

Master of Public Health Field Experience Report

ACTIVE LIVING GEARY COUNTY

by

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submitted in partial fulfillment of the requirements for the degree

MASTER OF PUBLIC HEALTH

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2016

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Abstract

Many adults are not meeting the physical activity guidelines of 150 minutes per week. Only about 20 percent of U.S adults or one in five adults are meeting both the aerobic and muscle strengthening components of the physical activity recommendations (CDC). This inactivity also correlates with the increasing obesity rates where two in three adults are considered overweight or obese (NHANES, 2009-2010). Many programs have been developed to address this issue in children and youth through after school programs and national campaigns such as “Let’s Move”. However, there are specific populations that need to be targeted as their environment changes through the course of their lives.

Many approaches have been made to target adults whether it be through the workplace, school, internet or community-based. These approaches include behavioral change strategies such as goal setting, social support, self-reward, and problem solving. Programs based on these health behavior strategies have strong evidence of their effectiveness in increasing physical activity among adults (Task Force on Preventative Services, 2002).

According to the health assessment conducted in 2014, 25.9% of Geary county residents reported doing enough physical activity to meet both the aerobic (i.e. 150 minutes of moderate-intensity aerobic activity per week such as brisk walking) and strengthening exercise (i.e. activities on 2 or more days/week that work major muscle groups) recommendations. However, the Geary County Health assessment also highlighted that there are few environments that support physical activity.

The Geary County Health Department has recognized the need to promote a more physically active community in conjunction with its mission to improve the public health and the well-being of Geary County residents. This report covers projects, activities and learning

objectives conducted during a field experience for fulfillment of a Master in Public Health at Kansas State University. The main project was to provide a physical activity program for residents where they can learn ways to incorporate physical activity into their daily routines. This program was one of the first step for the Health department in its mission to tackle the fourth leading cause of death which is physical inactivity (WHO, 2010).

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Acknowledgements

I would like to sincerely thank my advisory committee for their guidance and support throughout my graduate school experience. First, my major professor Dr. David Dzewaltowski for giving me the opportunity to work in his research lab and gain knowledge and experience in Public Health research. This journey was filled with many ups and downs and without his mentorship, advice and willingness to help I would not be the graduate I am today. Secondly, I would like to thank Dr. Mary McElroy who has been genuinely supportive during my time at K-state and has always challenged me to be the best I can be. Thirdly, Dr. Brandon Irwin who through his teaching has help me to discover my passion for health promotion and has also been vital in providing me with tools I needed to be successful.

I would also like to thank my preceptor Julie Hettinger from the Geary County Health Department for her willingness to take me on as her first graduate student and allowing me to experience the day to day world of Public Health. She has given me great advice and insight which has provided me with a good foundation for my future career.

Lastly, I would like to thank and give my appreciation to Dr. Ellyn Mulcahy and Barta Stevenson who have been great pillars of support in getting me to this major point in my life. To all my professors, instructors, friends and classmates throughout my time at K-state, I thank you.

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 my 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 were vital and fit in with the overall experience. The report is organized in three chapters with a reference page following each chapter.

Chapter one introduces the main topic for my main project of focus during my two hundred and forty hours of field experience. First, a literature review provides background on the comparison of structured physical activity interventions versus lifestyle approach interventions. It also highlights the barriers, facilitators and recommendations in relation to adult community physical activity intervention programs.

The second chapter is a description of my field experience project at the Geary County Health Department. This chapter goes specifically into the development and process of creating and implementing the Active Living Program Geary County.

The last chapter describes my overall experience including the learning objectives and activities performed. It also concludes with how the core competencies of the Master of Public Health program were incorporated and helpful during my field experience.

Chapter 1- Literature Review

Prior to starting the process of developing or implementing solutions to help combat the occurrence of inactivity and high levels of sedentary behavior in Geary County. A look at past research most first be done to highlight what has worked or not worked in relation to physical activity interventions.

Method

Research was done using K-state databases to source articles ranging back from 1995 to 2014, highlighting the comparison between a structured or lifestyle approach in physical activity interventions, in addition to assessing the benefits of using an individual based or community based programs. Databases searched included PubMed, ScienceDirect and Escohost where key words such as “physical activity interventions”, “structured versus lifestyle physical activity interventions”, “community versus individual based activity interventions” and “evidence based strategies to increase physical activity” were used. The findings resulted in the following review of literature.

Results

Physical activity interventions have proven to increase physical activity among adults. Evidence from a meta-analysis has shown that behavioral interventions appeared to be more effective than cognitive interventions. Findings suggest that physical activity interventions should include behavioral components such as self-monitoring, rewards, goal setting to increase physical activity among individuals (Conn et. al, 2011).

Task Force on Community Preventive Services (2002) recommends that community-based programs that focus on social support or individually adapted health behavior change

strategies have been found to be more cost-effective than supervised exercise sessions (Garrett et al., 2011). Modifying or tailoring existing content was also important in the success of interventions (Bock et al., 2014).

Past studies have compared lifestyle physical activity programs with traditional structured exercise programs. One randomized clinical trial was conducted with 235 participants over the time 24 months to examine the effects of cardio respiratory fitness, cardiovascular disease risk factors and increase in physical activity. This study showed that both lifestyle and structured activity groups showed significant improvements in physical activity and cardio respiratory fitness from baseline to 24 months (Dunn, Marcus, Kampert, et. al, 1999).

Another step was taken with these lifestyle studies to translate the physical activity programs into practice within a community setting. Two programs Active Choices, a six month telephone-based program was implemented by four community based organization, while Active Living Every Day (ALED), a 20 week group based program was implemented by five community based organizations. Both programs focused on behavioral skills to improve physical active and utilized pretest and posttest surveys. Participants were aged 54 to 78, 80.6% were women and 64.1% were non-Hispanic white. Of the 72% of surveys that were returned an intent-to-treat analysis found statistically significant increase in MVPA and total physical activity. Results also showed decreases in depressive symptoms, body mass index and stress (Wilcox, Dowda, Leviton et. al, 2006). These two programs shows that the ALED program has helped people maintain their physical activity levels for at least six months (Wilcox et al. 2008) and as long as two years (Dunn et al. 1999).

One study has used the Active Living Every Day program and modified it to investigate whether the program was also appropriate for sedentary adults with arthritis. Telephone

interviews were conducted with 30 of 355 participants within 6 months after they completed the program. 90% of the participants were female with an average age of 69 years. Participants reported that the program was appropriate for people with arthritis but could be enhanced with a few modifications to make the program even more beneficial for people with arthritis. (Callahan, Schoster, Buysse, et al., 2007).

The implementation of a more lifestyle approach to being active is related to the many changes in technology that has reduced the level of labor to carry out certain tasks. Some examples of these include cars, elevators, riding mowers and washing machines all of which has made are lifestyle more effortless. As a result compared to 30 years ago, most of us burn 700 to 800 fewer calories each day going about our lives (James et al., 1995). This realization has provided an avenue for people to approach being active through implementing a physically active lifestyle.

