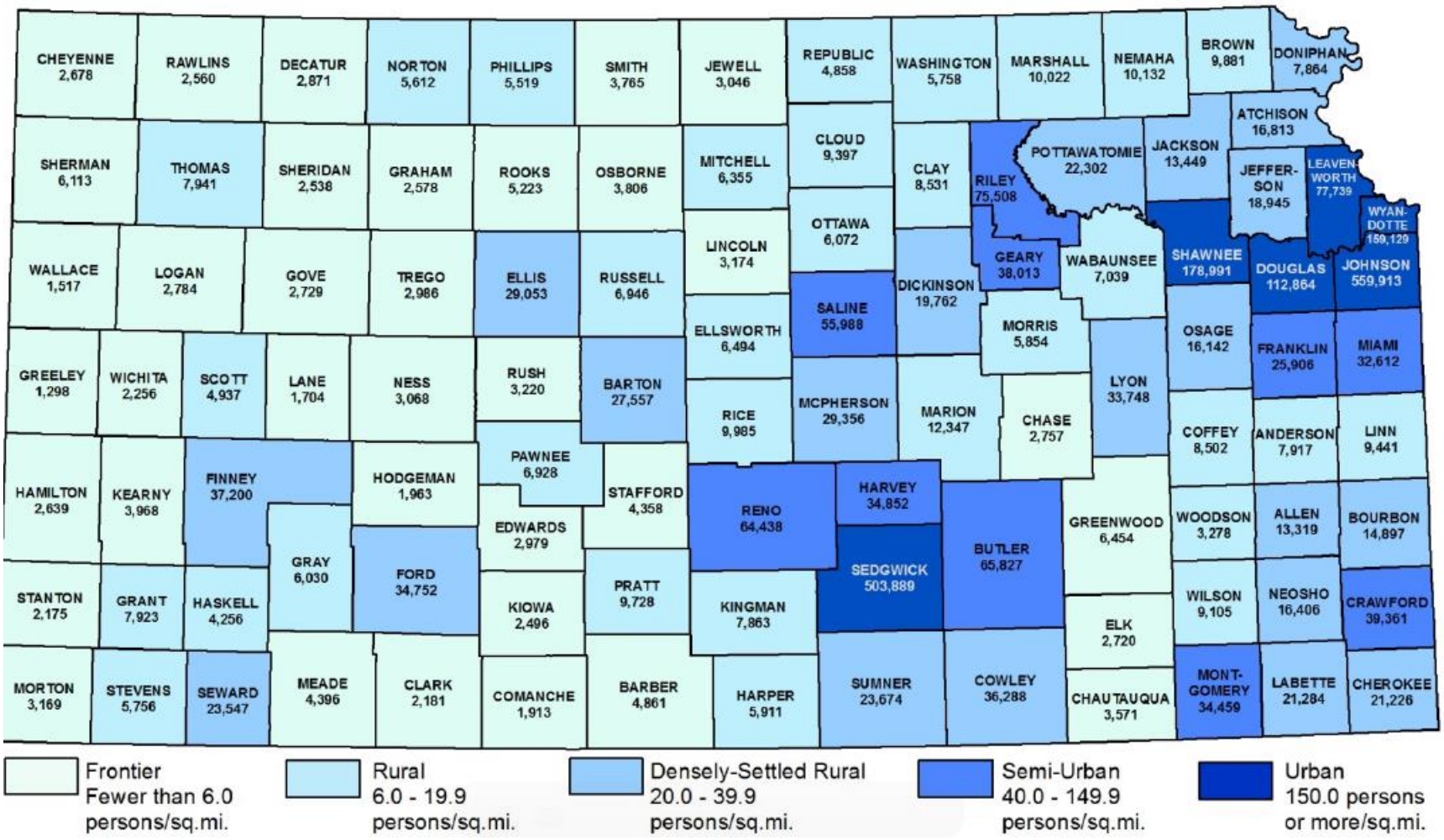
Introduction

Research documenting effective community public health interventions has been based largely in urban areas with higher-income populations (Barnidge, et al., 2013; Frost, et al. , 2010). Little is known about specific needs of rural areas. Public health practitioners working in rural areas must adapt evidence to fit characteristics of rural areas to meet local challenges. A low population density often coincides with an increased challenge in delivering preventative and primary care services, poor public transportation systems, and a built-environment that is not conducive to physical activity (Barnidge, et al., 2013). With the inequality of rural-urban disparities on the rise, local health departments are facing a significant challenge to effectively reach rural populations (Singh & Siahpush, 2014). Consequently, rural area residents have an increased prevalence of obesity, physical inactivity, poor diet, and are less likely to be insured and receive preventative care services (Barnidge, et al., 2013; Beatty, Harris, & Barnes, 2010; Centers for Disease Control and Prevention, 2013; Singh & Siahpush, 2014).

Population Density and Overweight and Obesity Prevalence

The State of Kansas is predominantly rural, with 89 of the 105 counties having fewer than 40 persons per square mile; only 6 of the 105 counties are considered urban with 150 or more persons per square mile (Kansas Department of Health and Environment: Bureau of Epidemiology and Public Health Informatics, 2012). The prevalence of obese or overweight Kansas adults reached 64.4 percent in 2011(29.6 percent obese and 34.8 percent overweight), and coincided with an increase in chronic disease prevalence in those who were obese compared

to those who were not obese. The percent of rural residents in Kansas who were overweight or obese was 69.2 percent compared to 62.2 percent of residents overweight or obese in urban counties (Kansas Department of Health and Environment, 2013). Figure 1.1 displays the large contrast of population density in the State of (Kansas Department of Health and Environment Bureau of Community Health Systems, 2014).



(Kansas Department of Health and Environment Bureau of Community Health Systems, 2014)

Figure 1.1 Kansas Population Density Based on 2010 Census

Fruit and Vegetable Consumption

As of 2011, 41.4 percent of Kansans consumed fruit less frequently than 1 time per day and 22.3 percent consumed vegetables less frequently than 1 time per day (Kansas Department of Health and Environment, 2013). Among individuals who resided in densely-settled rural counties, the percentage was significantly higher compared to urban residents, especially when looking at consumption of fruit, 44.3 percent compared to 39.7 percent in urban counties (Kansas Department of Health and Environment, 2013).

Physical Activity

Only 16.5 percent of Kansas adults met physical activity guidelines as of 2011. The percentage of persons meeting physical activity guidelines was significantly lower for those living in a less population-dense county compared to urban counties; 17.9 percent compared to 20.0 percent (Kansas Department of Health and Environment, 2013).

Project 1: Introductory Review of the Literature

Prior to examining barriers and facilitators to both rural and urban community health in the State of Kansas, it is necessary to first examine past research on barriers and facilitators to community health in general. This introductory review of literature highlights some of the significant barriers faced in rural community health and recommendations given on how to overcome those barriers to better serve the rural population.

Method

A search was conducted in June, 2014 for peer reviewed articles published between 2006 and 2014. Topics of the articles explored were barriers and facilitators to community health in

rural areas and urban areas. Databases searched included: Scopus, Web of Science and PubMed. Key words used in the search included: "community health," "rural health," "urban health," "rural health barriers," "rural health facilitators," "urban health barriers," and "urban health facilitators." The findings of the search resulted in the following review of literature.

Results

Rural barriers to community health. Existing research highlighting the barriers to rural health have several common overarching themes. Small population size results in a lack of funders and restricts influence on policy past the local level. Health interventions delivered in scarcely populated areas face the challenge of limited exposure to messages and prompts, making it difficult to have an effective impact or generate interest (Barnidge, et al., 2013). Having fewer people translates into lack of adequate staff in rural communities. A limited staff that is inadequately trained results in decreased likelihood of securing grant money, as well as a lack of ability to prepare and respond to emergency events and to identify major crises (Barnidge, et al., 2013; Crawford, Vilvens, Pearsol, & Gavit, 2008). An unequal distribution of resources (such as funding, knowledge, and effectiveness of existing training programs) between urban and rural areas for staff training has been reported as a substantial barrier. Funding has been identified as the core barrier (Crawford, et al., 2008).

