# Master of Public Health Capstone Project

# A Social Ecological Analysis of Barriers to Weight-loss Success in the Veterans' Health Administration MOVE! Program

## Colmery – O'Neil VA Medical Center, Topeka, Kansas

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# Part 1 (July 27, 2012)
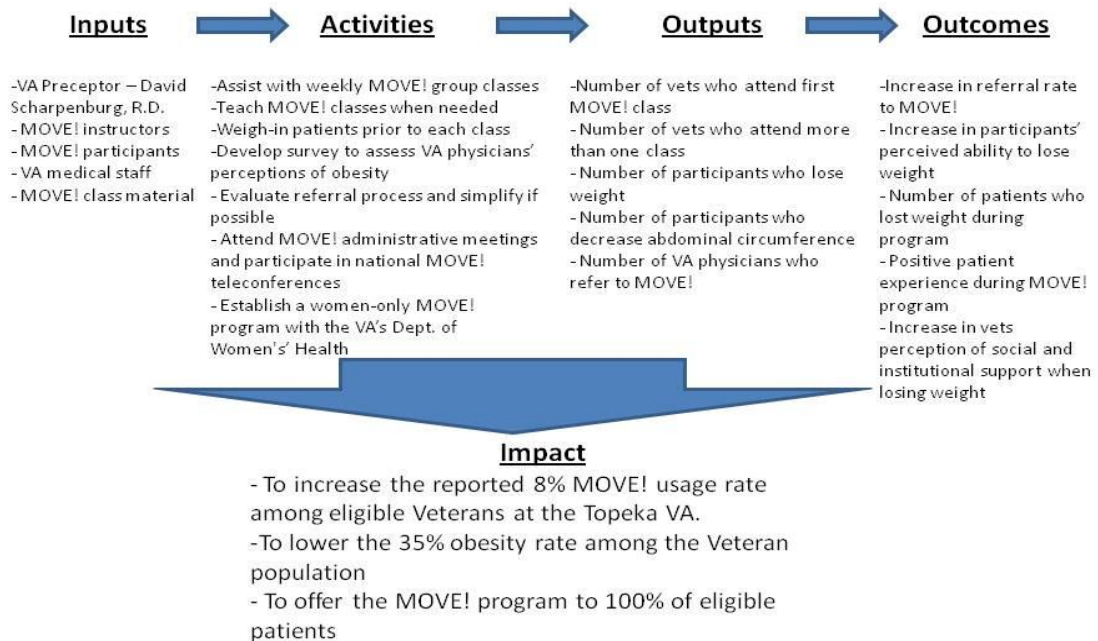
## Practicum Introduction

Veterans receiving healthcare at Veterans Administration (VA) facilities have free access to a multi-level weight loss program called MOVE! MOVE is an acronym for Managing Overweight/Obesity in Veterans Everywhere. Although the program is effective, it is only utilized and completed by about 8% of those who qualify. Like the non-veteran population, obesity is becoming a major health crisis in the veteran population. This capstone project will focus on increasing the usage of the MOVE! program at the Topeka, Kansas VA medical center. The first goal of this project is to increase program awareness among the VA primary care medical staff, which should lead to an increase in patient referrals. The second goal is to improve participant compliance rates once in the program. The third goal is to expand access to MOVE! by working with the VA Women's Health Department to establish a female-only MOVE! program.  MOVE! is an eight week program so this project will encompass three full cycles of classes. Evaluation will be based on the limited data obtained by comparing the first two MOVE! cycles with the cycle immediately preceding my involvement,  and analyzing relevant trends in new attendees, number of classes attended per participant, and average weight lost by participants during each cycle. Correlations between program compliance, defined by the number of classes completed, and average weight lost will also be analyzed.

The veteran population is similar in many aspects to the general population. Because the MOVE! program is only available to veterans receiving care at VA facilities, the subset of veterans receiving care outside of the VA will not be considered in this project. At the end of fiscal year 2011, about 8,570,000 individuals were enrolled in the VA Health System. This accounts for approximately one third of the entire veteran population. These individuals are predominately male (91.9%), white (79.9%) and have a median age of 60. The largest segment of this population served during the Vietnam era but the fastest growing segment of the population are between the ages of 20 and 29 and have served in Iraq and/or Afghanistan. As a population, veterans have higher annual incomes than the general population and they also have lower rates of unemployment. These statistics can be misleading due to the higher percentage of males in the veteran population and the income disparities between males and females

though ([www.va.gov/vetdata](www.va.gov/vetdata)). In 2010, 92% of military veterans had a high school diploma and 26% had at least a bachelor's degree, compared to the general population at 86% and 28%, respectively ([www.census.gov](www.census.gov)). Veterans also have significantly higher home ownership rates than the general population, 82% vs. 67% respectively ([www.census.gov](www.census.gov)).

The Colmery-O'Neil VA Medical Center in Topeka, KS serves approximately 37,020 veterans, of which about 12,500 are obese. Currently, about 875 referrals have been made to the MOVE! program since its inception in 2006, but actual participation is significantly less. This practicum will address ways to increase the number of participants referred to MOVE!. It will also attempt to remove barriers to participation, and will attempt to increase patient compliance with the program.

## MPH Capstone Project Logic Model
### Jeffrey M. Warner

| Inputs | Activities | Outputs | Outcomes |
|---|---|---|---|
| -VA Preceptor – David Scharpenburg, R.D.<br>- MOVE! instructors<br>- MOVE! participants<br>- VA medical staff<br>- MOVE! class material | -Assist with weekly MOVE! group classes<br>-Teach MOVE! classes when needed<br>-Weigh-in patients prior to each class<br>-Develop survey to assess VA physicians' perceptions of obesity<br>- Evaluate referral process and simplify if possible<br>- Attend MOVE! administrative meetings and participate in national MOVE! teleconferences<br>-Establish a women-only MOVE! program with the VA's Dept. of Women's' Health | -Number of vets who attend first MOVE! class<br>- Number of vets who attend more than one class<br>- Number of participants who lose weight<br>- Number of participants who decrease abdominal circumference<br>- Number of VA physicians who refer to MOVE! | -Increase in referral rate to MOVE!<br>- Increase in participants' perceived ability to lose weight<br>- Number of patients who lost weight during program<br>- Positive patient experience during MOVE! program<br>- Increase in vets perception of social and institutional support when losing weight |

### Impact
- To increase the reported 8% MOVE! usage rate among eligible Veterans at the Topeka VA.
-To lower the 35% obesity rate among the Veteran population
- To offer the MOVE! program to 100% of eligible patients

The logic model above illustrates the essential components of this capstone project. Most of the inputs are already present at the VA facility or are readily obtainable from the Veterans Health Administration. My VA preceptor, David Scharpenburg, R.D., is the MOVE! coordinator for the Topeka and Leavenworth, Kansas VA Hospitals, as well as the Director of Clinical Nutrition. The instructors for the MOVE! program are from the nutrition services department, occupational therapy, physical therapy

and behavioral medicine departments. Part of my duties will be to assist these clinical instructors during the MOVE! group education classes every week and to teach the courses when necessary. Most class materials for the group education classes are already prepared and have been used for previous sessions. Because one of the goals of my project is to increase referral rates by primary care providers, the primary care medical staff, including physicians and nurses, is also a key input in the model.