The lifestyle approach looks for opportunities for persons to be active. No extra time is required to be physically active however, how time is spent is evaluated and revised. In our modern world, with all our devices of technology, the amount of time people are sedentary during waking hours has become a problem. In one study, researchers tracked the amount of time people were sedentary during waking hours. 6,329 participants were evaluated from the 2003-2004 National Health and Nutrition Examination Survey from six years old who wore an activity monitor for 7 days. Results showed participants spent 54.0 % of their monitored time or 7.7 hours a day in sedentary behaviors. Older adolescents and adults aged 60 and above were reported as the most sedentary group in the US, as they spent about 60% of their waking hours in sedentary behaviors. In terms of gender, females were more sedentary than males however this change after the age of 60 years. In relation to race, Mexican- Americans were significantly less

sedentary than other US adults, while white and black females were similar after age 12. Therefore results show that the majority of our time is spent doing sedentary behaviors (Matthews et al. 2008).

Being aware of these sedentary behaviors has led to researchers to find ways to incorporate activity into everyday life. One study in Sweden focused on physical active commuting which include walking and cycling in middle-aged, abdominally obese women who were recruited through news- paper advertisements. Those in the intervention group received moderate- intensity programming with physician meetings, physical activity prescriptions group counselling and bicycles. The control group received a low-intensity group support program with pedometers. The study was a randomized, controlled, two armed design which lasted 18 months with intention-to-threat analysis. Results showed that commuting by car decreased by 34 % and public transport by 37%. There was also decrease in waistlines by both groups. It was concluded that through changing commuting habits to more moderate- intensity behaviors abdominally obese women can increase their physical activity long term (Hemmingsson et al. 2009).

Discussion

The literature review identifies important aspects that have shown success in development and implementation of a physical activity program. Some studies also outline barriers and obstacles faced when creating a physical activity programs for particular populations (Callahan, Schoster, Buysse, et. al, 2007). Recommendations for developing and implementing a physical activity program include:

- Community-wide campaigns that are promoted through television, radio, newspaper columns provide high visibility and is strongly recommended on the basis of its

effectiveness in increasing physical activity and improving physical fitness among adults and children (Task Force, 2002).

- Utilizing evidence based strategies such as behavioral change techniques that include self-efficacy, goal setting and self-monitoring (Conn et. al, 2011).
- Individually adapted health behavior programs are also recommended, these programs teach skills and ways participants can incorporate moderate intensity physical activities into their daily routines. These interventions also use constructs from one or more health behavior change models such as the Social Cognitive Model (Bandura, 1986)
- A lifestyle approach compared to a more structured exercise approach may be more effective as time is seen as one of the major barriers to being physically active. This approach does not require any extra time and participants are given information on physical activity, its benefits and awareness of opportunities for increasing physical activity (Wilcox, et. al., 2008).
- Social support within community setting programs are also vital in in creating behavior change, especially physical activity. Some ideas include setting up a “buddy” systems and making contracts with others or setting up walking groups to provide friendship and support (Briss et al., 2000).

According to the Geary County Health Assessment done in 2014, there are few environments that support physical activity, which may be a huge factor in the overall level of physical activity recorded. As a result of this, a structured approach such as recommended exercise classes may not be feasible in relation to the resources of the county; in addition to the fact that the mean income of residents in the county is less than \$50, 000 (Census Bureau, 2012) reducing the possibility of participants being able to afford such classes. Therefore a more lifestyle approach which does not rely heavily on needed resources should be the first step in helping to increase physical activity in Geary County (Brown et al., 2010)

References

- Bandura A. (1986) Social foundations of thought and action: a social-cognitive theory. Englewood Cliffs, NJ: Prentice-Hall.
- Briss PA, Zaza S, Pappaioanou M, et al. (2000). Developing an evidence-based Guide to Community Preventive Services—methods. The Task Force on Community Preventive Services. *Am J Prev Med* ;18(suppl 1):35–43. 42.
- Bock, C., Jarczok, M., Litaker, D., (2014). Community-based efforts to promote physical activity: A systematic review of interventions considering mode of delivery, study quality and population subgroups. *Journal of Science and Medicine in Sport*, 17, pp. 276–282
- Brown DR, Heath GW, Martin SL, editors (2010). Promoting physical activity: a guide for community action. 2nd ed. Champaign, IL: Human Kinetics.
- Callahan, L. F., Schoster, B., Buysse, K., Hootman, J., Brady, T., Sally, L., Mielenz, T. (2007). Modifications to the Active Living Every Day (ALED) Course for Adults with Arthritis. *Preventing Chronic Disease*, 4(3), A58.
- Conn, V. S., Hafdahl, A. R., & Mehr, D. R. (2011). Interventions to Increase Physical Activity among Healthy Adults: Meta-Analysis of Outcomes. *American Journal of Public Health*, 101(4), 751–758. <http://doi.org/10.2105/AJPH.2010.194381>
- Dunn AL, Marcus BH, Kampert JB, Garcia ME, Kohl HW, 3rd, Blair SN (1999). Comparison of lifestyle and structured interventions to increase physical activity and cardiorespiratory fitness: a randomized trial. *JAMA*.281(4):327–334. [PubMed]
- Garrett, S., Elley, C., Rose, S.D., O'Dea, D., Lawton, B.A., Dowell, A.C. (2011). Are physical activity interventions in primary care and the community cost-effective? A systematic review of the evidence. *British Journal of General Practice*, 61 (584) (2011), pp. e125–e133
<http://dx.doi.org.er.lib.k-state.edu/10.3399/bjgp11X561249>.
- Geary County Community Health Assessment 2014. Prepared by the University of Kansas Work Group for Community Health and Development.
- Hemmingsson, E., J. Udden, M. Neovius, U. Ekelund, and S. Rossner (2009). Increased physical activity in abdominally obese women through support for changed commuting habits: a randomized clinical trial. *International Journal of Obesity* 33(6): 645-652.
- James, W.P.T. (1995). A public health approach to the problem of obesity. *International Journal of Obesity and Related Metabolic Disorders* 19 (Suppl. 3): S37- 334.
- Task Force on Community Preventive Services (2002). Recommendations to increase physical activity in communities. *American Journal of Preventive Medicine*, 22 (4 Suppl), pp. 67–72.

Wilcox S., Dowda, M., Griffin, S.F., Rheaume, C., Ory, M.G., Leviton, L., King, A.C., Dunn, A., Buchner, D.M., Bazzarre, T., Estabrooks, P.A., Campbell-Voytal, K., Bartlett-Prescott, J., Dowdy, D., Castro, C.M., Carpenter, R.A., Dzewaltowski, D.A., Mockenhaupt, R. (2006). Results of the first year of Active for Life: translation of two evidence-based physical activity programs for older adults into community settings. *American Journal of Public Health*, 96(7), 1201-1209.

Wilcox, S., M. Dowda, L.C. Leviton, et al. (2008). Active for life: Final results from the translation of two physical activity programs. *American Journal of Preventive Medicine* 35(4): 340-351.

World Health Organization (2010): *Global recommendations on physical activity for health*. Geneva, Switzerland; World Health Organization

Chapter 2- Active Living Program Geary County

Introduction

According to the Census Bureau, the population of Geary County as of July 1st, 2015 was 37,030, with 70% being white, 18.6% being black, 3.6% being Asian and 1.3% being American Indian. There are 12, 782 households with an average of 2.79 persons per household. 19.75% of the population hold a bachelor degree or higher, while 91.1% have a high school diploma or higher. The median household income in 2012 was \$47,879 which is slightly below the median income for Kansas which was \$51, 273 in 2012. Public assistance among households was 2.45% which was similar to the overall state at 2.3%. 8.5% of residents under the age of 65 years have a disability and 10.5% of those persons also don't have health insurance.