A qualitative assessment conducted by Barnidge and colleagues (2013) of 10 state public health practitioners found that there was often a cultural barrier to changes public health practitioners attempt to make within a community and what a community felt was needed. This was stated as most evident when policy or environment changes were proposed. Lack of cooperation when there was a need to collaborate became a large overarching barrier for many public health organizations (Crawford, et al., 2008). It was also found that many residents in

rural communities did not see physical activity initiatives, such as walking and bicycling, as a priority and did not want the government to intervene (Barnidge, et al., 2013). This highlights a need to educate community members on the importance of physical activity as it relates to health and work. Local health officials need to identify strategies that will improve physical activity in rural communities.

Environmental factors such as limited access to recreational facilities, parks, walkability, and access of healthful foods makes it difficult for rural populations to make healthy behavior choices regarding nutrition and physical activity (Barnidge, et al., 2013). The proximity of physical activity resources has been suggested as a barrier among rural youth, who must rely on their parents more often than urban youth to transport them to environments conducive to physical activity (Edwards, Theriault, Shores, & Melton, 2014).

Another contributing factor to the health disparities between rural and urban populations is differences in the utilization of preventative health services. Simply stated, residents of rural areas use fewer preventative services than residents of urban areas (Maciosek, et al., 2006). In a qualitative study of 29 physicians by Khoong and colleagues (2014), the authors suggesst a disparity in the likelihood of physicians to adhere to preventative care guidelines depending on if they were practicing in a rural, urban or suburban setting. In all three settings, physicians reported differences in their knowledge of preventative guidelines depending on the population that they frequently saw. The physicians stated they would not feel comfortable adhering to specific guidelines. Physicians from rural areas reported that distance, limited preventative care resources, and overall resistance to accept preventative/medical care were barriers for their patients (Khoong, Gibbert, Garbutt, Sumner, & Brownson, 2014). Population health in rural

communities continues to be a challenging task for both public health practitioners and primary care physicians.

Urban barriers to community health. While urban and suburban physicians do not report as many challenges as rural physicians, difficulty in coordinating and tracking patients' care within a multiple health care system continues to be a barrier to health (Khoong, et al., 2014). Urban community members stated several perceived barriers to achieving good health. For example, issues such as safety (e.g. crime), lack of parks and recreational facilities and the built environment were all perceived barriers to achieving adequate physical activity for good health (Frost et al, 2010). In a focus group conducted by Moore and colleagues (2010), parents reported that the inconveniences (high cost of gas and limited time) of driving to the suburbs to take their children to a nice park to participate in physical activity, was a substantial barrier in urban areas. Some parents spoke of how things had changed in recent decades. They highlighted the fact that it had not always been this way, referring to the fact that children can no longer walk a few blocks to a recreation complex in an urban area because those complexes have closed or moved to the edge of town. Due to this, many urban communities are facing similar transportation problems as seen in rural areas (Moore, et al., 2010).

Recommendations and facilitators. To address the lack of human capital within rural public health organizations, the development of an internal training oversight committee has been recommended. Oversight committees ensure employees receive adequate training over general public health policies and procedure development (Crawford et al., 2008). While this recommendation would be ideal, training needs assessment performed with staff of a rural health department revealed several barriers to implementing an oversight committee such as insufficient funds, limited training opportunities, time, distance, lack of internal resources and support, and

lack of interest. Allocating available resources, such as funding, knowledge, or skills to continue education opportunities within the organization may be essential if extensive staff training is not feasible (Edwards, Theriault, Shores, & Melton, 2014).

To aid in lessening the gap of rural-urban health disparities, Singh & Siahpush (2014) recommends focusing on social policy and behavioral interventions specifically targeting tobacco prevention, obesity and improved health care access. Partnerships, coalitions and advisory boards to bring stakeholders together are essential (Barnidge, et al., 2013; Edwards, et al., 2014). Nongovernmental organizations (NGOs) often share similar goals with health departments and could leverage resources (Beatty, et al., 2010).

Partnering with existing networks in rural areas and collaborating is essential to obtain limited local resources. To achieve this, a broad-based approach should be developed to address the needs of all stakeholders. Regional organizations should partner with local entities to leverage existing resources to build upon existing environmental supports, e.g., nature trails, parks, ball fields, or school playgrounds (Barnidge, et al., 2013; Edwards, et al., 2014). When evidence-based tactics are not feasible for a rural area, the use of community-based health assessment becomes critical to plan and implement initiatives targeting specific needs in the area (Edwards, et al., 2014).

Project 2: Qualitative Interviews

To understand specific barriers and facilitators to physical activity and nutrition in Kansas rural and urban counties, qualitative interviews were conducted in 10 Chronic Disease Risk Reduction Grantee communities (CDRR). Collecting qualitative data through interviews

enhances understanding of an issue and allows for comparison when a common interview protocol is developed (Brownson, Baker, Leet, Gillespie, & True, 2011)

Methods

Setting and purpose. The Kansas CDRR grant program provided funding and technical assistance to Kansas communities to assist in decreasing the risk of chronic diseases through the use of evidence-based strategies. Evidence-based strategies can be defined as the integration of science-based interventions with community preferences to improve the health of populations (Brownson, Baker, Leet, Gillespie, & True, 2011). Strategies aimed to decrease the use of tobacco, improve nutrition access and behaviors, or improve physical activity behaviors. The CDRR worked to support Kansans striving for better health by helping create the kinds of environments that made the healthy choice the easy choices in place where people worked, learned, lived and played. CDRR provided tools to funded communities to identify their local health needs and develop partnerships and strategies necessary to take action. The program made funding and technical assistance available to participating communities to reduce chronic disease risk through proven strategies that impacted tobacco use, physical activity and nutrition.

CDRR grantees were required to have a primary focus on tobacco prevention and had the option to also target physical activity, and nutrition (PAN). Examples of PAN activities that were chosen by CDRR grantees included complete streets policies, breastfeeding support policies, community gardens, safe routes to school and worksite Community Supported Agriculture (CSA's). To align with performance measures from the CDC's *State Public Health Actions to Prevent and Control Diabetes, Heart Disease, Obesity and Associated Risk Factors and Promote School Health funding agreement* (shortened as *1305* Agreement) that KDHE must meet at the state level, it was necessary to first research barriers and facilitators to PAN at the

local level. A qualitative assessment was performed at KDHE; figure 1.2, Logic Model, illustrated where this project fit in the process of improving technical assistance and impacting performance measures.

Participants. Figure 1.3 shows a breakdown of FY 2015 CDRR PAN Grantees. Of the 105 Counties in Kansas, 41 health departments applied for a CDRR grant; of those 41, 40 were funded, and 22 featured a PAN component. One CDRR PAN Grantee dropped out, resulting in a final number of 21 CDRR PAN Grantees in Kansas. Ten of the 21 PAN grantees were the focus of this project, which provided information to serve as a guide to develop strategies to improve technical assistance to communities receiving CDRR PAN funding. The project consisted of a literature review (described as project 1 in this chapter), qualitative interviews, basic assessment, and the development of a report, which was disseminated to KDHE employees working with the CDRR Grant Program.