The scope of this project includes both administrative and development aspects. Administrative activities will include assisting and teaching weekly group education classes. I am responsible for weighing and obtaining waist circumference data on each participant to enter into the VA's electronic medical record system. I record this data and send it with the instructor, who is responsible for actually entering it into the system as part of their group clinical summary report. I teach aspects of the classes dealing with physical activity and help demonstrate various stretches and exercises. The MOVE! program has several national teleconferences and calls each month and I participate in those as well. These calls typically involve analysis of best practices and allow sharing of information between local MOVE! programs.

The program development and improvement activities include the analysis of the referral process to MOVE! and development of methods to facilitate referral. I will research, design and administer appropriate surveys to primary care providers and VA patients to explore ways to increase referrals and improve patient compliance once in the program. All clinical activities within the VA are audited continuously and employees and programs are evaluated based upon these results. Although less than 10% of VA patients are female, recent audits of the MOVE! program have been focusing on the success of female participants. As a result, we have decided to propose the design and implementation of a women-only MOVE! class through the department of women's health. I am responsible for initiating this process and aiding in the development of a curriculum more suited to a female audience.

Outputs of this project include several quantifiable variables. First, the number of new patients referred to the MOVE! program will be considered. The actual number of physicians who refer patients will also be tracked. This data will serve to assess our efforts to increase awareness and referral rates among primary care providers. The number of veterans who attend more than the first class will be noted to track compliance rates with the eight week educational program. Objective statistics will be collected; including weight lost and changes in abdominal circumference, to measure the ability of the program to achieve its ultimate goal of decreasing obesity in the veteran population.

The desired outcomes of this project span all levels of the social ecological model. On a personal level, an increase in knowledge about weight loss strategies is desired. We also want to increase the

participants' perceived ability to lose weight and maintain their losses. On an interpersonal level, the group format should foster social support and help in the creation of support networks. I hope to increase the participants' perception of support from the VA as well, which is an example of an organizational level outcome. From a community standpoint, a positive experience and positive results experienced by the participants will be shared with other veterans that they interact with through the VFW, American Legion and other Veteran Service Organizations (VSOs). This can strengthen the reputation of the MOVE! program in the veteran community and lead to more awareness and participation in the future. On a policy level, positive outcomes from the MOVE! program will lead to increased funding from Congress for preventative programs within the Veterans Health Administration.

Although the short duration of this project will not permit impact evaluation, the desired impact is to reduce the 35% obesity rate among veterans. It is also important to increase the referral rate into the program from its current 8%. Ideally, 100% of eligible patients will be *offered* the chance to participate in MOVE!. This does not imply that I expect participation rates to approach 100% though.

## Program Plan

This capstone project will require onsite activities as well as offsite time dedicated to research. The project will commence on June 12, 2012 and end in November of 2012. On-site activities will take place every Tuesday and Thursday from June through November from 9:00 AM until approximately 4:00 PM. The actual hours will vary depending on my preceptor's schedule and the duties required. Tuesdays will be primarily devoted to research and development activities. This includes developing surveys, improving course material and meeting with stakeholders to accomplish the goals of the project. Thursdays will be focused on conducting MOVE! classes and assisting with weekly support group meetings. I am responsible for conducting phone interviews with past MOVE! participants as well to assess their progress since completing the program. This will also be accomplished on Thursdays.

## Evaluation Plan

During the timeframe of this project, three full cycles of MOVE! classes will be completed. The cycles end on July 26, September 27, and November 29. I will evaluate the success of this project by analyzing data from the first two MOVE! cycles and comparing that to baseline data obtained from the

MOVE! class cycle which ended on May 24, 2012. Relevant variables to be measured include the number of new participants referred during a cycle, the total number of participant encounters per cycle, the mean number of classes attended per participant (patient visit average), and the total weight lost per cycle. The change in female participation will also be evaluated to assess the effectiveness of our efforts to market MOVE! to female veterans. The duration of this project is relatively short and will not permit long-term evaluation of the success of the desired outcomes. As a result, success will also be measured by the limited objective gathered and the subjective assessment of MOVE! staff and program participants.

## Literature Review

The health status of the United States military veteran population is similar to that of the general population. Veterans, however, have a unique set of confounding factors which can make it more difficult to design effective health interventions. Determining what factors are essential to implementing a successful physical activity promotion intervention in the veteran population is necessary to promote the success of future interventions. If a program possesses these essential success elements, it must be determined what the most effective way to market the program to maximize utilization rates is.

Three primary areas of inquiry will be addressed. First, the evidence of obesity levels in the veteran population will be reviewed to assess the need for such an intervention. Second, physical activity levels in the veteran population will be discussed to identify facilitators and potential barriers to increasing activity levels. Finally, current and previous efforts to implement behavior change strategies in the veteran or military population will be reviewed to determine the best-practices present in the successful interventions. Most of this discussion will focus on the VA's MOVE! weight loss program. MOVE is an acronym for Managing Overweight/Obesity for Veterans Everywhere.

For this literature review, 16 studies were considered. The studies were divided into groups based upon their research focus. The three areas of study, or themes mentioned above, allow for a comprehensive overview of obesity prevalence and physical activity patterns in the veteran population, as well as a synopsis of methodologies that have been successful in achieving behavior change in this population. These findings will be used to synthesize recommendations for future physical activity initiatives targeting this population.

<u>Review of Obesity Trends in the Veteran Population</u>

As of 2010, the Veterans Health Administration (VHA) claims that the prevalence of obesity among those seeking care in their outpatient clinics is approximately 35% (VHA Primary Care Almanac). This is similar to the overall population obesity prevalence of 33.8% (http://www.cdc.gov/obesity/data/trends.html). The correlation between obesity and other health problems, such as diabetes, hypertension and cardiovascular disease, has been well established (DHHS 2001). Veterans of military service also tend to have higher rates of obesity-related behavioral risk factors, such as having ever been a smoker, compared to non-veterans (Koepsell 2002). An interesting paradox exists in the literature in that the obesity prevalence tends to be equal or higher in veterans but the physical activity level of veterans is reported to be slightly higher than that of the general population (Littman 2009). This may be explained by the observation that veterans who use the VA for their health care have higher rates of obesity and lower rates of physical activity than veterans who seek routine health care at non-VA providers (Das 2005, Agha 2000). This will be analyzed in greater detail in the veterans' physical activity discussion below.

The relationship between obesity and mortality has been established. More recently, the association between obesity, fitness level and mortality has been in question. Using a cohort study design targeting the veteran population, McAuley et al. (2009) observed that obese individuals who had higher measures of fitness had significantly lower mortality rates than obese individuals with lower fitness measures. They quantified fitness as metabolic equivalents achieved during maximal exercise testing. They suggest that obesity alone may not be sufficient to predict mortality. Rather, a closer analysis of the relationship between "fitness" and "fatness" must be looked at to determine how these measures influence health outcomes.

Barriers to obesity management in the VA health system have been analyzed and found to be present in the majority of primary-care encounters. It is reported that many VHA clinicians do not routinely provide weight management services for obese patients. The most prevalent barriers to obesity care were poor education during medical school and residency and the lack of information provided by the VHA to both clinicians and patients about available weight management services (Forman-Hoffman 2006).