In 2014 a Community Health Assessment was conducted by the Geary Community Hospital, the Geary County Health Department and the Geary County USD 475 to gain a deeper understanding of the health issues in Geary County. Some of the key findings showed that there was a lack of available and affordable health food options, few environments that support physical activity and quality of life was perceived to be worse for individuals and families with lower incomes. In relation to physical activity, results showed that 25.9% of Geary County residents meet recommendations for aerobic and strengthening exercise. In 2011, adults with no leisure time exercise in the past 30 days was 25.3% which is higher than the state average of 26.8%.

As a result of these findings, some new groups have been formed including Live Well Geary County Wellness coalition and the Food Policy Council. So far, the main focus of these groups have been on making food more available and affordable to Geary County residents. However, due to funding and time restraints not much focus has been placed on promoting

physical activity or the combination of nutrition and exercise that creates a healthy active lifestyle.

The Geary County Health Department has therefore taken on the task of providing a physical activity program which will promote ways to living an active lifestyle. The program is based on an existing evidence-based program called Active Living Every Day which emphasizes a lifestyle approach to becoming more active instead of a more structured fitness- center approach. One of the main barriers to people being physically active is the lack of time and finding ways to add physical activity into their daily routine may be more effective. The program is also based on the Social Cognitive Theory which highlights self-efficacy, which studies have shown can significantly influence exercise adherence. In addition to self-efficacy being a predictor of exercise adherence and compliance (McAuley & Blissmer, 2000).

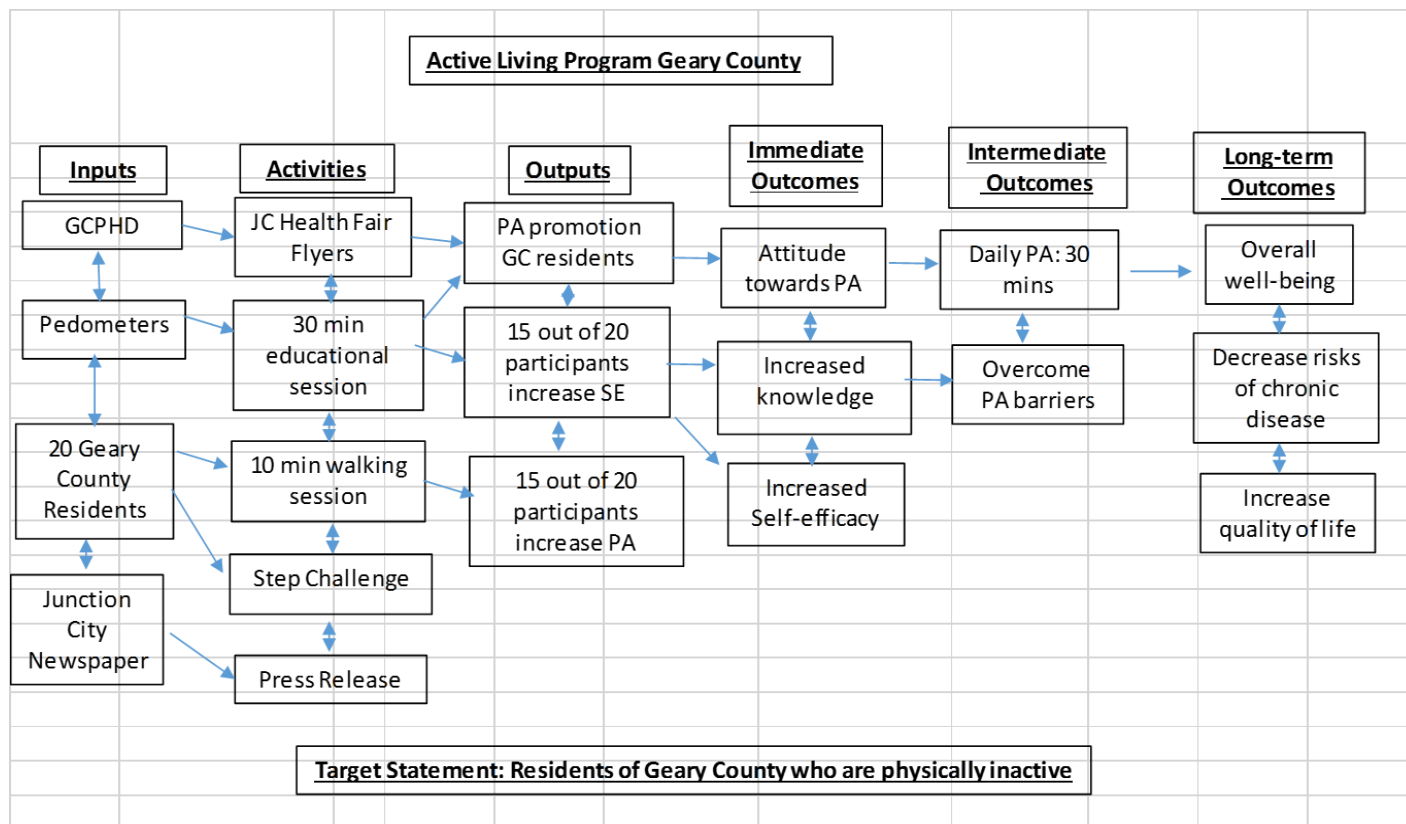
Methods

A five week course was developed based on the existing evidence based 20 week program called Active Living Every Day and the Social Cognitive Theory. The health department facilitated the classes in their conference room in addition to providing a lab top and TV projection. Each class utilized evidence-based strategies such as self-efficacy, goal setting, overcoming barriers, self-monitoring and enlisting social support. A step challenge was also included in the program to help motivate participants to be active using a pedometer provided free of charge by the health department. A ten minute walking session was also done at the end of every class.

Table 1.1

Program Curriculum

Week	Topics	Activities	Homework
1	Intro to Physical Activity	Self-efficacy scale	Daily activity log
	Self-efficacy	Personal Successes	
2	Finding Opportunities to Become Active	Downtime into Uptime	
3	Goal Setting	SMART Goals	
	Rewards	Create Your Own Rewards	
4	Overcoming Barriers/ Excuses	Barrier worksheet	
5	Monitoring/ Self-regulation	Tracking log	
	Social support	Exercise Contract	Social Support Contract



Logic Model

Figure 1.1 Logic Model of Active Living Geary County

The Geary County Health Department will provide an Active Living program with the goal of reaching 20 Geary county residents through a press release from Junction City Newspaper. Activities include a 30 minute educational session, 10 minutes walking session, completion of a self-efficacy scale and a step challenge in addition to promotion at the Junction City Health Fair. Outputs include direct reach to 20 residents, increase in self-efficacy and physical activity in 15 out of 20 participants. Immediate outcomes include a change in attitude towards physical activity and increased knowledge. Intermediate outcomes include 30 minutes of daily physical activity and participants will be able to overcome their physical activity barriers. Long-term outcomes include overall well-being, decrease risks of disease and increase of quality of life.