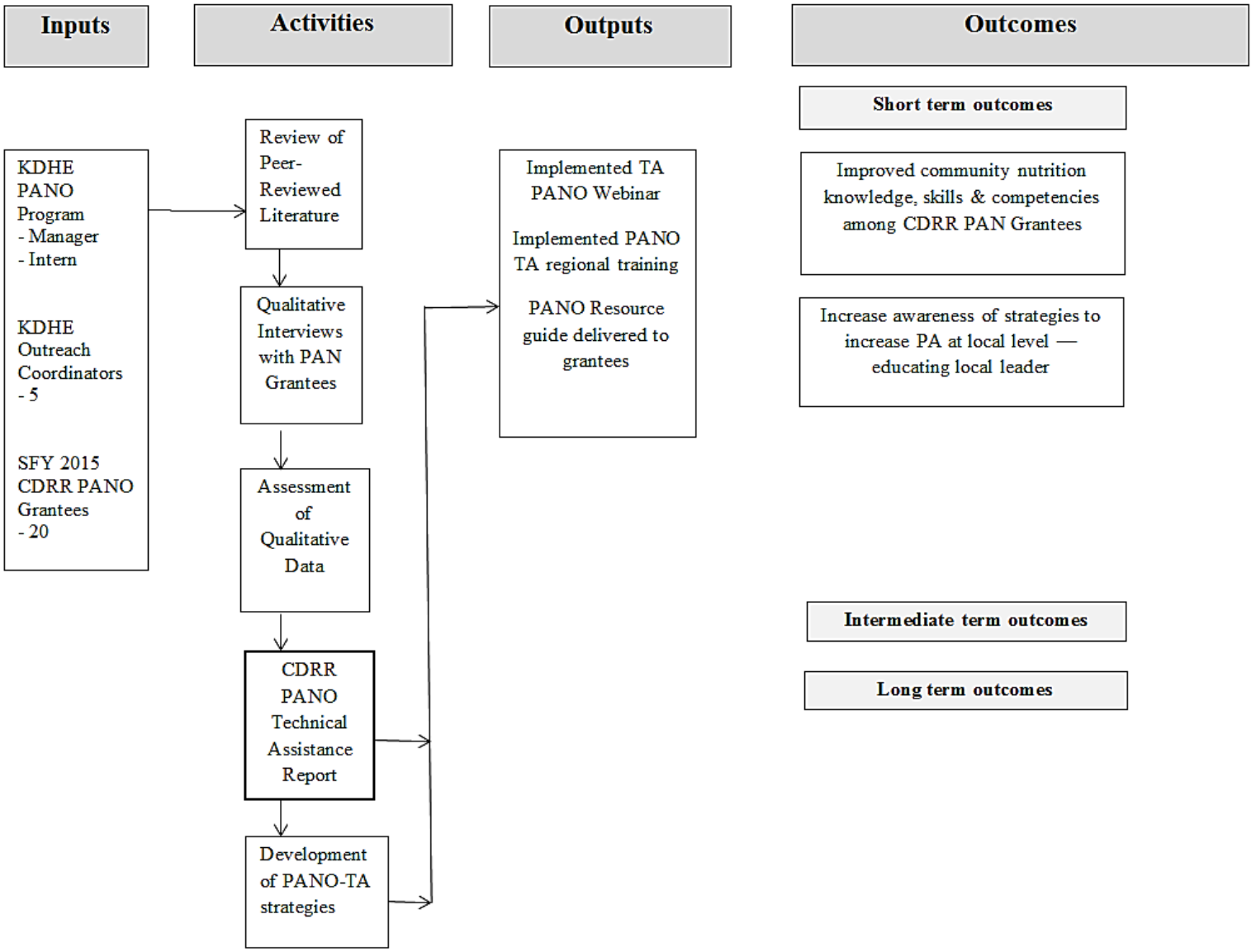


Figure 1.2. FY 2015 CDRR PAN Technical Assistance Report Logic Model

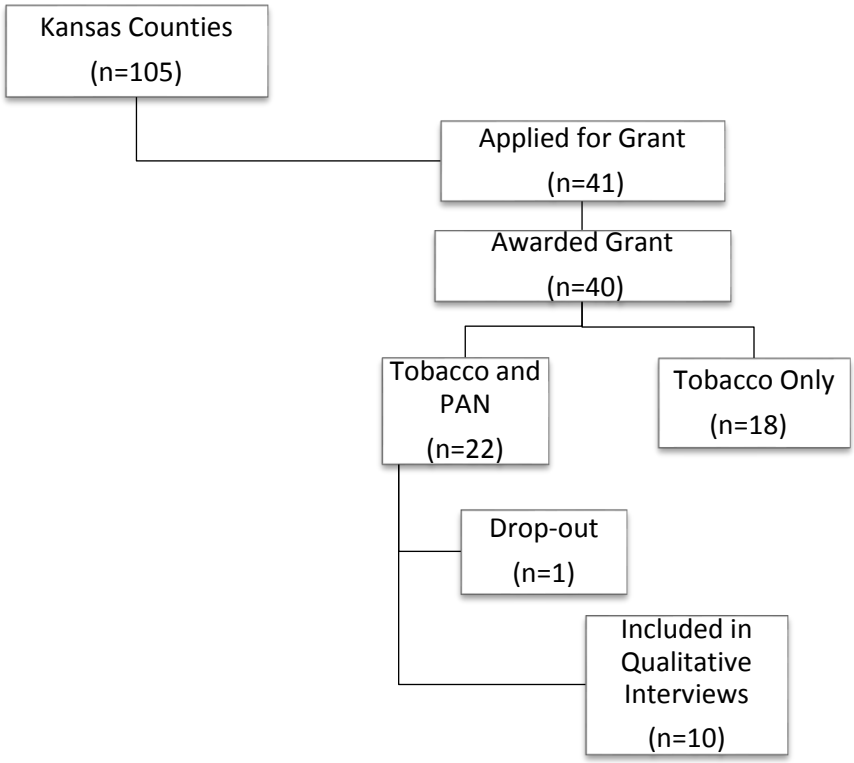


Figure 1.3 FY 2015 CDRR PAN Grantee Applicants

Procedures. To discuss each PAN grantee in their region, individual meetings were conducted by phone or in person with each of KDHE's CDRR Community Health Specialists (CHSs), formerly known as Outreach Coordinators, (n=5). CHSs provided technical assistance within their assigned regions and have close relationships with the counties they assist. Following discussions with each CHS and based on the examination of barriers and facilitators to rural health and research conducted on qualitative interviews, an interview guide was developed to perform semi-structured interviews. Topics included in the guide were community background, opportunities, resources, and barriers for PAN in the community, community norms

and traditions, training, and current technical assistance. The questions were open-ended and designed not to lead the interviewee. The interview guide used by the moderator is shown in Figure 1.4.

1) **Tell me about your community**
    a. **What are the primary benefits of living here?**
        i. **What comes to mind when you think about resources, programs and policies available for PAN in your community?**
            1. **Do you have any partnerships with any NGO's in your region who have similar PAN goals?**
                a. **Who do you collaborate with and how?**
        ii. **Do you think lack of sidewalks, parks or other open areas in your community prevent people from being physically active?**
            1. **What about crime or traffic?**
2) **What role do you play in your organization as related to PAN and the CDRR grants?**
3) **How do you think the opportunities for PAN in your community differ from those in other parts of the state?**
    a. **Are there any cultural norms or traditions that influence PAN in your community?**
    b. **What are the top 3 disadvantages?**
    c. **What are the top 3 advantages?**
4) **Will you explain to me why you think PAN is important for overall health?**
    a. **Do members of your community share this view?**
5) **What information, training, and skills do you need to effectively achieve your PAN goals?**
    a. **What barriers do you have to achieving those goals?**
    b. **In what ways do you adapt and choose what PAN interventions you utilize?**
    c. **Do you feel as though your staff/team has appropriate training and skills to achieve PAN goals using these interventions?**
        i. **What barriers do you have when participating in training?**
6) **In what ways can the PAN outreach better help you and your community?**
    a. **Are there any specific strategies (technical assistance) that you would like to see?**
    b. **Is there any assistance we are providing that is working well?**
    c. **Is there any assistance that we currently provide that is not beneficial?**
        i. **If yes, then what improvements would you like to see?**

Figure 1.4 Interview Guide for CDRR PAN Grantees used by Moderator

Following the development of the interview guide, a convenience sample of 10 PAN grantees were selected to participate in the qualitative interviews. An equal number of urban (n=5) and rural (n=5) PAN grantees were chosen. Rural or urban status was determined from data collected from the Behavioral Risk Factor Surveillance System (BRFSS) survey (Kansas Department of Health and Environment, 2013). The selection of grantees was finalized based on discussion with the CHS, the phase in which the grantee was in with the CDRR grant, and their availability to participate in the interview based on the selected time period. Rural counties included Allen, Barton, Cowley, Norton, and Osage counties; urban counties included Douglas, Johnson, Saline, Sedgwick, and Shawnee counties.

Semi-structured interviews were conducted by telephone by a single member of the investigative team throughout a three-week time period. The main contact person listed on the CDRR grant application, which was most often, but not limited to, the grant coordinator for the local health department, was the interviewee for each county. Each interview lasted between 20 and 45 minutes. Qualitative data from the interview was transcribed simultaneously with the interview.Participation was voluntary; although, none of the selected grantees declined to participate. Following completion of the interviews, qualitative data was analyzed by two members of the investigative team. Data was grouped based on common themes found from keywords. A “common theme” was defined as two or more grantees including the same keywords in their response to an identical question. Initial themes related to PAN that were identified from the qualitative data are presented in Table 1.1.