Rosenberger (2011) analyzed BMI trajectories for a large group of veterans from the time they left active duty. Their research revealed that socioeconomic and demographic factors were the greatest

predictors of future BMI status in the veteran population. Being female, white, and younger had the greatest impact on future healthy BMI status. Education level and racial profile also had significant effects on future BMI status.

## Physical Activity Trends in the Veteran Population

After adjusting for age and gender, the prevalence of inactivity was significantly lower (16.2% vs 20.5%), and meeting PA recommendations was significantly greater (46.0% vs 42.0%) in veterans than in nonveterans. Compared with veterans who did not obtain their health care from the VA, VA users were more likely to be inactive (20.8% vs 14.7%) and less likely to be insufficiently active (34.1% vs 38.2%) or meet recommendations (45.1% vs 47.1%;). Differences in PA levels between veterans and nonveterans and between VA users and nonusers did not change substantially after additional adjustment for education, race/ethnicity, and smoking (Littman 2009). Although veterans appear to be more physically active than the general population, most still are not meeting the recommended guidelines, particularly those receiving care at the VA.

Attitudes toward physical activity and the changes in these perceptions in those recently discharged from active duty military service are important to understand so that interventions can be adequately designed. Buis et al. (2011) conducted a study in which attitudes toward physical activity were assessed by self-report in both active duty soldiers in Iraq and Afghanistan, as well as in recent veterans of these conflicts who received their health care at VA facilities. The method employed was a cross-sectional internet-based survey of physical activity behaviors and attitudes among post-deployment troops registered for care at the VA Ann Arbor Healthcare System in Michigan. Descriptive statistics and regression analysis were used to compare and correlate respondent demographics and physical activity attitudes with pre and post deployment physical activity behaviors. The results showed that 77% believed that remaining fit is important, 72% worried about gaining weight, and 90% believed that exercise would improve their health. Running (30.0%), exercise with gym equipment (21.5%), occupational activities (14.9%), and walking (13.0%) were the most commonly reported active duty activities, whereas after retirement, walking (21.1%), running (18.5%), and exercising with gym equipment (17.9%) were the most common reported activities. The authors found that these changes were most likely due to reported changes in health status (39%), and the presence of chronic pain (52%). The conclusion is that veterans are just as likely as active duty personnel to believe that physical activity is important, but they have different barriers to pursuing physical activities.

<u>Successful strategies for obesity management and intervention</u>

In 1998, the National Institutes of Health issued their first set of guidelines for the clinical diagnosis and management of obesity (NIH 1998). Based on that report, the Veterans Health Administration designed a comprehensive obesity management program called MOVE! and began implementation at individual facilities in 2006. MOVE! uses a comprehensive, evidence-based, tiered approach that provides diet and physical activity counseling combined with behavioral modification strategies (Kinsinger 2009). Rosenberger (2011) claims that a multi-level approach to weight loss in veterans is essential due to the complex nature of other confounding factors unique to the veteran population. They report that the most common comorbidities in those seeking health care at VA facilities are: psychiatric illness, substance abuse, significant pain, diabetes, osteoarthritis, high blood pressure, and sleep apnea. Because of these factors, they conclude that interventions must include more than just an educational component to be successful with this population. They also conclude that VHA policies at the national level need to be more supportive of the development of more intensive weight management intervention strategies to complement MOVE! group educational classes at the local level (Rosenberger 2011).

The effectiveness of the MOVE! program is still being studied since it is a relatively new program. Initial data suggest that the multi-level strategy is producing positive results. For a two year period from 2008 to the end of 2009, about 18.6% of the 31,854 patients who participated in at least a part of the program had lost at least 5% of their body weight after six months. This is significantly higher than the 12.5% of the control group, a similar group of individuals who were matched for age, gender, BMI status and comorbidity status who were not participants in MOVE! (Kahwati 2011).

The success of multi-level interventions in large health care organizations depends on many factors. In the VHA, the success and limitations of the MOVE! program have been analyzed by Weiner (2012). They report that organizational readiness for change and having an "innovation champion," a staff member whose primary job is to direct the operations of the program, were most consistently the two factors associated with successful MOVE! implementation at local VA facilities. Other organizational factors, such as management support and resource availability, were barriers to implementation or exerted mixed effects on implementation. Barriers did not prevent facilities from implementing MOVE! However, they were obstacles that had to be overcome, worked around, or accepted as limits on the program's scope or scale.

Summary

Based on the available literature concerning the obesity and physical activity levels of veterans of military service, it is apparent that more research is needed to determine the best methods for implementing successful weight management strategies in this population. The literature suggests that a multi-level, or social ecological approach, is the most effective way to design a program for long-term success. Obesity and physical activity interventions must account for confounding factors to be effective. In the veteran population, this is especially true. Veterans have a unique set of circumstances that are not typically encountered in the civilian population and these must be addressed by an intervention, along with obesity and physical activity behaviors. The literature also suggests that program delivery in a group setting is more effective than individualized instruction and that the presence of a strong leader, or program champion, is essential to the long term success of an intervention in the Veterans Administration.

Based on these findings, I would like to inquire about the most effective way to market multi-level interventions, such as MOVE!, to increase their usage rates among eligible participants. MOVE! appears to meet most of the recommendations for a successful program, but its low utilization rate is a cause for further investigation.

## Public Health Relevance

This project will apply all three of the public health functions: Assessment, Assurance and Policy Development. An assessment of the factors limiting the participation of obese veterans in MOVE! will be conducted to determine methods of improvement. This assessment information will be gathered from the current literature as well as from interviews with MOVE! staff and VA medical staff.

If this project can improve the usage of MOVE!, that will help to assure the veteran population that the VA does care about their health and wellbeing. Obesity is one of the leading causes of mortality and morbidity in this population so improving the coordination of preventative services with current medical care will assure that the probability of positive outcomes will increase. It will also assure the tax payers that the federal funds being spent on veterans' care are being used efficiently and effectively.

If the methods employed in this project can help improve obesity outcomes while not increasing spending, they may be adopted by policy makers in the Veterans Administration and the federal government. Most of the research into the MOVE! program is conducted on the national veteran

population. If we can make positive improvements here in Topeka, these methods may be appealing to other local MOVE! programs.

## Practicum Model

The Social Ecological Model (SEM) is most applicable to this practicum. MOVE! is tailored to intervene at multiple levels of influence. This project will also focus on several aspects of the social ecological framework. Below is a brief description of the SEM and how it applies to this practicum.

Social ecological models have become widely used in public health as a means of describing behaviors, as well as designing interventions to change specific behaviors. Most of the literature on social ecological models (SEMs) focuses on the specific intervention being analyzed. These sources are valuable and will be discussed toward the end of this review. Initially, this literature review will discuss the evolution of social ecological models over the past fifty years, and will provide a context for the prototypical SEM that we use in public health today.

As a formal theory, the Social Ecological Model that we use today had its origins in several other social scientific fields. In describing human behavior, the study of ecological psychology first described how the outside environment could influence the behaviors of individuals (Lewin, 1951). In the late 1970s and early 1980s, the models of Social Ecology (Moos, 1980) and Systems Theory (Bronfenbrenner, 1979) began to describe how different levels of environmental factors, or levels of influence, could interact to influence personal and population behaviors. Bronfenbrenner's Systems Theory began to resemble our current model in that it considered the interactions of three levels of influence: the "microsystem," which is the interaction between family members and direct social contacts, the "mesosystem," which they describe as the physical component of a family, work or school setting, and the "exosystem," which includes factors such as the economy, cultural norms and public policy. These systems have evolved into the five common levels of influence that we include with SEMs today.