Week 1

The first class gave a short introduction into what is physical activity and the types of physical activity such as leisure time and lifestyle physical activity. The physical activity recommendations were also introduced with one hundred and fifty minutes being recommended for adults eighteen to sixty five or seventy-five minutes of vigorous activity or a combination of both vigorous and moderate. Enhancing self-efficacy was the first strategy used to influence physical activity. Self-efficacy is defined as the belief in one's capabilities to organize and execute the course of action required to produce given attainments (Bandura, 1997). Many interventions have included this component and results showed that there was a significant moderate to large positive relationship between the change in self-efficacy and the change in physical activity (William and French, 2011). To measure this change participants completed the self-efficacy scale which would later be administered at the last class.

For this intervention mastery experiences were targeted as one of the sources of self-efficacy. This was done through an activity where participants wrote down their past successes or hobbies, identified reasons why they were successful and persons who supported them. Due to the short length of the program only one source of self-efficacy was targeted and mastery experiences was chosen because it is one of most effective ways of instilling a strong sense of efficacy (Bandura, 1994).

Table 1.2 Personal Success

Personal Successes	Reasons why I succeeded	Persons who supported me

Participants then shared their successes with the class and the daily activity log was introduced to be completed upon returning to the next class.

Week 2

This week was entitled Finding Opportunities to be Active, where participants used a daily log to track their activities and record whether they were physically active or not. This activity gave them an insight into self-monitoring, however the main purpose was to identify sedentary areas in their daily lives and develop ways to make them more active. As a class we then analyzed two logs, one weekday and one weekend day and came up with alternative activities. They were then presented with ideas of how to make these changes with some examples which stated “instead of...try...” participants were then given an opportunity to work on their own activity logs and then share their ideas with class.

Table 1.3

Instead of	Try
Sitting at desk for long periods	Standing every 30 mins for 5 mins, sit on a therapy ball
Sitting through long meetings	Walking 5 mins before and after meeting, stand for 5-10 mins during meeting
Sitting during lunch hour	Take 10-15 min walk
Sitting watching TV	Do exercises or walk during commercials, sit in a rocking chair
Going to the movies	Going for a bike ride or hike
Driving to the store for one item	Walking or riding your bike

The session concluded with a “Did You Know Fact” which highlighted the dangers of long periods of sitting. Research has shown that too much sitting or sedentary behavior which involves television watching and desk-bound work is adversely associated with health outcomes

such as heart diseases, type 2 diabetes and premature mortality (Dunstan, Howard and Owen, 2012). Participants were then recommended to interrupt sitting every thirty minutes by standing for at least five minutes (Rutten, Geert, et al., 2013) as a way to help reduce these risks.

Week 3

Now that participants have identified areas in their daily schedule where they can fit more active activities. This week looked at making specific SMART goals towards performing those activities. The strategy of goal setting has been proven to be successful and has frequently been used to help people change (Cullen et al., 2001). This was done by using a simple SMART worksheet which helped participants make specific, measurable, attainable, realistic and timely goals.

Figure 1.2 SMART Goals

S	M	A	R	T
Specific	Measurable	Attainable	Realistic	Timely
What <u>specifically</u> do you want to do?	How will you know when you've reached it?	Is it in your power to accomplish it?	Can you realistically achieve it?	<u>When</u> <u>exactly</u> do you want to accomplish it?

After all the participants developed a SMART goal, the next step was to think of ideas of different rewards upon the completion of the goal. This motivational strategy has proven some success in discouraging a behavior or used as a reinforcement (Ben-Elia & Ettema, 2011).

Week 4

Behavior change is difficult and there can be many obstacles or setbacks along the way. This reality was targeted in week 4 which highlighted the topic of overcoming barriers. A barrier was defined as anything that interferes with one's plans to be physically active. As a class the most common barriers to physical activity were identified: no time, weather and too tired; and then strategies were developed to overcome them. The concept of problem solving has been used in different types of interventions; for example in a diabetes self-management behavior randomized trial it was concluded that interventions should focus on problem solving, enhancing self-efficacy and social support to improve self-management of diabetes (King et al.,).

Figure 1.3

<p>I- Identify a barrier that prevents you from being physically active.</p> <hr/> <hr/> <hr/>
<p>D- Develop a lists of solutions.</p> <hr/> <hr/> <hr/>
<p>E- Evaluate your solutions. Try out as many as possible.</p> <hr/> <hr/> <hr/>
<p>A- Analyze how well the plan worked. Which plans worked best? Revise them if necessary.</p> <hr/> <hr/> <hr/>

Some models have also been developed such as the IDEA model by Bransford and Stein in 1984 shown above. Each participant identified their top barrier, developed a list of solutions, evaluated

the solutions and then analyzed how well the plan worked. They then shared it as a group to get feedback from others.

Week 5

The final week looked at self-monitoring and social support. Now that participants had developed their goals and created strategies to overcome barriers when they arose; it was now time to learn ways to consistently record their behavior and keep track of their physical activity goals. This was done by re-introducing different types of activity logs and also using an exercise contract which proved their commitment to a beginning a healthy and active lifestyle. In a study where 122 physical activity and diet interventions were examined and 26 possible behavior techniques coded each intervention for inclusion of each technique. Meta-regression analysis was used to determine whether inclusion of certain behavior change techniques enhanced intervention effectiveness. Of all the behavior techniques examined self-monitoring was the most significant factor explaining PA and diet behavior (Michie et al., 2009).

Enlisting social support was also combined with self-monitoring through the encouragement of finding an exercise buddy and also through completing a social support contract. Participants were also educated about the different types of social support such as emotional, instrumental, appraisal and informational. The notion of the social environment was also highlighted which stated that ‘you’re more likely to be inactive if others who are close to you are also inactive’. Therefore it was encouraged to seek out that social support and spend time with others who exhibited healthy behaviors. There are many determinants of health and in order to bring about behavior change a comprehensive approach must be taken by health promotion which involves changing social networks and systems which directly has an impact on human health (Bandura, 2004).

Results

A Self-Efficacy scale was distributed to participants before the intervention and each question was scored on a range from one to four or “Not at all True” to “Exactly True” (Luszczynska et al. 2005). The greater the score the greater self-efficacy participants exhibited in relation to carrying out daily physical activities.

Pre-test Self-Efficacy Scale

Table 1.4 Mean self-efficacy scores based on a 1-4 scale before the intervention.

I am confident...	Score	Mean	SD
1... That I could always overcome barriers and challenges with regards to exercise if I try hard enough.	26	3.25	0.462
2... That I could find the means and ways to exercise and be physically active	29	3.62	0.517
3. ...That it is easy for me to accomplish my activity and exercise goals	22	2.75	0.88
4... That when I am confronted with a barrier to exercise I could usually find several solutions to overcome this barrier	21	2.62	0.517
5... I could exercise even when I am tired	21	2.62	0.925
6... I could exercise even when I am feeling stressed	25	3.12	0.834
7...That I could exercise even without the support of my family or friends	27	3.37	0.744
8.... That I could exercise even after the intervention is finished	24	3	0.534
9... That I could be physically active despite kids being home	24	3	0.925
10... That I could exercise even if I have no access to a gym or training facility	24	3	0.755

The score for each item is based on a scale from one to four with the maximum score for each item being thirty-two for the eight participants. This therefore represents the participant's

level of confidence for each item. The mean score represents the average score for each item based on a one to four scale. The overall mean score for the pre-test was 3.03 which shows that participants were somewhat confident before the intervention.