Table 1.1 Common Themes Found from Key Questions used in Grantee Interviews

QUESTION	THEME 1	THEME 2	THEME 3	THEME 4	THEME 5	THEME 6
Do you think lack of sidewalks, parks, or other open areas in your community prevent people from being physically active?	Yes, sidewalks					
What about crime or traffic?	Traffic, busy intersection(s)	General Traffic	Crime			
Are there any cultural norms or traditions that influence PAN in your community?	Community and/or Political leadership doesn't see PAN as a problem	Too much processed food/fast food	No norms or traditions that influence PAN			
What are the top 3 disadvantages?	Community and/or county in Food Desert	Lack of organized and/or affordable fitness/ recreation opportunities	Difficulty prioritizing efforts	Difficulty getting funding	Community has negative view on PAN/lack support from policy makers	Lack of trails and/or interconnectivity
What are the top 3 advantages?	Good trail system	Farmer's Markets established	Culture supports PAN	Have opportunities/ resources	Human capital	Community open to change
What information, training, and skills do you need to effectively achieve your PAN goals?	Resources on best practices/ Success stories/ examples of interventions in similar communities	KDHE Trainings/ Webinars	Built Environment & Outdoor Summit	Leadership Development/ Training	Education/ Training for community and/or coalition	
What barriers do you have to achieving those goals?	Funding	Time/lack of staff	Need more education and advocacy			
Do you feel as though your staff/team has appropriate training and skills to achieve PAN goals using these interventions?	Yes	They could use more training				
What barriers do you have when participating in training?	Time/lack of staff	Distance	Expense	No perceived barriers to training		
In what ways can the PAN outreach better help you and your community?	Resources on best practices/ Success stories/ examples of interventions in similar communities	Give more funding	More face-to-face contact			

Results

Barriers. The most common PAN rural community barriers included inadequate sidewalks and pedestrian crossings, especially around busy intersections. A rural grantee mentioned that the condition of their sidewalks was a "major issue" and new housing developments were being constructed with sidewalks on only one side of the street. Other common rural barriers included lack of time and staff, difficulty securing funding, and lack of support and understanding of the importance of PAN from community and/or local leaders. Convincing key leaders in rural communities to "get it," or understand why the community needed to support PAN strategies seems to be an ongoing challenge of rural communities. It was stated that members of the community don't see PAN initiatives as priority and "don't grasp the strong link between physical activity and obesity rates."

Common barriers related to PAN identified in urban communities included traffic, food deserts in some areas, and difficulty prioritizing PAN efforts. An urban grantee stated that it is an "ongoing challenge trying to prioritize where to start" because they have such a large population in their community. Other urban PAN barriers included lack of interconnectivity between existing trails, and that they had good trails, but "(you) couldn't ride your bike to work." A need for leadership training and education was also a stated barrier to accomplishing PAN goals.

Facilitators. Common facilitators found for PAN in rural communities included partnerships with foundations and organizations in the area that have similar PAN goals, good trail systems, and a strong "sense of community," which helps leverage support. It was stated that "people know people, once you make those connections; it is pretty easy to get things done."

Common facilitators in urban areas related to PAN included good access to PAN-inducing environments, access to resources, an engaged community, policies present or in progress, partnerships with other non-governmental organizations (NGO's) that support PAN, adequate staffing, and support

from leadership. An urban grantee stated they "have a high level of engagement of key influencers, including elected officials so they are able to accomplish policy goals." Support such as this is a huge facilitator in implementing PAN policies in the community.

Training and technical assistance. Questions related to training and technical assistance resulted in several common needs expressed by rural areas. Rural barriers were time and funding to attend training, as well as lack of staff to take time off from other job duties to attend training. When asked if they believe their staff has enough training to achieve their PAN goals, one rural grantee replied, "Not necessarily." While they may be aware they need more training, they are not always able to attend one, "it definitely takes up a lot of time to actually go to the trainings." Urban communities expressed a need for more training, education, and resources, particularly for coalition members who may not be a public health professional but are working on public health strategies in the community.

An overarching theme for both rural and urban grantees was to have access to best practices and other examples and information of successful past PAN interventions. A greater number of rural grantees listed their current trail system as an advantage, while more urban grantees listed trail system as a disadvantage due to a need for more interconnectivity. Common barriers stated appear in Table 1.2, along with supporting examples from the interviews.

Table 1.2 Barriers to PAN and Training in Rural and Urban Kansas Communities

PANO Barriers - Rural	***Supporting Example from Interviews***
Busy intersections	There is one major highway that goes through town, it separates the school from the rest of the town
PANO not seen as a priority	Community members and/or leaders see PANO initiatives and projects as unnecessary "fluff"
Funding	Funding is going towards other public health efforts such as tobacco
PANO Barriers - Urban	
Food Desert	Neighborhoods where it is impossible to get to grocery store without driving
Lack of trails/interconnectivity	Good trail systems in areas, but you couldn't walk or bike to work or the grocery store
Prioritizing efforts	Population is so large it is hard to know where to start efforts
Training Barriers - Rural	
Human Capital	Not enough people working on it, up to only them to get to the training and complete all of the work
Funding	Funding for persons not getting paid to go to a training
Distance	No time to travel to the training and complete the work

Note. Urban training barriers not included due to limited information given.

Discussion

Common themes found were matched to existing strategies linked to 1305 state level performance measures. Performance measures will be used in the future to guide specific recommended technical assistance strategies, such as webinars, trainings, and development of a resource guide, to deliver to grantees in which the assistance is deemed appropriate based off of themes found. Table 1.3 displays strategies related to physical activity (n=5), nutrition (n=1), and best practices (n=1). Performance measures strategies included street scale or community scale urban design and land-use policies, active transport to schools, community-wide campaigns, increase access to outdoor recreation

areas, enhance traffic safety in areas, and increase access to fresh local fruits and vegetables in underserved areas. These strategies will likely impact city zoning, walking school bus and safe routes to school, community PAN advocacy and education, shared land agreements, improved street crossings, and access to more nutritious foods. Among all of the 1305 state level strategies, community-wide campaigns will most likely impact the largest number of local grantees.

Table 1.3 Common Themes Matched with 1305 Strategies

	Strategy	N	Urban	Rural	Grantees
PA Strategies	Street scale or community scale urban design and land-use policies (zoning)	9	4	5	Allen Barton Cowley Norton Osage Saline Sedgwick Shawnee Johnson
	Active transport to schools (walking school bus & safe routes to school)	5	4	1	Johnson Norton Sedgwick Shawnee Saline
	Community -wide campaigns (advocacy)	10	5	5	Osage Barton Norton Saline Sedgwick Allen Cowley Shawnee Douglas Johnson
	Increase access to outdoor recreation areas	5	2	3	Barton Osage Cowley Sedgwick Johnson
	Enhance traffic safety in areas	6	4	2	Barton Cowley Douglas Norton Sedgwick Shawnee
Nutrition Strategy	Increase access to fresh, local fruits and vegetables in underserved areas	5	3	2	Allen Cowley Sedgwick Shawnee Saline
Best Practices/ Examples	PANO Grantees placed into mentor-led groups with others with similar focus/activity	6	4	2	Norton Saline Barton Douglas Shawnee Johnson

Overall Discussion

The primary aim of the two studies in this project was to develop a report that would serve as a guide to improve technical assistance delivered to CDRR PAN Grantees. As shown in the logic model, figure 1.2, the report will assist in developing technical assistance strategies such as webinars, regional training, and a resource guide for various PAN related information and best practices. Improved technical assistance will support sustainable improvements in knowledge, skills, competencies and strategies at a local level among CDRR participants. Some strategies are better utilized by urban areas, such as active transport to schools, demonstrating a challenge often faced by public health practitioners in applying appropriate strategies to communities in which they can be utilized. Interviews and assessments performed at the local level are crucial to obtaining feedback and overcoming challenges such as this.

Consistent with the research found in the review of literature included in project one, several overarching themes of barriers and facilitators for rural health emerged. Lack of human capital and resources was a consistent barrier among all rural grantees who participated. Along with a shortage of staff came a common theme of lack of time. Some rural grantees reported these two factors as barriers for reaching various PAN goals and obtaining appropriate training for staff. The review of literature showed a need for information and evidence of successful programs and activities in rural communities, and this was supported by the project findings. Surprisingly, CDRR urban grantees also expressed a need to have more access to best practice examples.

Overarching themes in the review of literature highlighted barriers in securing funding and lack of interest in PAN initiatives among local leaders. Past research states that many rural community members do not see physical activity initiatives as a priority and do not want the government intervening (Barnidge, et al., 2013). Findings of the present qualitative assessment are consistent with this theme and

stressed it as a major barrier; thus, highlighting the need to educate community members and local decision makers of the importance of PAN initiatives to decrease obesity and risk of chronic disease. Barriers to training were also consistent with what was found in the review of literature. Rural areas face training challenges related to human capital, insufficient funds, time, limited opportunities (distance), and lack of internal resources.