Other researchers attempted to expand the scope of Operant Learning Theory (Skinner, 1953) and Social Cognitive Theory (Bandura, 1986) to include a wider range of environmental influences. These earlier models could be used to design interventions targeting environmental influences on behavior, but they were often too limited to design mulit-level interventions. Social Cognitive Theory focused heavily on the social environment but did little to address built environmental factors, whereas Operant Learning Theory concentrated on behavioral stimuli in the physical environment and ignored the social

environment. Social ecological models differ from social cognitive theory in their emphasis on the role of the physical environment, not just the social environment (King, Stokols et al. 2002; Sallis and Owen 2002).

In 1988, Kenneth McLeroy and his group were the first to outline an ecological model of health behavior comprised of five levels of influence: intrapersonal, interpersonal, institutional (organizational), community, and public policy (McLeroy, 1988). Stokols added to McLeroy's work by describing four basic assumptions that must be present when using SEMs to design health interventions. These assumptions are: (1) health behavior is influenced by physical environments, social environments, and personal attributes; (2) environments are multidimensional, such as social or physical, actual or perceived, spatial arrangements or social climate; (3) human-environment interactions occur at varying levels of aggregation (individuals, families, cultural groups, whole populations); and (4) people influence their settings, and the changed settings then influence health behaviors (Stokols 1992).

The United States Veteran Health Administration's anti-obesity initiative, MOVE!, is a good example of a successful intervention designed using a social ecological framework. MOVE! was implemented nationwide in 2006 (www.move.va.gov). The program addresses several levels of influence, but focuses on interpersonal and organizational factors as a means to alter behavior patterns. According to Kissinger (2009), 98.7% of VA facilities now utilize the MOVE! program. They also report that 66% of the VA population has been adequately screened for participation in the program, but only 7.5% of those eligible have actually participated.

Kahwati (2011) describes the MOVE! program format as a series of group-based sessions to provide social support. The classes provide practical information regarding physical activity and nutrition. The Veterans Administration as an organization provides recommendations on best-practices for individual facilities to better implement their program. Kahwati also analyzes the facility structural aspects, policies and processes which lead to the highest success rates. Although institutional standards were developed, implementation at individual facilities has varied greatly. The purpose of this study was to employ qualitative comparative analysis (QCA) to determine which unique factors at various VA locations contributed to the greatest weight-loss outcomes. Data from staff interviews and medical record review was collected from 11 successful sites and 11 less successful sites. Patterns of factors present in successful programs were analyzed to determine necessary factors and sufficient factors. Although no two sites shared the same conditions, two factors were identified as necessary for success: the use of a standard curriculum and classes conducted in a group setting. This combination was present

at all 11 of the successful sites, but at only 6 of the less successful sites. Four combinations of factors were identified which account for the more successful facilities out of the 17 with both necessary factors. These included high program complexity combined with high staff involvement; group care-delivery format combined with low accountability to facility leadership; an active physician champion combined with low accountability to facility leadership; and the use of quality-improvement strategies combined with not using a waiting list. It may be concluded that a standard MOVE! curriculum combined with a group-delivery format is necessary for success of local MOVE! programs, however, this alone does not guarantee success.

## Part 2 (September 7, 2012)

The duties that I am responsible for vary depending upon whether it is a class day or not. Tuesdays are non-class days and I typically spend several hours preparing class materials for the upcoming MOVE! class. Our classes are conducted at the VA in Topeka but we also have several smaller regional clinics whose patients can participate via telemedicine technology. I ensure that the regional clinics have the proper class materials so that they can follow along during the telemedicine sessions. Reproduction requests must be completed to obtain copies of the appropriate materials and then they are sent through the VA's systemic mail service to the individual clinics.

Although the Topeka and Leavenworth VA hospitals are part of the same VA region, they each conduct their own separate MOVE! programs. Different class materials are used and different clinical instructors teach the sessions. I am responsible for updating the materials for both locations and am currently helping to convert the MOVE! program from a four week program to an eight week program. Research on MOVE! has shown that one of the keys program components in successful programs is a longer duration of patient contact (Weiner 2011). As a result, MOVE! sessions beginning June 2012 in Topeka and Leavenworth will consist of eight weeks of classroom encounters, followed by six months of follow-up phone calls. I spend time on Tuesdays making follow-up calls to our participants from the June and July 2012 MOVE! session to update their weight in our VA records and to discuss any obstacles they may be having in their weight loss. These calls serve as 30 and 60 day follow-ups and are recorded in the patient's medical record to demonstrate the continuity of care. We try to set two new goals on each phone call and assess the progress toward previous goals.

A primary goal of my project is to increase the awareness of the MOVE! program among our VA primary care physicians and nurses. By increasing awareness, I expect to find increases in referral rates into the program. The goal of the VA is to have 100% of the obese patients served by the primary care physicians here in Topeka be given the option of joining MOVE! The most recent audit conducted by the VA found that Topeka is well below the national average of 8% participation in MOVE! We have a participation rate of less than 3%. A 100% participation rate is unrealistic, but by updating the obesity care protocols, we hope that every obese patient will be at least offered the chance to join MOVE!

I am developing promotional materials and customizing them to target our primary care staff. The VA has MOVE! materials that can be adapted to the needs of local programs so I have been using these resources and delivering the final products directly to the medical staff in our three primary care clinics. Through patient interviews, I have also found that when patients question their VA medical specialists, such as cardiologists and pulmonologists, about MOVE!, they generally have no idea what the program does or how to refer patients. If time permits during my practicum, I plan to develop and distribute promotional materials to the hospital's specialists to increase their awareness of MOVE! as well. All of these activities fit into the social ecological framework that I am using to structure this project, and will be discussed below.

Thursday is class day for MOVE! in Topeka. I typically arrive an hour before the class start time to prepare our MOVE! conference room and set up the telemedicine links with our satellite clinics. When patients arrive, I weight them and obtain a waist circumference measurement. I conduct informal interviews to get the patients' feedback on the previous class and discuss their progress toward their goals. Each week, we have a different speaker and address topics such as basic nutrition, physical activity recommendations, behavioral change strategies, motivational techniques, cooking instruction and stretching and strength training. I contribute to each weeks lecture when appropriate and teach classes if the speaker is unable to. Because physical activity is my area of specialization, I conduct the strength training and stretching portions of the classes using therabands and other basic equipment. The classes last for two hours. There are optional extra activities, such as a guided grocery store tour with a MOVE! nutritionist, but I have not participated in these extra activities.

On August 23, my preceptor and I attended a meeting with the staff of the Women's Health Department at the Topeka VA hospital. As mentioned above, less than 10% of the veteran population is female. This demographic group is on the rise though, and VA auditors are focusing disproportionately

on weight loss interventions offered to the female population. The Women's Health stakeholders have tried to implement various weight loss programs in the past with little success. The comparative success of MOVE! with the general veteran population has convinced them that our program may be successfully implemented in a female-only format, and we are in the process of designing such a program.