Before the intervention participants showed low self-efficacy when faced with exercise barriers and finding solutions to overcome them. High self-efficacy was exhibited in finding ways to exercise and be physically active.

Participants

There was a total of eight participants all who were employees of the Geary County health department. There was seven females and one male who ranged from ages twenty-four to sixty. Twenty-five percent of participants were black, fifty percent were white and twenty-five were Hispanic.

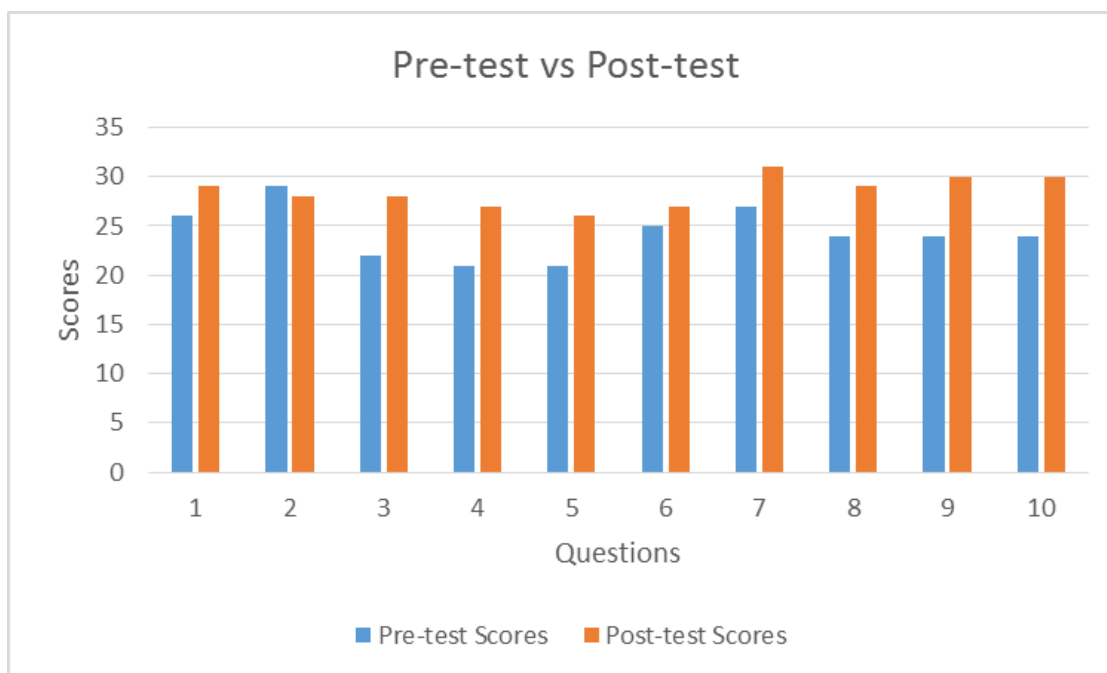
Post-test Self-efficacy Scale

Table 1.5 Mean self-efficacy scores based on a 1-4 scale after the intervention

I am confident...	Score	Mean	SD
1... That I could always overcome barriers and challenges with regards to exercise if I try hard enough.	29	3.62	0.517
2... That I could find the means and ways to exercise and be physically active	28	3.5	0.534
3. ...That it is easy for me to accomplish my activity and exercise goals	28	3.5	0.534
4... That when I am confronted with a barrier to exercise I could usually find several solutions to overcome this barrier	27	3.37	0.517
5... I could exercise even when I am tired	26	3.25	0.462
6... I could exercise even when I am feeling stressed	27	3.37	0.744
7...That I could exercise even without the support of my family or friends	31	3.87	0.353
8.... That I could exercise even after the intervention is finished	29	3.62	0.744
9... That I could be physically active despite kids being home	30	3.75	0.462
10... That I could exercise even if I have no access to a gym or training facility	30	3.75	0.462

After the intervention there was an increase in self-efficacy in relation to each of the ten items. The mean overall score for the post-test was 3.56, which is a 0.53 increase from the pre-test. Participants recorded higher self-efficacy in being able to exercise without the support of family and friends. Participants recorded the lowest self-efficacy in exercising when being tired.

Figure 1.4 Pre-test vs Post-test scores calculated from the self-efficacy scale

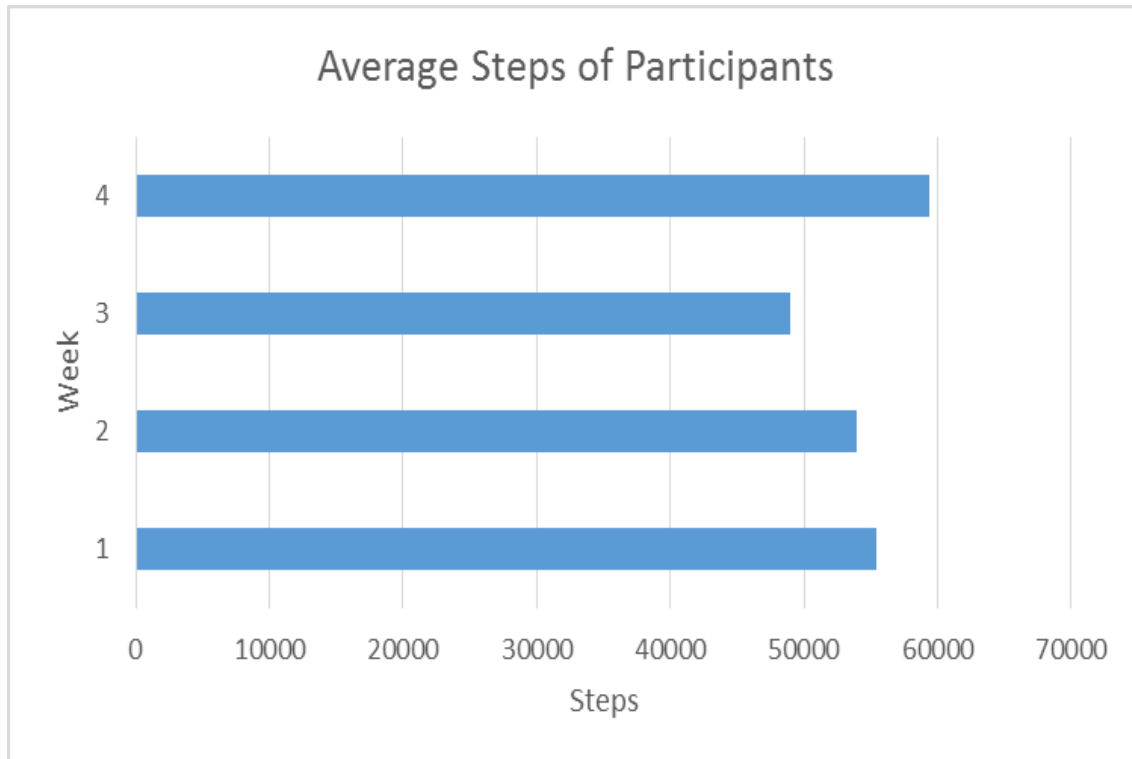


Step Challenge Results

Table 1.6 Mean steps recorded by participants over a four week period

	Total Steps	Mean N=8	Standard Deviation
Week 1	443,432	55,429	35,506
Week 2	431,335	53,916	26,776
Week 3	391,833	48,979	23,232
Week 4	474,574	59,322	27,955

Figure 1.5 Mean steps of participants over a four week period.