Recommendations

It is critical that all communities perform a community health assessment and understand their specific needs to determine what strategies to implement. This could be done through action plans such as the Community Health Assessment and Group Evaluation (CHANGE) framework developed by the CDC. With this framework, communities create an action plan focused around social and built environments. This is completed after obtaining data from the extensive community assessment at multiple settings and needs for changes are prioritized (Centers for Disease Control and Prevention, 2014). As published by the Surgeon General in 2010, an approach that targets multiple levels and settings in a community will be most effective at preventing obesity (U.S. Department of Health and Human Services, 2010). Settings to target include school, family, community, health care, media, and worksites. While it is highly unlikely a single intervention would be able to target all settings at once in one public health intervention, focusing on these settings in a multi-dimensional approach if possible, would be ideal (Tai-Seale & Chandler, 2003). The inclusion of rural physicians in an increase in training on delivering nutrition education to rural patients has also been shown to have modest success in decreasing BMIs for rural patients (Rosamond et al., 2000). In addition, a community-based intervention targeting rural, sedentary, overweight and obese women has also had success in decreasing body weight, waist circumference, and improved several behavioral measures (Folta et al., 2009). Programs that

include an educational and behavioral component delivered at the community-level may be an effective strategy for some rural areas.

Past research of lack of staffing in rural areas as a barrier was reinforced further with findings from the present project. Lack of human capital is a major barrier for rural communities when working to improve health. To help overcome this barrier, it was mentioned previously partnerships and collaboration may be a very important way to leverage resources and increase the amount of individuals working towards a common goal (Barnidge, et al., 2013; Beatty, et al., 2010; Edwards, et al., 2014). If targeting multiple levels, there may be more opportunities for partnerships with schools, health care settings, coalitions, or worksites. Utilizing and expanding upon the social environmental facilitators that encourage healthy behaviors, such as physical activity for youth, is a possible solution for rural areas with limited funding (Barnidge, et al., 2013; Edwards, et al., 2014). This could include strategies such as walking school buses, or shared-use agreements at local school playgrounds or gyms. Lastly, rural health organizations should document the effectiveness of strategies used to ensure rural communities will have evidence-based programs to utilize in the future (Barnidge, et al., 2013).

Strengths and Limitations

This project provided insight to the specific barriers and facilitators to health that are currently present in Kansas communities. Strengths included having the same person conduct and transcribe all of the interviews. Second, this report provided insight unlike any that KDHE's PAN Program has received in prior years. Taking the time to speak individually with the contact person from each PAN Grantee demonstrates the desire to improve assistance given to the grantee, possibly strengthening not only the assistance, but also the relationship between the state public health employees and public health employees at the local level. Working directly with the CHS proved to be beneficial due to their established relationship with the grantees in their region. As supported by the review of literature,

existing research on evidence-based practices is based largely off of needs of urban communities. Receiving such information directly from Kansas grantees, both rural and urban, will serve as an important resource to tailor technical assistance in a way that best serves each specific Kansas community that is a part of the CDRR grant process.

Although there are strengths surrounding the project, several limitations exist. Due to a time limitation, all of the 2015 PAN grantees (n=21) were not able to participate in interviews; therefore, generalizability is somewhat limited. Secondly, the questions serving as the qualitative interview guide were not tested and were not conducted by a trained interview facilitator. Lastly, only a basic assessment of the results was performed using keywords, a qualitative analysis software and coding of the data was not conducted.

The need for rural public health practitioners to develop strategies for effectively reaching the populations they serve is highlighted by the fact that while overall life expectancy in the United States is increasing, health disparities between urban and rural populations are still growing (Singh & Siahpush, 2014). Developing effective strategies may entail altering current evidence-based approaches to better assist rural community needs. Current literature highlights many barriers to rural health, but is limited in facilitators and success stories. The need for examples of best practices for rural communities was vocalized in grantees interviews from this project. An effective evaluation procedure would be beneficial for programs supported by funding at the state level. Significant barriers, such as lack of human capital, resources and accessibility, greatly hinder the achievement of rural community health. Partnerships and cooperation between organizations is crucial, as well as fully understanding the community needs prior to taking action. Community norms and cultural barriers provide an additional challenge, but qualitative interviews with rural community members, key informants, partners, and practitioners is a strategy that shows promise in uncovering some of the ways they can better be served.

References

Barnidge, E., Radvanyi, C., Duggan, K., Motton, F., Wiggs, I., Baker, E., & Brownson, R. (2013). Understanding and Addressing Barriers to Implementation of Environmental and Policy Interventions to Support Physical Activity and Healthy Eating in Rural Communities. *The Journal of Rural Health, 29*, 97-105.

Beatty, K., Harris, J., & Barnes, P. (2010). The role of interorganizational partnerships in health services provision among rural, suburban, and urban local health departments. *The Journal of Rural Health, 26*, 248-258.

Brownson, R., Baker, E., Leet, T., Gillespie, K., & True, W. (2011). *Evidence-Based Public Health*. New York: Oxford University Press.

Centers for Disease Control and Prevention. (2013, November 22). Access to Healthier Food Retailers - United States, 2011. *MMWR, 62*(Suppl 3), 3-32.

Centers for Disease Control and Prevention. (2014, February 4). *Assessment & Planning Models, Frameworks & Tools*. Retrieved June 5, 2014, from Centers for Disease Control and Prevention Web site: http://www.cdc.gov/stltpublichealth/cha/assessment.html

Crawford, J., Vilvens, H., Pearsol, J., & Gavit, K. (2008). An assessment of training needs in a rural public health agency: Barriers to local public health training. *Public Health Reports, 123,* 399-404.

Edwards, M., Theriault, D., Shores, K., & Melton, K. (2014). Promoting youth physical activity in rural southern communities: Practitioner perceptions of environmental opportunities and barriers. *The Journal of Rural Health, 00,* 1-9.

Folta, S.C., Lichtenstein, A.H., Sequin, R.A., Goldberg, J.P., Kruder, J.F., & Nelson, M.E. (2009). The StrongWomen-Healthy Hearts Program: Reducing Cardiovascular Disease Risk Factors in Rural Sedentary, Overweight, and Obese Midlife and Older Women. *American Journal of Public Health, 99(*7), 1271-1277.

Frost, S., Goins, R., Hooker, S., Bryant, L., Kruger, J., & Pluto, D. (2010). Effects of the built environment on physical activity of adults living in rural settings. *American Journal of Health Promotion*, *24*(4), 267-283.

Kansas Department of Health and Environment: Bureau of Community Health Systems. (2014). *Kansas Office of Rural Health*. Retrieved May 30, 2014, from Kansas Department of Health and Environment Web site: http://www.kdheks.gov/olrh/rural.html

Kansas Department of Health and Environment: Bureau of Epidemiology and Public Health Informatics. (2012, August 31). *Kansas Information for Communities: Kansas Regional Groupings & Maps*. Retrieved May 30, 2014, from Kansas Department of Health and Environment Web site: http://kic.kdhe.state.ks.us/kic/OHA/ksmap.html#peer

Kansas Department of Health and Environment: Bureau of Health Promotion. (2014). *2015 Kansas Chronic Disease Risk Reduction*. Retrieved July, 2014.

Kansas Department of Health and Environment: Bureau of Health Promotion. (2013). *Obesity, Physical Activity and Nutrition in Kansas.* Retrieved August, 2014.

Khoong, E., Gibbert, W., Garbutt, J., Sumner, W., & Brownson, R. (2014). Rural, suburban, and urban differences in factors that impact physican adherence to clinical preventative service guidelines. *The Journal of Rural Health, 30,* 7-16.

Maciosek, M., Coffield, A., Edwards, N., Flottemesch, T., Goodman, M., & Solberg, L. (2006). Priorities among effective clinical preventive services: results of a systematic review and analysis. *American Journal of Preventive Medicine, 31*(1), 52-61.

Moore, J., Jilcott, S., Shores, K., Evenson, K., Brownson, R., & Novick, L. (2010). A qualitative examination of perceived barriers and facilitators of physical activity for urban and rural youth. *Health Education Research, 25*(2), 355-367.