The stakeholders in the Women's Health department have proposed a program focusing on nutrition, behavioral health, and pharmacy. I have successfully altered the curriculum to include physical activity elements. Initially, the stakeholders suggested that the women's health MOVE! section only be scheduled once per quarter. The reason for this is that their physicians can only receive work credit and compensation for four group weight loss sessions per year. Their patients typically have to pay a co-payment between $10 and $25 per visit. Our solution to this limited schedule is to offer the participants the opportunity to attend regularly scheduled weekly MOVE! sessions, for which there is no copay, between their quarterly women-only sessions. The providers suggest that once their patients meet our MOVE! staff and establish a trusting relationship, they may be more willing to attend non-gender specific classes, such as our weekly MOVE! classes.

I am also developing an eight week curriculum specifically targeting female veterans. I had a meeting with Kathy Zima, the Director of Women's Programming, on September 4th, 2012, and she agreed to authorize the establishment of a comprehensive eight week program for the patients of the women's health clinic. This new program will use MOVE! resources but will be rebranded as WoW! (Women only Wellness) and will be conducted weekly beginning on October 10th, 2012.

All of these activities fit into the social ecological model that is being used to guide this practicum. The time that I spend teaching and helping to facilitate our weekly classes provides education to our participants, which is an intrapersonal approach. My outreach efforts to participants, through the weekly calls that I make, serve to create a social support link at the interpersonal level. This also is an organizational level activity because it demonstrates the Veterans Administration's commitment to their success. Most patients express their gratitude to me when I call. They seem impressed that someone from the VA actually cared enough to call and check on them!

My activities with the Women's Health department can be considered both organizational and community interventions. We are changing the procedures within the organization in order to make our

services more accessible to the population we serve. By doing so, our goal is to improve the weight-loss outcomes of this segment of the population and improve the quality indicators monitored by the VA. By improving these performance indicators, the MOVE! program will be able to justify requests for increased funding in the future. This is a policy level intervention. Figure 1 illustrates how the five levels of influence in the social ecological model apply to this project.
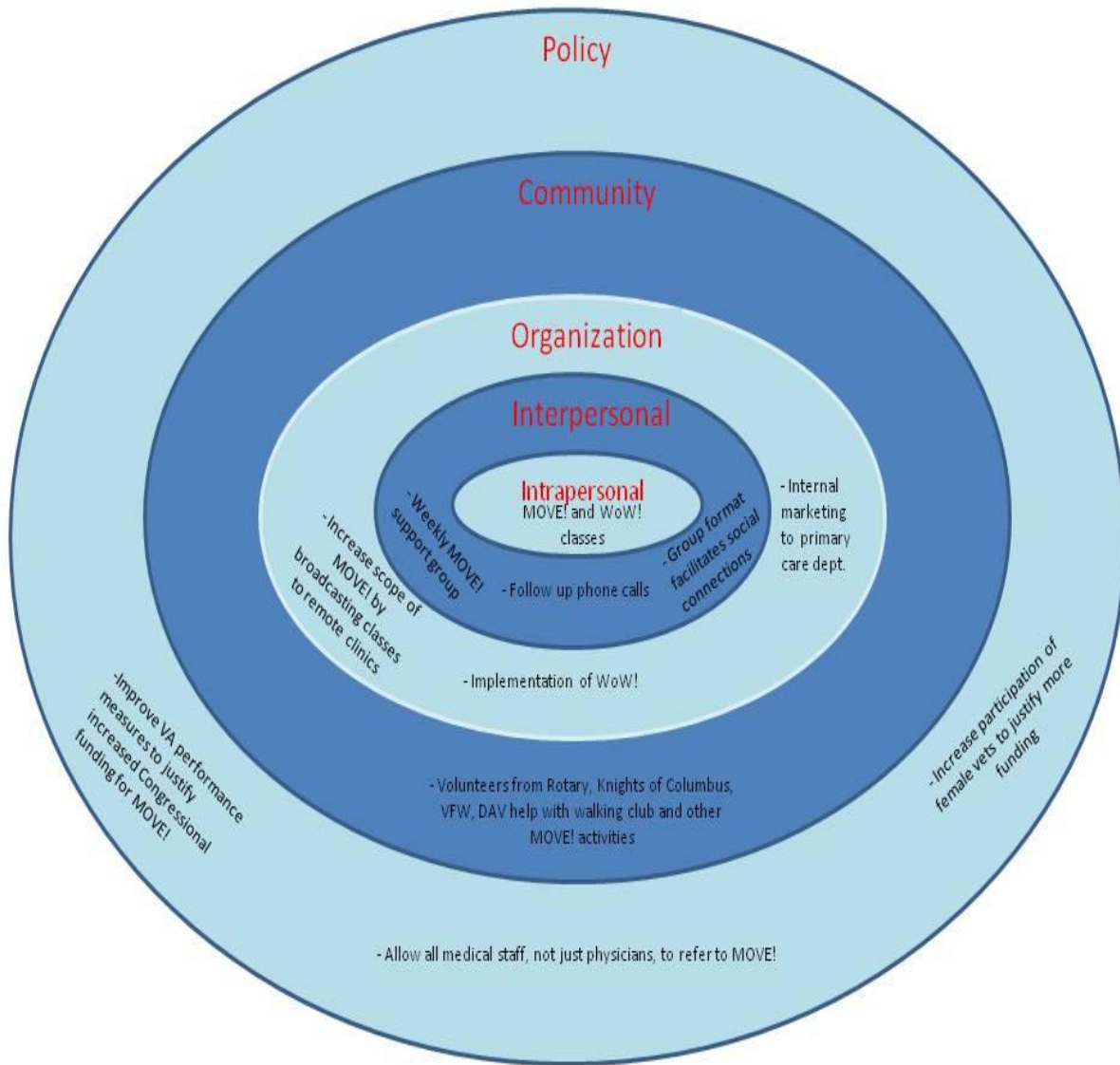


**Figure 1.** Social Ecological representation of project activities.

# Methods

This project differs from a typical research study in that I am joining the staff of a program that has been in operation for six years and has federally mandated guidelines to adhere to. This methods section will describe how I intend to contribute to the improvement of the current program, and how I plan to expand access to MOVE!.

## Participants

The MOVE! program in Topeka, Kansas is an eight week multidisciplinary program intended to improve weight-loss outcomes in the veteran population who receive their health care from the VA. The Topeka VA serves approximately 37,020 patients. Approximately 12,500 of these patients have a clinical diagnosis of obesity, and 875 have been referred to MOVE! since 2006. The Topeka veteran population served by the VA hospital is 79.9% white, 91.9% male and has an average age of 60 years old (www.va.gov/vetdata).   This project will gather data from veterans who participate in MOVE! from April 1, 2012, through September 30, 2012 at the Topeka VA hospital and its affiliated Community Based Outreach Clinics (CBOCs).

## Measures

The actual MOVE! completion rate has not been adequately tracked. If a patients is referred, attends at least one class, and completes the MOVE!23 standardized questionnaire, the facility gets credit for satisfying the VA's weight-loss performance measure. A performance measure is a tracked statistic in the electronic medical record that helps VA policy makers evaluate how efficient providers are at completing a particular desired task. A sample of one of the MOVE! performance measures and its computer algorithm is provided in Appendix 1.