Participants recorded a decrease in average steps in week two and three after the measure in week one. However, week four recorded an increase in steps above baseline.

Table 1.7 -Paired T-test

Mean Difference	Standard Error Difference	T-statistic	95% Confidence Interval	P-value	Conclusion
4.2	0.724	5.77	2.55- 8.85	0.0003	Statistically significant

A paired T-test was done for further analysis to test the difference and it was concluded that the difference was statistically significant.

Discussion

All of the eight participants were from the Geary County Health Department where the program was delivered. Results showed that scores increased for each question of the self-efficacy scale except a one point decrease in question two. The self-efficacy scale scored each question ranging from one to four, with the higher scores indicating stronger participant's belief in self-efficacy. Research shows that the scale has high reliability, stability and construct validity (Leganger et al. 2000; Schwarzer, Mueller, & Greenglass 1999). Validity of the scale has also been confirmed when it is combined with other social cognitive variables such as intention and self-regulation (Luszczynska et al. 2005). Overall there was a positive difference in self-efficacy in relation to physical activity after the intervention compared to before the intervention.

Participants also competed in a step challenge over the course of the program. Pedometers were provided by the health department, however many participants resorted to using other devices such as Fitbits or their mobile phones. Results showed that there was a decrease in average number of steps after week one (55,429) in week two (53,916) and week three (48,979), however week four (59,322) recorded the highest average of steps during the program. This may have occurred because week one focused on self-efficacy and participants may have been enthusiastic about the challenge then later on may have become overwhelmed with having to track their steps daily. By week four, they had now made it a part of their regular routine resulting in an overall increase of steps.

Recording 10,000 steps/day as a measure of physical activity has been gaining popularity in the media and across different communities. This value appears to be a reasonable number of daily activity and studies are emerging documenting the health benefits of attaining these levels (Tudor-Locke and Bassett, 2004). Therefore, according to this value many of the participants did

not engage in the recommended amount of physical activity daily. Nevertheless based on current available evidence pedometer-determined physical activity in healthy adults ranging 7500-9999 steps/day may be considered “somewhat active” (Tudor-Locke, Catrine, et al., 2008).

Strengths and Limitations

Active Living Geary County was based on an existing evidence based program which used a lifestyle approach to promoting a physically active lifestyle. It was also based on the social cognitive theory and targeted different constructs within the theory to bring about behavior change. The program was educational in addition to a physical activity component where participants could walk and accumulate steps for the step challenge. The class was free of charge in addition to a free pedometer participants could use to keep track of their steps. The class was also scheduled into the workday and provided during the lunch hour which did not require participants to set aside any additional time in their day to attend the class. The program was mainly promoted to different organizations in the area through employee email list and was also listed in a column of the newspaper. The program gave the Health department an insight on how residents may respond to physical activity initiatives, requiring them to think of more direct ways to target the community.

Some limitations include a small size with only eight participants who were all from the health department. The length of the class was forty-five minutes over five weeks which may not have been long enough to bring about change. Though many employers allow one hour for lunch time, employees may have already had plans for this allotted time. Many employees are also paid by the hour and may not take the entire hour for lunch. The location of the Health department may have also been a limitation because it is slightly out of town away from many of the city buildings close to where many employees work.

Recommendations

Comments and suggestions from participants included sending out more than one email per week to help motivate participants and also keep them informed on what was being taught in the upcoming class. Suggestions also included incorporating physical activity in the middle of the class instead of at the end so all participants would be able to participate in physical activity during the class. Overall, the participants enjoyed the class and tracking steps was a new activity for some participants. It also allowed them to recognize the preventative measures of being physically active instead of resorting to it as a treatment after a given diagnosis.

Eight out of twenty-one employees of the health department participated in the Active Living Geary County class. This shows that less than half of the staff took the initiative or sought physical activity as an important aspect to their health enough to take part in the class. Nevertheless, as a health department the first step before promoting physical activity to the community must start within the walls of the building. The implementation and development of an onsite wellness program or a wellness group may be a great way to get employees engaged in physical activity so they can be role models for those in the community when future activities are promoted by the health department.

Another recommendation included partnering with a similar organization such as the hospital or wellness group. This may increase the number of resources and enable the program to be launched through an event such as a Fun run or walk. This would allow more populations such as children and families to be targeted all at once.

Due to the lack of reach for the program and the fact that twenty-three percent of Geary County residents are veterans. One recommendation would be to incorporate the Active Living program into the transition program soldiers are required to complete before they leave the army.

Thousands of soldiers exit the army every year where they are no longer required to engage in physical training. The Active Living program would help soldiers to find ways to continue being active after the army through a more lifestyle approach which may correspond better with their new life as a civilian.

References

- Bandura, A. (1994). *Self-efficacy*. John Wiley & Sons, Inc.
- Bandura, A. (2004). Health promotion by social cognitive means. *Health education & behavior*, 31(2), 143-164.
- Ben-Elia, E., & Ettema, D. (2011). Changing commuters' behavior using rewards: A study of rush-hour avoidance. *Transportation research part F: traffic psychology and behaviour*, 14(5), 354-368.
- Bandura A (1997). *Self-efficacy: The Exercise of Control*. New York: W.H. Freeman and Company.
- Cullen, Karen et al (2001). Using goal setting as a strategy for dietary behavior change. *Journal of the American Dietetic Association*, Volume 101, Issue 5, 562 – 566
- Dunstan, D. W., Howard, B., Healy, G. N., & Owen, N. (2012). Too much sitting—a health hazard. *Diabetes research and clinical practice*, 97(3), 368-376.
- Jerusalem M, Schwarzer R (1992). Self-efficacy as a resource factor in stress appraisal processes. *Self-efficacy: Thought control of action*. Edited by: Schwarzer R, Washington, DC: Hemisphere, 195-213.
- King, D. K., Glasgow, R. E., Toobert, D. J., Strycker, L. A., Estabrooks, P. A., Osuna, D., & Faber, A. J. (2010). Self-efficacy, problem solving, and social-environmental support are associated with diabetes self-management behaviors. *Diabetes care*, 33(4), 751-753.
- Leganger, Anette; Kraft, Pal; Røysamb, Espen. Perceived self-efficacy in health behaviour research: Conceptualisation, measurement and correlates. *Psychology & Health*. Vol 15(1) Feb 2000, 51-69.
- Luszczynska, Aleksandra; Scholz, Urte; Schwarzer, Ralf. The general self-efficacy scale: Multicultural validation studies. *Journal of Psychology: Interdisciplinary and Applied*. Vol 139(5) Sep 2005, 439-457.
- McAuley E, Blissmer B. Self-efficacy determinants and consequences of physical activity. *Exerc Sport Sci Rev*. 2000; 28:85–88
- Michie S., Abraham C., Whittington C., McAteer J., Gupta S. (2009). Effective techniques in healthy eating and physical activity interventions: a meta-regression. *Health Psychology*. 28(6):690–701. doi: 10.1037/a0016136. [PubMed] [Cross Ref]
- Rutten, Geert M., et al. (2013). "Interrupting long periods of sitting: good STUFF." *International Journal of Behavioral Nutrition and Physical Activity* 10.1: 1.
- Schwarzer, Mueller, & Greenglass (1999) Assessment of perceived general self-efficacy on the Internet: Data collection in cyberspace. *Anxiety, Stress, and Coping*, 12, 145-161.