Rosamond, W.D., Ammerman, A.S., Holliday, J.L., Tawney, K.W., Hunt, K.J., Keyserling, T.C., Will, J.C., & Mokdad, A.H.(2000). Cardiovascular disease risk factor intervention in low-income women: the North Carolina WISEWOMAN project. *Preventive Medicine, 31*(4), 370-379.

Singh, G., & Siahpush, M. (2014). Widening Rural-Urban Disparities in Life Expectancy, U.S., 1969-2009. *American Journal of Preventive Medicine, 46*(2), e19-e29.

Tai-Seale, T., & Chandler, C. (2003). Nutrition and Overweight Concerns in Rural Areas: A Literature Review. *Rural Healthy People 2010, 2*, 115-130.

U.S. Department of Health and Human Services (2010). *The Surgeon General's Vision for a Healthy and Fit Nation.* Rockville, MD: U.S. Department of Health and Human Services, Office of the Surgeon General.

Chapter 2 - Field Experience

Kansas Department of Health and Environment

The Kansas Department of Health and Environment (KDHE) is a state level health department with the mission of protecting and improving the health of Kansans, as well as the environment in which they live (Kansas Department of Health and Environment, 2014). KDHE is divided into four separate sections that work towards the three core functions of public health: assessment, policy development, and assurance. The four sections are Administration – Office of the Secretary, Division of Public Health, Division of Health Care Finance, and Division of Environment (Kansas Department of Health and Environment). KDHE provides many important services such as development of state policy initiatives, promotion and implementation of state public health programs and various social services.

Division of Public Health. Within KDHE is the Division of Public Health (DPH). This division is made up of several sectors pertaining to health in different ways. Sectors include Community Health Systems, Disease Control and Prevention, Environmental Health, Epidemiology and Public Health Informatics, Health Promotion, Family Health, Oral Health, and Center for Performance Management. Focus areas of these sectors range from ensuring childcare providers are licensed, tracking how the environment impacts the health of Kansans, investigating disease outbreaks, and managing vital statistics for the state. The Division of Public Health works towards achieving health among the people in Kansas through the three core functions of public health:

- Assessment – collect, analyze, examine trends and publish information on various health aspects and the health status of Kansans
- Policy Development- develop policies based off of assessment data that promote health and prevent injury and disease in Kansans

- Assurance- provide services to help achieve state health goals through programs and technical support (Kansas Department of Health and Environment, 2014).

Bureau of Health Promotion. The purpose that the Bureau of Health Promotion (BHP) serves is stated in their mission "Through partnerships with the people of Kansas, promote healthy behaviors, policies and environmental changes that improve the quality of life and prevent chronic disease, injury and premature death" (Kansas Department of Health and Environment, 2014). BHP is broken down into nine different sectors that all work towards preventing the burden of chronic diseases and injuries. The sectors include Arthritis, Cancer, Diabetes, Heart Disease and Stroke, Health Risk Studies, Injury Prevention and Disability Programs, Physical Activity and Nutrition, Safe Kids Kansas, and Tobacco Use Prevention.

Physical Activity and Nutrition Program. The Physical Activity and Nutrition (PAN) Program focuses directly on physical activity and nutrition initiatives within the State of Kansas. Initiatives and programs include such things as the Senior Farmers' Market Nutrition Program (SFMNP), Capitol Midweek Farmer's Market, Kansas Kid's Fitness Day and the Capitol City Wellness Project. The PAN Program also plays a role in the Chronic Disease Risk Reduction grant process, which was the main focus of my field experience.

Field Experience Overview

My field experience was spent within the PAN Program in the BHP under direction and supervision of the program manager, Anthony Randles, PhD, MPH. Two hundred forty hours were completed on site between May 2014 and August 2014. The largest project completed in the PAN Program was the development of a report, described in chapter one, of an assessment of the contrasting rural and urban barriers to PAN of the FY2015 Chronic Disease Risk Reduction (CDRR) PAN grantees.

The report was developed to meet a need expressed by the PAN Manager to hear first-hand from the grantees what their biggest needs were regarding technical assistance and how those needs differed between rural and urban Kansas counties. This would ensure feedback was specific to challenges faced both by rural and urban public health practitioners in Kansas. The project included an introductory literature review, qualitative interviews, basic assessment, and the development of a report that was disseminated to BHP employees who worked with CDRR-related projects. A second, smaller product developed was an introductory literature review to inform the planning stages of a new food vending initiative beginning in the state office buildings located in downtown Topeka, Kansas. That literature review is present in chapter three. Other projects completed throughout my field experience included continual data entry for the Kansas SFMNP, conducting on-site training for Mini MAPS walkability audits in Wyandotte County, participating in Work Well Shawnee County Coalition meetings, and attending and limited participation in various BHP meetings and conference calls.

Learning objectives. Learning objectives were agreed upon prior to beginning contact hours of the field experience. The objectives were developed to ensure I received the best possible learning experience and KDHE knew what to expect of my time. The objectives themselves evolved as the field experience progressed and real-world application of projects and assessments were conducted. As with any public health program or initiative, one must adjust along the way.

Original learning objectives agreed upon:

1. Understand the technical assistance needs of local public health offices
2. Gather, analyze and disseminate qualitative data for the purpose to improve community health interventions

3. Identify public health policies, systems and environmental solutions related to specific issues
4. Apply knowledge to develop webinars for local grantees
5. Participate in groups to address specific issues
6. Communicate effectively both in writing and orally

The first objective was fulfilled through the qualitative interviews I completed with ten CDRR grantees. Speaking directly to the person responsible for coordination of grant activities at the local level for each of these communities was truly a great learning experience. Each individual gave me details and first-hand accounts of the specific needs and challenges they were experiencing in their county or community. The large variety of answers I received from the questions that I asked every grantee was a great example of how challenging public health could be. Each community had their own specific needs and while they could be generalized to a certain extent, planning committees must take into account the unique needs and strengths each place possesses. State-level health departments play a crucial role in capacity building at the local level and ensuring local health initiatives are implemented properly and when they are most in need.

Objective two was fulfilled through the large CDRR project I worked on throughout my field experience. Qualitative data were gathered through interviews and analyzed to determine the areas in which technical assistance needs to be improve and/or modified to better meet community needs. Data were analyzed at a surface level for the purpose of the project and results were disseminated to select members of the BHP at KDHE. Specifically, the CDRR report was shared with CHSs who most often delivered the technical assistance to grantees. This information will enable them to improve or modify efforts if needed.

The third objective was completed through the field experience as a whole and simply being exposed to state level health department day-to-day activities. I gained knowledge through involvement in various meetings, conference calls, small projects, daily learning experiences, and one-on-one meetings with various staff members of the BHP in KDHE to learn more about their specific job duties. Staff members included program managers, epidemiologists, health educators, and outreach coordinators.

Objective four was not completed during my field experience due to a lack of time. The qualitative assessment I was able to complete will inform the development of webinars and other improved technical assistance strategies.

Objective five was met through participation in various meetings and conference calls. I was able to attend several monthly meetings for Work Well Shawnee County and was included in several different planning group meetings along with my preceptor. One such meeting was for a newly formed subcommittee for local food within the Chronic Disease Alliance of Kansas (CDAK). During the planning meeting the development of a mission, goals, objectives, activities, and action steps were discussed. Having a clear definition of the purpose of such committees is necessary in order to stay within a clear area to avoid duplication of efforts.

Lastly, objective six was fulfilled through the literature reviews that were completed and disseminated, the report that was written and disseminated, emails and phone conversations with CHS and grantees, and regular meetings with my preceptor. The ability to communicate effectively while being precise is a skill I learned is very important at the state level and in public health in general. It eliminates confusion, saves time, and ensures everybody has the correct information they need to move forward with projects. The various ways to communicate whether it is to fulfill coursework, inform fellow staff members, or pass a message to the public in a health campaign all require modifications

depending on the audience. This is a skill I feel as though I was able to work on while being exposed to communication at the state level.

References

Kansas Department of Health and Environment (2013). *Annual Report 2013.* Topeka: Office of Communications in the Office of the Secretary.

Kansas Department of Health and Environment (2013, March). *Obesity, Physical Activity and Nutrition in Kansas.* Topeka: Bureau of Health Promotion.

Kansas Department of Health and Environment. (2014). *Health Promotion.* Retrieved September 14, 2014. http://www.kdheks.gov/bhp/index.html

Kansas Department of Health and Environment. (2014). *Our Mission.* Retrieved October, 2014. http://www.kdheks.gov/health/our_mission.html.