Establishing a clear correlation between attending MOVE! classes and weight loss is essential to obtain more funding from Congress to continue to expand the program. By tracking participants' attendance and weight change, a correlation can be established. The strength of the correlation can then be used to determine if the relationship is significant or simply due to chance. This can be

measured using a t-statistic for correlation, with the formula $t = [r\sqrt{n-2}]/\sqrt{(1-r2)}$. In this equation, r is the sample correlation and n is the number of (x,y) pairs, or the number of participants who have class attendance and weight change data available. The reference distribution is the t-distribution with n-2 degrees of freedom. If the data produces a t value different from the critical value with n-2 degrees of freedom, it can be stated that there exists a significant correlation between the numbers of MOVE! classes attended and the total amount of weight lost.

**Program and Procedures**

This project focuses on increasing participation in the MOVE! program using a social ecological approach. The methods to achieve this include increasing awareness of the program among primary care medical personnel, increasing access to MOVE! by instituting a women-only section, and improving patient compliance by increasing interpersonal and organizational communication before, during, and after participating in the MOVE! program.

Decreasing barriers to participation is essential to any public health program. Because MOVE! requires a referral from a veteran's primary care physician, increasing their awareness of the program, and facilitating their ability to refer patients will be addressed. New patient referrals will be tracked throughout my time with the program to assess the effectiveness of our efforts. The number of patients completing the MOVE!23 Questionnaire in the primary care clinics will also be monitored to assess the willingness of the providers to refer their obese patients. Altering policies to allow for referral by nursing staff will also be explored.

According to the staff at the Women's Health department at the VA, many female veterans are reluctant to participate in weight loss programs where the majority of participants are male. The veteran population served in Topeka is approximately 92% male, which creates a gender barrier preventing female participation in MOVE!. This project will include an effort to adapt the current MOVE! curriculum to create a female-only section operated through the Women's Health clinic. Similar programs operating at other VA facilities will be analyzed and used as a model to help establish a separate program for female veterans. The VA Hospital in St. Louis, Missouri, has a separate MOVE! program for women and their staff has agreed to help us establish ours. Process evaluation data that will be collected includes the total number of female veterans referred to MOVE! and the number of females who attend at least one MOVE! session.

Once in the MOVE! program, a high percentage of participants attend one or two classes and drop out. Currently, there is no protocol for evaluating the reasons for this. Participants who are scheduled for a class and do not attend will be called to discuss the reasons for not attending and give them the opportunity to reschedule for the next class. The same individual will make these calls each week so that an interpersonal relationship can be established. Reasons for not attending will be entered into the patient's medical record and trends will be analyzed to determine the need for changing program elements. Class size statistics will be collected each week and individual patient visit averages will be calculated to assess changes in patient compliance.

On a national level, the success of MOVE! is monitored primarily by three standards. The MOV5 (pronounced MOVE 5) measures BMI screening in primary care clinics and measures the percent of obese veterans offered the chance to join MOVE!. MOV6 measures basic participation in MOVE!, and MOV7 measures intense and sustained participation in MOVE!. These measures are described in Table 1 below. The evaluation of this project's outcomes will be based on these same national program measures.

| Measure Mnemonic | Concept Measured | How Measured | Calculation | National Goals |
|---|---|---|---|---|
| MOV5 | BMI screening and offering MOVE! | Chart review | (# offered MOVE!/# who would benefit) x 100 | 100% |
| MOV6 | Basic Participation in MOVE! | Chart review | (# with one MOVE! visit in last year/# who would benefit) x 100 | Running 9% nationally, local goals of 15-30% increase |
| MOV7 | Intense and sustained participation in MOVE! | DSS Data | (# with intense AND sustained care/# of new patients) | Running 13% nationally, goal to increase by 15% locally |

**Table 1.** National measures (performance measures) to assess MOVE! process objectives.

# Part 3 (October 19, 2012)

## Results

Baseline data was obtained by reviewing the MOVE! class cycle which was completed immediately prior to the commencement of this project. This cycle began on April 5th, 2012 and concluded on May 24th, 2012. The class attendance was determined by reviewing the electronic health records completed by the MOVE! instructors following each of these scheduled classes. Table 2 summarizes the baseline data. I began this project on June 7th, 2012. Table 3 illustrates the data obtained during the eight week MOVE! class cycle beginning on that date and completed on July 26, 2012. Table 4 contains data obtained from the MOVE! cycle beginning on August 2, 2012 and ending on September 27, 2012. Due to deadline constraints, the data from the MOVE! cycle beginning on October 4, 2012 and concluding on November 29th, 2012 will not be considered in this analysis. Figure 2 illustrates the change in attendance for each of the eight MOVE! sessions from the baseline cycle through the two full cycles that I was involved with.

| Baseline | MOVE! Session | Total Participants | New Participants |
|----------|---------------|--------------------|------------------|
| 4/5/2012 | 1 | 5 | 5 |
| 4/12/2012 | 2 | 2 | |
| 4/19/2012 | 3 | 3 | |
| 4/26/2012 | 4 | 3 | 1 |
| 5/3/2012 | 5 | 3 | |
| 5/10/2012 | 6 | 2 | |
| 5/17/2012 | 7 | 2 | |
| 5/24/2012 | 8 | 2 | |
| **Totals** | | 22 | 6 |

**Table 2.** Summary of MOVE! baseline data collected from 4/5/12-5/24/2012 at Topeka VA Medical Center.

| Cycle 1 Dates | MOVE! Session | Total Participants | New Participants |
|---|---|---|---|
| 6/7/2012 | 1 | 7 | 7 |
| 6/14/2012 | 2 | 4 | 1 |
| 6/21/2012 | 3 | 8 | 2 |
| 6/28/2012 | 4 | 5 | 1 |
| 7/5/2012 | 5 | 4 | |
| 7/12/2012 | 6 | 9 | 3 |
| 7/19/2012 | 7 | 5 | 2 |
| 7/26/2012 | 8 | 5 | |
| **Cycle 1 Totals** | | 47 | 16 |

**Table 3.** Summary of MOVE! data collected from 6/7/12-7/26/2012 at Topeka VA Medical Center.

| Cycle 2 Dates | MOVE! Session | Total Participants | New Participants |
|---|---|---|---|
| 8/2/2012 | 1 | 12 | 12 |
| 8/9/2012 | 2 | 3 | |
| 8/16/2012 | 3 | 12 | |
| 8/23/2012 | 4 | 12 | |
| 9/6/2012 | 5 | 11 | 3 |
| 9/13/2012 | 6 | 9 | |
| 9/20/2012 | 7 | 14 | 3 |
| 9/27/2012 | 8 | 14 | |
| **Cycle 2 Totals** | | 87 | 18 |