Tudor-Locke, C., & Bassett, D. R. (2004). How many steps/day are enough? Preliminary pedometer indices for public health. *Sports medicine*, 34(1), 1-8.

Tudor-Locke, C., Hatano, Y., Pangrazi, R. P., & Kang, M. (2008). Revisiting "how many steps are enough?". *Medicine and science in sports and exercise*, 40(7), S537.

Williams, S.L and French, D.P (2011). What are the most effective intervention techniques for changing physical activity self-efficacy and physical activity behavior—and are they the same? *Health Educ. Res.* 26 (2): 308-322 doi:10.1093/her/cyr005.

Chapter 3- Overall Experience

Learning Objectives

Through collaboration with my preceptor and major professor three learning objectives were developed for my field experience at Geary County Health Department. They were to:

- Achieve an understanding of the different operations of a local health department and its role in combating the health issues prevalent in its community.
- Gain experience and training on how the public health functions are facilitated in a local health department in addition to at the state and federal level.
- Help develop and provide a physical activity program for the residents of Geary County in aid of meeting physical activity recommendation and increasing quality of life.

Activities Performed

I attended different community wellness meetings during my field experience. One of them was Live Well Geary County which is a new founded coalition which was organized for the purpose of inspiring and advancing policy, systems and environmental changes that make it easier for Geary County, Kansas residents to lead healthy lives. The focus of the meeting was the application process of a possible grant with the Kansas Health Foundation, Health Equity Partnership. This grant is a three year grant with \$100,000 per year, which would help build the coalition and promote health initiatives. The Coalition also holds many different events such as a Farmer's market which is held at the Geary County Hospital every Thursday from 4pm-7pm and has become accessible to SNAP EBT participants.

I also attended a Junction City Food Policy Council meeting where the main agenda was to modify a Geary County Community Food Survey. The survey was developed to help the Junction City Food Policy Council to better understand how they might make it easier for residents of Geary County to eat more healthy foods. I also attended a meeting for the planning of a FEAST event. A FEAST is an opportunity for participants to engage in an informed and facilitated discussion about **F**ood, **E**ducation and **A**griculture in their community and begin to work towards **S**olutions **T**ogether that will help build a healthier, more equitable and resilient local food system. I attended the FEAST which was on October 15th from 1pm to 6pm at the C.L. Hoover Opera House in Junction City. The event started off with a brief introduction to the food system and the food retail environment in Geary County. The main issue of food insecurity was then highlighted as Geary County is one of the most insecure counties in Kansas compared to the overall state as shown below.

Food Insecurity in Kansas by County in 2014

Table 1.8

County	Population	Food Insecurity Rate	Estimated number of food insecure individuals (rounded)
Geary	36,458	19.1%	6,970
State Total	2,904,021	14.2%	413,560

Source: www.feedingamerica.org

A more in depth look at the issue of food insecurity and the overall food system was presented by a panel discussion. The panel included a representative from the Kansas Food Security Task Force, Geary County Food Pantry, K-state Extension and a local producer. This discussion was then followed by a participant activity where participants at each table engaged in a facilitated dialogue which discussed assets, gaps and priorities for improving the food system in Geary County. Priorities from each table were then recorded on a display board and all participants ranked their top two priorities using a sticky dot. The top priorities identified were education, marketing and local production to local consumers. The next step was then to reorganize the tables where each table represented one of the issues and was tasked to create an action plan that begins to address the issue. At the end of the event participants who were interested in one of the three issues, provided a vision for the issue, identified partners on the issue and scheduled a next meeting for the partners to meet to continue the work to provide solutions on the issue. Finally a meal was provided by Munson's Prime restaurant in celebration of the progress that was made on improving the local food system in Geary County.

During my field experience I also helped with different events facilitated by other organizations. The Flint Hills Metropolitan Planning Organization provides regional transportation planning and program services for safe and efficient movement of people and goods throughout its designated areas. One project the organization does each September is a

region wide bicycle and pedestrian count. The main purpose of the count is to obtain data on individuals utilizing the transportation infrastructure as another option other than driving and not those using it for recreational purposes. The data is then used to monitor use of facilities and strengthen funding allocation for state or federal money. This project correlates with the promoting of physical activity as the built environment facilitates and impacts the level of physical activity in a community. Structures such as sidewalks and crosswalk makes pedestrians more likely to walk to their destinations rather than drive or safer to go on a family evening walks.

One of my small projects during my time at the Health department including creating an information board to display at the Junction City Health Fair. The display board highlighted the issue of physical inactivity as being the fourth leading cause of death in the world (WHO). The physical activity recommendations were also provided and it was emphasized to approach these recommendations through small lifestyle changes. Walking as a source of physical active was promoted and information provided included its proven benefits to reduce different cancers. Pedometers, tracking logs and walking tips were given out as handouts and flyers to attendees.

Environmental Health

The Geary county health department also has environmental health workers who ensure the community has clean water, proper removal and treatment of sewage, proper management waste, and food protection. Lisa Davies who is a Registered Environmental Specialist is the director of the Environmental health department at the Geary County Health Department. She has been in the public health environmental field for 17 years and has been working at the Geary County Health Department for 9 years. Her main daily activities include inspecting swimming pools and onsite water systems spending most of her time out of the office. I was able to shadow

her during my field experience and we attended a community meeting about bed bugs at the Bicentennial Manor in Junction City. The Bicentennial Manor is an affordable 60 apartment housing facility for senior residents that provides easy access to medical facilities. The meeting was organized as a result of a bed bug incident in one apartment which had spread to one of the common areas in the building. The American Pest Management, Inc was called in by management to give a bed bugs 101 presentation to the residents. We were there to oversee the proceedings and be a second resource for residents to help put their minds at ease and answer any questions they had. The presentation included the history, biological cycle, identification, transport, treatment and preventive measures in the fight against bed bugs. One of the major ways bed bugs are transported are through second hand or used items, included clothes and used furniture. However, bed bugs do not transmit diseases but when bitten can cause severe reactions. The main issue with bed bugs is the mental stigma of having them and therefore treatment and prevention strategies were highlighted in the presentation. Such measures included simple at home cleaning routines, using mattress and box spring encasements and using a bed bug travel kit. A more extensive measure that the Bicentennial Manor will take is enrollment in the Bed Bug Proactive program which includes inspection and treatment strategies for preventing, controlling, and eliminating bed bug infestations.