Kansas Department of Health and Environment Bureau of Community Health Systems. (2014). *Primary Care: Health Professional Underserved Areas Report.* Topeka. Retrieved September 14, 2014, from http://www.kdheks.gov/olrh/download/PCUARpt.pdf

Chapter 3 - Micro-Markets and Healthy Vending Strategies: Introductory Literature Review

Introduction

Vending machines are often stocked with a large selection of unhealthy food items, even when located in health care facilities or health departments (Lawrence, Boyle, Craypo, & Samuels, 2009). As a part of the 1305 initiative, KDHE is working with key partners to install a micro-market in the Curtis State Office building to replace traditional vending and increase access to healthy, local foods. The aim of this introductory review of literature is to inform professionals at the Kansas Department of Health and Environment (KDHE) about current literature on the implementation of evidence-based interventions surrounding the installation of micro-markets in worksites.

Methods

A search was conducted for peer reviewed articles published 2004 to 2014. Topics for the articles explored were interventions in which micro-markets were installed and utilized to replace traditional vending methods using the following databases: Web of Science, Scopus, PubMed, and ProQuest. Key words used in the search included: "micro market," micromarket," micro-market," and "vending." No peer reviewed articles were found on the subject of micro-markets. A second search was done using the same databases and the following key words were used: "healthy vending," "fresh vending," and "worksite vending." The results of the second search resulted in this review of literature.

Results

Vending machines have been the subject of many nutrition interventions in the recent year within the workplace. However, lack of universal nutritional standards to define "healthy" items has resulted in a large array of standards developed and used. A color-coded nutrition labeling method, sometimes called the "traffic light system," is often used in nutrition interventions (Bell, Pond, Davies, Francis,

Campbell, & Wiggers, 2013). This system, published by Leonard Epstein, labels food items as either green, yellow, or red. "Green" foods have low amounts of added sugar, calories, and fat, while "yellow" foods have moderate amounts. "Red" foods are higher in added sugar, calories, and fat and should be limited the most (Valoski & Epstein, 1990). A second labeling method often used in nutrition interventions is "Fit Pick" (Silberfarb, Savre, & Geber, 2014), which was created in 2005 by the National Automatic Merchandising Association (National Automatic Merchandising Association, 2014). Fit Pick is a labeling system that gives consumers nutritional information to help them easily make an informed choice on what food item to choose in a vending machine (National Automatic Merchandising Association, 2014). Other organizations, such as the Center for Disease Control and Prevention and Alliance for a healthier Generation, have developed their own standards based on the 2010 Dietary Guideline for Americans, which address calories, fat, sugar, protein and sodium (Callaghan & Mandich, 2010; Gorton, Carter, Cvjetan, & Mhurchu, 2010).

Pricing strategies, along with nutrition guidelines, have accompanied most vending interventions. Pricing strategies decrease the cost of healthful food items, making them cheaper than unhealthy food items. This is a tactic to overcome the barrier often reported by consumers of price being the reason for choosing an unhealthy snack over a healthy one (Callaghan & Mandich, 2010). Worksite wellness interventions targeting nutrition often have success because there is usually limited access to other food choices on site, resulting in a greater effect on employee food choice (Seymour, Yaroch, Serdula, Blanck, & Khan, 2004). A worksite vending machine intervention conducted by French & colleagues in 2010 at two bus garages in Minneapolis-St. Paul, Minnesota area compared to two control bus garages found a 10-42% percent increase in sales of healthy items in their vending machine. This was as a result of a 10% price decrease of the healthy items after increasing the ratio of healthy snack food item to traditional snack food item to 50:50 (French, Hanna, Harnack, et al, Gerlach, 2010). A

systematic review conducted by Seymour and colleagues in 2005 suggested that interventions targeting food labeling in cafeterias resulted in fewer unhealthy foods sold and a larger proportion of "low-fat" entrees sold (Seymour, Yaroch, Serdula, Blanck, & Khan, 2004). A second review suggested that nutrition strategies at the environment and/or policy level showed the most promise for success in changing nutrition-related behaviors. Such interventions featured either point-of-purchase strategies, strategies to increase availability of nutritious foods, systematic reminders, and training to provide nutrition counseling for employees (Matson-Koffman, Brownstein, Neiner, & Greaney, 2005).

To address obesity, communities are creating more interventions related to nutrition that target environmental change and food policies. Micro-markets, which are a new concept of addressing worksite nutrition, have emerged in recent years. Micro-markets are self-serve kiosks that serve the same purpose as vending machines, but have the ability to offer a wider range of food options. Ideally, this capability could result in more healthful food items being sold and consumed in worksites, hospitals, and schools (NAMA, 2014).

Industry and Government Information

The National Automatic Merchandising Association (NAMA) is a national trade association of food, beverage, and coffee vending, as well as food service management. This association was the only formal association found that is actively working to develop suggested regulations and standards for micro-markets. According to NAMA, only about 3,000 micro-markets are currently operating, with a projected growth of about 35,000 kiosks by the year 2022 (NAMA, 2014). At the present time, there are no regulations or information about micro-markets on the food safety web site managed by the U.S. Department of Health & Human Services. Currently, Micro-markets are being defined and regulated in different ways depending on the setting and state. Some states, such as Ohio and Indiana have started implementing rules and recommendations related to micro-markets. In June of 2013, the State of Indiana

Food Protection Program released a document to local health departments and other food regulatory agencies to serve as guidance for regulations specifically targeted at micro-markets. The document features definitions related to micro-market operations and specific measures that managing organizations are recommended to follow (Indiana State Department of Health, 2013). The Ohio Department of Agriculture has included micro-markets in their food safety information and requires a license to operate one (Ohio Department of Agriculture, 2013).

Discussion

The presented literature has shown success in implementing healthier vending strategies at worksites. However, recommendations are limited to traditional vending machine models and may not fully apply to a Micro Market vending model. Recommendations include:

1. Increase the availability of healthier options and eliminate options that do not meet nutritional guidelines (Gorton, Carter, Cvjetan, & Mhurchu, 2010).
2. Promote and implement policies to support environments that increase access of healthful foods (Matson-Koffman, Brownstein, Neiner, & Greaney, 2005).
3. Gain support from and partner with the vending contractor and food manufacturers (Gorton, Carter, Cvjetan, & Mhurchu, 2010).
4. Take into consideration consumer perceptions on what types of healthful foods and beverages are desirable to the target population (Bell, et al., 2013).

Detailed monitoring and evaluation of existing and future micro-markets is crucial to ensure peer-reviewed literature is produced to inform future evidence-based interventions. Food labeling systems and standards will need to be assessed to determine what kind of system is best utilized in a micro-market setting. Feedback from those who visit the micro-markets will need to be collected to ensure that healthful foods are actually purchased by consumers. The implementation of formal policies

and regulations regarding micro-markets will rely on evidence-based strategies to provide guidance. By installing micro-markets in state facilities, KDHE is working to change environments and policies to positively impact access of healthful food items within state worksites.

References

Bell, C., Pond, N., Davies, L., Francis, J., Campbell, E., & Wiggers, J. (2013). Healthier choices in an Australian health service: a pre-post audit of an intervention to improve the nutritional value of foods and drinks in vending machines and food outlets. *BMC Health Services Research, 13*(492).

Callaghan, C., & Mandich, G. (2010). Healthier snacks in school vending machines: Pilot project in four Ontario high schools. *Canadian Journal of Dietetic Practice and Research, 71*(4).

French, S., Hannan, P., Stat, M., Harnack, L., Mitchell, N., Toomey, T., & Gerlach, A. (2010). Pricing and Availability Intention in Vending Machines at Four Bus Garages. *Journal of Occupational and Environmental Medicine, 52*(Suppl 1).

Gorton, D., Carter, J., Cvjetan, B., & Mhurchu, C. (2010). Healthier vending machines in workplaces: both possible and effective. *Journal of the New Zealand Medical Association, 123*(1311).

Indiana State Department of Health. (2013, June 6). *Food Protection Home.* Retrieved July 2014, from Indiana State Department of Health Web site: http://www.in.gov/isdh/files/Guidance_regulation_of_Micro_markets.pdf

Lawrence, S., Boyle, M., Craypo, L., & Samuels, S. (2009). The food and beverage vending environment in health care facilities participating in the healthy eating, active communities program. *Pediatrics, 123*, S287-S292.