**Table 4.** Summary of MOVE! data collected from 8/2/2012 – 9/27/2012 at Topeka VA Medical Center.
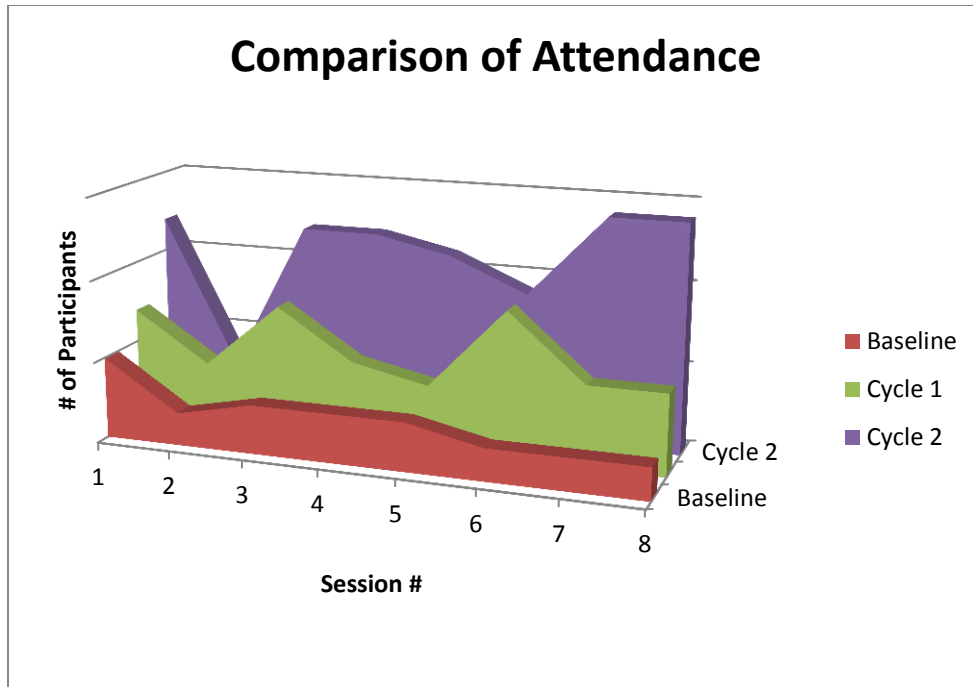
**Comparison of Attendance**

**Figure 2.** A comparison of attendance over the eight week MOVE! cycle between the baseline data and the two full cycles that this project was active.

The focus of this analysis will be process evaluation data, such as attendance, new participants, and the average number of sessions attended. The relatively short duration of this project does not allow for extensive program outcome analysis. Patient weight loss will be analyzed as much as possible and correlations between number of sessions attended and total weight loss will be examined.

The average patient attended 3.66 MOVE! sessions during the baseline time period. Six veterans participated in this cycle of classes. This average dropped during the first eight week session that I participated in to 2.94 sessions attended. The number of veterans participating rose to 16 though. During the second eight week period, the average climbed to 4.83 sessions attended and we served a total of 17 veterans. Although the MOVE! cycle beginning on October 4, 2012 is not included in this analysis, we had 17 new participants attend the first MOVE! class on that date.

Each participant's weight was measured at the beginning of each MOVE! class that they attended. The instructor for the day's class is supposed to enter the weight data into the patient's electronic medical record but this does not always happen. As a result, the statistical analysis of outcome data, specifically the individual veteran's change in weight following participation in MOVE!, is limited to 30 data points in this project. The raw data for the 30 veterans, including their starting and

ending weight, their total number of MOVE! classes attended, total weight lost and the percentage of body weight lost is shown in Table 5.

Figure 3 illustrates the relationship between the number of MOVE! sessions attended and total weight lost. Beginning with three classes attended, there is a clear positive correlation between the number of classes attended and the average amount of weight lost. The correlation (r) between attending two or more MOVE! classes and average weight loss is 0.5543. Using this value, the t-statistic for attending two or more classes is 1.489 and degrees of freedom are 5. The critical value from the two sided t-distribution table at the 0.05 level is 2.571. Because the t-value is less than the critical value, it can be concluded that the correlation between attending two or more classes and increasing average weight loss is not significant to a level that we can rule out sample error. If attending three or more classes, the correlation between more classes attended and average weight loss is 0.9781. This yields a t-value of 9.398 and a critical value of 2.776 with 4 degrees of freedom. Attending three or more MOVE! classes, therefore, creates a strong positive correlation between classes attended and average weight loss.
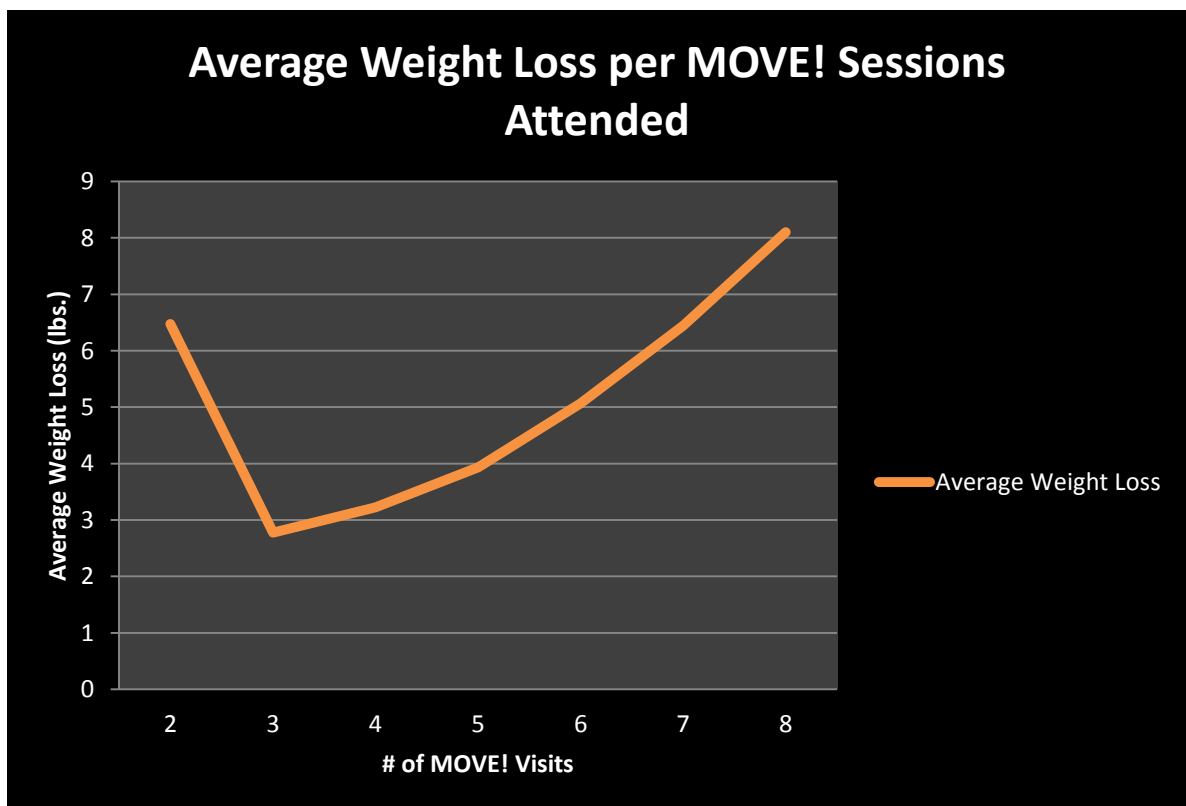


**Figure 3.** Illustration of the correlation between the number of MOVE! classes attended and The average weight loss of the veterans attending that number of classes.