Emergency and Preparedness

Emergency Support Function (ESF) 8 describes the actions required to coordinate public health and medical services during a disaster. The Geary County Health department is the coordinating agency and therefore provide the mechanism for personnel and resources to support prevention, preparedness, protection, response, recovery and mitigation in support of the primary

emergency management objectives. Some of the major operations and responsibilities of the Geary County Health department include:

- Epidemiology and surveillance- Geary County Health Department is responsible for conducting diseases surveillance and investigation within Geary County and maintains access to an electric disease tracking and surveillance system.
- Medical Countermeasure Dispensing- The primary goal of the county's mass dispensing program is to provide lifesaving medical countermeasures to citizens and visitors of Geary County in a timely manner in response to a health and medical emergency. This program is led by the Geary County Health Department and includes many of the county's other departments, health and medical partner organizations and private companies. The Geary County Health Department has developed a Mass Dispensing Standard Operating Guide which will be used during an emergency as guide for providing vaccines and pharmaceuticals at Point of Dispensing (POD) sites for the public.
- As lead of ESF 8, the Geary County Health department has access to the Kansas System for the Early Registration of Volunteers (K-SERV) system, which can be utilized as a volunteer database at the local and state levels. In the event that volunteers are needed to provide assistance during an incident response, K-SERV offers an opportunity for volunteer request and receipt through standard operating procedure.

One major volunteer resource is the Medical Reserve Corps (MRC). The MRC is a group of locally organized healthcare and non-healthcare volunteers working to strengthen the health and safety of the community. The Wildcat Region MRC which includes Geary, Pottawatomie and

Riley counties is integrated into established community emergency systems in order to facilitate a coordinated approach to volunteer management.

Safe Kids

The Geary County Health department is the lead organization for Geary County Safe Kids. Safe Kids Worldwide is a global organization dedicated to preventing unintentional injuries in children which is the number one killer of kids in the United States. Preventable injuries are preventable and can be avoided with the right education, awareness and planning. This is the mission of Safe Kids to raise awareness and ensure that all children around the globe have the chance to grow up healthy and safe.

At the Health Department Safe Kids services include free car seat inspections, education and programs, fire prevention, safety tips and heatstroke prevention. At the department, car seats are available and provided for families who show financial need. Free inspections are also done by a child passenger safety technician. They check that the car seat is appropriate for the height and weight of the child and that it is installed in the car properly. They also verify that the car seat is in compliance with the law and that it is not on the car seat recall list. Three in four car seats are installed incorrectly and therefore this service is very beneficial and is also provided upon appointment. During my field experience I was involved in the free car seat check event on September 27th, I was taught by the technician how to correctly install a car seat and what changes need to be made as the child grows.

Women Infant and Children (WIC)

In aid of reaching my first objective I was able to shadow and meet with the WIC director Tracy Sabo who has been at the health department since 2011. Tracy's role has varied over the past few years due to a lack of staff, in addition to a 50% increase in case load because of the Fort Riley WIC's closure. However she oversees the program ensuring employees follow policy, tracks case load, manages the budget and funding; and during my field experience was currently working on the yearly evaluation plan. The two main goals of the WIC program are to provide breastfeeding support and education and provide affordable and available food to WIC participants. These goals are met through a number of programs and classes provided through WIC at the health department. They include breastfeeding and cooking classes and some of them are also open to the public such a program called Becoming a Mom. WIC has also partnered with other organizations such as the Live Well Geary County who holds a farmer's market every Thursday where WIC participants can use their EBT cards to purchase local and affordable foods. This opportunity targets the issue of a lack of available foods and also provides WIC participants with healthy affordable choices. One thing that I learned and stuck out for me was the fact that a family of two including a mom and a child qualified for WIC if she made less than \$14.25 per hour. The minimum wage in Kansas is \$7.25, which is almost double the requirement. For a county whose average income is less than \$50,000 a year, many families in Geary County can be eligible for WIC services. However, this reality can sometimes be shameful for some households because of the stigma of needing government help and services, especially for those who are highly educated. As a result of this WIC Geary County is very visible in the community and has great community partnerships to encourage persons that they are willing and want to help people until they can provide for their families on their own.

Products Developed

A number of products were developed during my field experience and for the Active Living Program. A flyer was developed to be posted on the Geary county website and also on the Facebook. The flyer was also sent out to a number of organizations through employee email list. A press release was also written and was published in the Junction City Daily Union on September 29th. I also creating PowerPoint slides for each week on the various topics and also created some worksheets such as an activity log. For the Junction City Health fair I created a display board promoting physical activity at the Health department table.

MPH Core Competencies

Biostatistics. I accomplished this core competency by completing the course Fundamentals Methods of Biostatistics. I used the skills from this course to analyze the data from the step challenge to calculate various values to come to a quantitative conclusion for my project.

Environmental Toxicology. I completed this course in addition to shadowing the environmental specialist at the health department. In the course we learned about the different pesticides and insecticides and their uses. One that came up during my field experience was DDT which is banned in the USA and is still being used in third world countries. This was discussed in the case of bed bugs at the senior center as residents were encouraged not to use regular over the counter chemicals as it could make the bed bugs resistant to the chemicals used by the pest control company.

Epidemiology. I completed the course Introduction to Epidemiology which gave me an overview on the incidence, distribution, cause and effect of diseases on different populations. During my field experience it was flu season and the health department provided flu shots to Geary county residents. In case of a disaster I also learned that the health department may be set up as a place of distribution (POD) where persons may receive supplies and also receive vaccinations in case of an outbreak.

Health Service Administration. This course gave me an insight into the world of healthcare which is a very complex and has a huge impact on what kind of care patients receive if they are able to receive any care at all. At the health department there is one individual who deals with insurance coding and the administrative part for all patients. One thing I learned was that Tricare was not one of the providers they accepted which I thought would be ideal as they

provide many services to the military. However, this goes back to the need for a healthcare system that reaches the needs of all patients and ensures quality care which was emphasized in the healthcare class.

Social and Behavioral Sciences. In the emphasis of physical activity, social, behavioral, psychological, economic and environmental factors play a crucial role in understanding the health behaviors of populations. The demographics of Geary County gives you a snapshot of the many barriers they face and why such health behaviors may exist within the community. From these courses I have learned different health behavior theories and concepts that help to provide understanding and steps in the change of health behaviors. However, the vital step is to apply such theories into the application of practice to bring about change in different populations. The Active Living Geary County was one small step taken by the health department to introduce and help residence improve their health and live a more active lifestyle.

Concluding Statements

My experience at the Geary County Health Department has given me great insight into the world of public health. I have learned that promotion of public health requires the collaboration of many different entities working together to achieve the same public health goals. Therefore the best approach that may help promote a more active and healthy lifestyle for the residents of Geary County will require groups such as the Live Well Geary County, the Food Policy Council and the Geary County Community Hospital working together to achieve this goal. This may result in a more comprehensive method to target the populations of Geary County who are physically inactive and are not meeting the physical activity recommendations. The results of Active Living Geary County shows that with a larger community wide initiative with support and collaboration of these existing groups. It can be successful in increasing the level of self-efficacy in relation to physical activity among Geary county residents. The program also possesses the ability to be modified to different settings, therefore increasing its reach across the county.

From the process of research to implementation and sustainability, evidence based practices are essential and vital as it uses the best and available evidence which prevents shortfalls along the way. Overall, all of the core competencies in the MPH program have played an important role and have proven to be crucial in my future career as a public health professional.