Matson-Koffman, D., Brownstein, J., Neiner, J., & Greaney, M. (2005). A site-specific literature review of policy and environmental interventions that promote physical activity and nutrition for cardiovascular health: What works? *The Science of Health Promotion, 19*(3).

NAMA. (2014). *Micro Markets*. Retrieved June 2014, from NAMA Web site: http://www.vending.org/micro-markets

National Automatic Merchandising Association. (2014). *Fit Pick Workplace*. Retrieved June 2014, from NAMA Nutrition & Wellness Center Web site: http://www.fitpick.org/nutctr/fitpick-workplace/

Ohio Department of Agriculture. (2013, January). *Chapter 901:3-4 Retail Food Establishments-Licensing*. Retrieved July 2014, from http://codes.ohio.gov/oac/901%3A3-4

Seymour, J., Yaroch, A., Serdula, M., Blanck, H., & Khan, L. (2004). Impact of nutrition environmental interventions on point-of-purchase behavior in adults: a review. *Preventive Medicine, 39*(Suppl 2), 106-136.

Silberfarb, L., Savre, S., & Geber, G. (2014). An approach to assessing multicity implementation of healthful food access policy, systems, and environmental changes. *Preventing Chronic Disease, 11*.

Valoski, A., & Epstein, L. (1990). Nutrient intake of obese children in a family-based behavioral weight control program. *International Journal of Obesity, 14*(8), 667-677.

Chapter 4 - Overall Experience

Having the opportunity to be involved with public health at the state-level is extremely beneficial for a Master of Public Health (MPH) student. Public health is something that cannot be solely taught in the classroom and having first-hand experience is a vital part of the connection between graduate courses and real-world application. Completing a project where I worked at the state level and had interactions with public health practitioners at the local level was one of the best learning experiences I have had. It was through these conversations and insights from local-level community public health practitioners that I was able to make the link between what I have learned at K-State and the real-world challenges that are faced in the public health field. One of the crucial roles state public health employees work towards is to provide support to local level public health practitioners for many for public health programs being implemented in their communities. Both levels are working toward a common goal, that of optimal health for citizens of their state or community, and face many challenges in different ways. Despite completing my field experience hours at the state level, I feel as though I learned a large amount about public health at the local level.

Completing field experience hours is very much a service learning experience. In the ideal situation, both the organization and the student benefit from the collaboration and the relationship that is built during the onsite hours. I do believe the community, students, and the MPH program could all benefit from including *additional* onsite learning opportunities throughout the MPH program curriculum. It is through real-world application that students are able to make important connections between lessons and how they are applied that will prepare them for joining the public health workforce upon completion of their degree.

MPH Core Competencies

Biostatistics. While preparing for my project within the Physical Activity and Nutrition (PAN) Program, I was able to expand my knowledge on qualitative assessment methods. Appropriate data collection methods were researched and discussed with my preceptor. I was then able to design and utilize a qualitative interview guide used during interviews with Chronic Disease Risk Reduction (CDRR) grantees. Upon completion of data collection, several options for analysis of the qualitative data were researched. Qualitative analysis software, NVIVO was chosen to be our software of choice; however, upon discussion of the information we needed for the goal of the project and lack of time, it was decided to only do a basic assessment of the data.

The PAN Program does not have an epidemiologist on staff; however, there are multiple epidemiologists employed within the Bureau of Health Promotion (BHP) working for other programs, such as Injury Prevention and Disability Services and Cancer Prevention and Control Program. Collaboration is a common practice in the BHP and complex statistical analysis and procedures are handled by these epidemiologists.

Environmental Health Sciences. Aside from participating in a course in environmental toxicology, my focus area, public health physical activity, dealt very little with environmental health sciences. The public health field is has a large array of focus areas. The Kansas Department of Health and Environment (KDHE) has an entirely separate division, the Division of Environment that deals with topics in this area. I did not have exposure to the Division of Environment during my time in the BHP.

Epidemiology. KDHE does have staff epidemiologists to investigate the patterns and causes of disease and injuries in the state to inform policy, systems and environmental public health approaches. Behavioral epidemiology is something I have had more exposure to, especially through the qualitative interviews with CDRR grantees. Behavioral epidemiologists study health-related behaviors in

populations to better understand influences of behavior patterns. This information informs public health initiatives and programs delivered to the population to support health (Sallis, Owen, & Fotheringham, 2000). Behavioral epidemiology applied together with social and behavioral sciences are areas I believe I am most competent in upon completion of my MPH studies. The behavioral epidemiology framework shown in figure 4.1 is a very important part of public health and is where interventions on health promotion often begin.

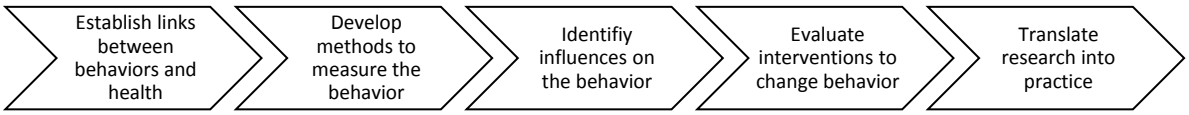


Figure 4.1 Behavioral Epidemiology Framework (Sallis, Owen, & Fotheringham, 2000)

Each of the five phases plays a crucial role and requires great collaboration between all kinds of public health practitioners, from researchers, to community health educators, and scientists from other related fields. A large portion of funding provided from the state level down to local communities could be categorized as stage five of the framework. Upon completion the qualitative interviews during my field experience, it is clear that some communities may need to take a step back and re-evaluate interventions that are supposed to be changing behavior since many of the communities are continuing to struggle to make an impact on PAN initiatives. The qualitative interviews could be described as having worked towards completing phase 3 in that many of the influences on why local communities are facing barriers were revealed.

Health Services Administration. Administrative duties are routinely utilized at KDHE through collaborations and meetings with other organizations and coalitions, as well as general day-to-day

functioning at the state level. Lessons learned at the administration level of any type of organization, especially ones dealing with health are extremely beneficial. Population health requires collaboration of individuals and organizations of all different systems and levels, as health is often thought of as a result of the "ecology" one lives in. As learned throughout my coursework, one has the most impact with health interventions if they target multiple levels within the environment one lives in.

Social and Behavioral Sciences. Social, behavioral, psychological, economic and environmental factors play a drastic role in the health of populations. As mentioned above, understanding health-related behaviors and social influences is crucial to impacting the health choices of populations. I experienced the wide range health-related examples that these factors can impact through the qualitative interviews with the ten different CDRR PAN grantees. Each community was trying to overcome differing barriers that were caused by behaviors their community members were partaking in. A large number of the grantees were working towards improving the environments their community members are in and interact with daily to impact their behavior in a positive way so they are able to live healthier lifestyles. Social and behavioral aspects play a huge role in the activities in which one chooses to participate. Social and behavioral science is crucial for having a better understanding of health behaviors and risk factors. The CDRR grant program needs to understand health behaviors in order to know what activities are in most need to be funded and which ones will be likely to have the most health impact. Applying social and behavioral theories is an effective way to better understand the health-related decisions populations in different communities may make.

Concluding Statements

Bringing in Brownson and associates (2011) key characteristics of evidence-based public health is an appropriate way to tie in what the core competencies are assisting in public health practice.

1. Use peer-reviewed evidence to make the best available decisions regarding public health

2. Use a systematic process to access and use data and information systems
3. Appropriately apply program planning frameworks
4. Engage community members in assessment and decision making
5. Conduct appropriate and reliable evaluation
6. Disseminate what is learned.

Practicing evidence-based public health utilizes the best information available to improve the health of populations without spending time on interventions or programs that have not been shown as successful or promising. Core MPH competencies, as described above, are essential to appropriately practicing public health. Making a meaningful impact on the health of large population can seem like a daunting task and is a great challenge for public health practitioners. It is with collaboration, persistence, and steps such as described by Brownson and associates (2011) for evidence-based public health or by Sallis and associates (2000) with the Behavioral Epidemiology Framework that we will have the most success in improving the health of populations.

References

Brownson, R., Baker, E., Leet, T., Gillespie, K., & True, W. (2011). *Evidence-Based Public Health*. New York: Oxford University Press.

Sallis, J., Owen, N., & Fotheringham, M. (2000). Behavioral Epidemiology: A systematic framework to classify phases of research on health promotion and disease prevention. *Annals of Behavioral Medicine, 22*(4), 294-298.