| Patient | Total Visits | Start Weight | End Weight | Total Lost | Percent Lost | Session |
|---|---|---|---|---|---|---|
| 11 | 2 | 194.6 | 192.9 | 1.7 | 0.87% | 2 |
| 22 | 2 | 266 | 255.2 | 10.8 | 4.06% | 2 |
| 24 | 2 | 402.2 | 392.9 | 9.3 | 2.31% | 2 |
| 12 | 2 | 268 | 263.9 | 4.1 | 1.53% | 3 |
| 16 | 3 | 275.8 | 272.6 | 3.2 | 1.16% | 1 |
| 9 | 3 | 250.9 | 250.3 | 0.6 | 0.24% | 2 |
| 8 | 3 | 191.5 | 189.2 | 2.3 | 1.20% | 3 |
| 29 | 3 | 251.1 | 246.1 | 5 | 1.99% | 3 |
| 10 | 4 | 211.5 | 209.7 | 1.8 | 0.85% | 1 |
| 5 | 4 | 244.5 | 223 | 21.5 | 8.79% | 2 |
| 7 | 4 | 221 | 231 | -10 | -4.52% | 2 |
| 19 | 4 | 240 | 240.4 | -0.4 | -0.16% | 2 |
| 13 | 5 | 228.1 | 222.5 | 5.6 | 2.46% | 2 |
| 20 | 5 | 288.4 | 287.4 | 1 | 0.35% | 3 |
| 21 | 5 | 296.4 | 291.2 | 5.2 | 1.75% | 3 |
| 17 | 6 | 301.1 | 296 | 5.1 | 1.69% | 1 |
| 18 | 6 | 224.4 | 224.1 | 0.3 | 0.13% | 3 |
| 26 | 6 | 224 | 214.2 | 9.8 | 4.38% | 3 |
| 1 | 7 | 193.8 | 185.4 | 8.4 | 4.33% | 1 |
| 25 | 7 | 316.1 | 311.3 | 4.8 | 1.52% | 1 |
| 3 | 7 | 238.8 | 236.2 | 2.6 | 1.09% | 2 |
| 4 | 7 | 288.6 | 279.4 | 9.2 | 3.19% | 2 |
| 30 | 7 | 300.3 | 281.8 | 18.5 | 6.16% | 2 |
| 6 | 7 | 204.2 | 193.9 | 10.3 | 5.04% | 3 |
| 14 | 7 | 218.5 | 223.5 | -5 | -2.29% | 3 |
| 27 | 7 | 210 | 207 | 3 | 1.43% | 3 |
| 28 | 7 | 203.1 | 196.9 | 6.2 | 3.05% | 3 |
| 2 | 8 | 319.5 | 289.9 | 29.6 | 9.26% | 1 |
| 15 | 8 | 207.7 | 208 | -0.3 | -0.14% | 2 |
| 23 | 8 | 301 | 306 | -5 | -1.66% | 3 |
| | | | | | | |
| Totals | 5.2 | 7581.1 | 7421.9 | 159.2 | 2.00% | |

**Table 5.** Raw data collected from a review of medical records of veterans who attended MOVE! Weight loss classes at the Topeka VA between April 5, 2012 and September 27, 2012.

Our efforts to establish a women veterans weight loss program have been successful and the initial class, rebranded as WOW! (Women only Wellness), will be on October 23rd, 2012. Like MOVE!,

WOW! will consist of eight sessions taught by a nutritionist, a psychologist, and an occupational therapist. The classes will be conducted in the women's health clinic at the Topeka VA and the basic MOVE! curriculum will be adapted to the unique challenges faced by female veterans. I am currently working with the women's health department on the final details of this program and will pass responsibility over to them completely at the end of my practicum.

## Discussion

Based on the data presented above, I consider this practicum a success. The increase in MOVE! participation may be due to several factors related to this project. Increased marketing efforts targeting the primary care staff at the Topeka VA Hospital have increased the visibility of MOVE! The first task completed during this project, the elimination of the requirement of a physician's referral to attend MOVE!, removed a significant barrier to participation. By allowing a nurse to make the referral, we have witnessed a steady increase in the number of new participants. According to the primary care staff, the reason for this increase in referrals is that previously, a clinical reminder notice would pop up on the physician's computer when he or she opened the patient's medical file. The time constraints on them forced them to focus on one condition at a time and the MOVE! notice was often closed with no action taken. Allowing nurses to make the referral reduces the number of tasks that a physician must complete during the patient encounter. A sample of the computer generated clinical reminder notice for veterans having a BMI of 25-29.9 and for those with a BMI greater than 30 are included in Appendix 2.

We have also changed previous organizational policy to now allow interested veterans to join MOVE! at any point during the eight week class cycle. By reducing the waiting time to begin MOVE!, we are facilitating the advancement of interested veterans from the contemplation stage of change to the action stage. Although this project followed a social ecological framework, understanding the stage of change regarding weight loss that a veteran is in is essential to getting them to commit to losing weight. The stages of change are an essential component of the Transtheoretical Model of Behavior Change first proposed by Prochaska (1997). This also increases our MOV6 measure of basic program participation as described previously in Table 1.

The data gathered during this project tends to support the fundamental program hypothesis that increased participation in MOVE! will lead to greater weight loss success. The strongest correlation in this data is between three or more MOVE! classes attended and average weight lost. Typically, I

would expect this trend to apply to veterans attending one or two classes, but the limited number of data points available in this analysis may have caused the anomaly illustrated in Figure 3. Looking at the data and having established a personal relationship with most of the participants, the high weight loss shown in Figure 3 for attending only two classes can be attributed to two of the participants contracting serious illnesses which were likely the cause of their significant weight loss. If this were a larger study with statistically significant numbers of participants, I would expect the data to show a consistent correlation from attending one visit through attending eight classes.

The increase in veteran participation from the baseline through the two eight week sessions that I participated in may also be a result of the increased level of organizational communication that I was able to implement. One of my duties has been to call veterans who missed a class that they had been scheduled for. Without a single exception, every individual that I called expressed gratitude for reaching out to them and most resumed their attendance the following week. Several told me that they had never received a phone call from the VA before, and the fact that I cared enough to check on them gave them hope that MOVE! could actually help them meet their weight loss goals. This change in program procedure has been so successful that it will continue after I am gone. This is an example of an organizational intervention, as well as an interpersonal intervention. Creating relationships with these veterans increased their perceived social support, as well as their perception of support from their health care organization.

My findings from this practicum are consistent with previous studies. The increased participation as a result of this practicum demonstrates the willingness of the Topeka VA to change organizational policies to facilitate participation. Weiner (2012) found that one of the key factors in successful MOVE! implementation was organizational readiness to change. They also found that a full-time program "Innovation Champion" was imperative to success. In effect, this has been my job over the course of this project, to advocate for and market the MOVE! program to patients and staff alike.

My efforts to establish a women's MOVE! program (WOW!) appear to be successful, but we have no data for that yet. The first class will be held on October 16th, 2012, and has eight female veterans scheduled to attend. The women's health department has supported this new program and is in the process of seeking federal grant funds to expand this program. I believe that this new program can be successful because, as noted by Rosenberger (2011), multilevel interventions are essential to

produce successful outcomes in the veteran population. WOW! includes interpersonal, intrapersonal, organizational, community and policy level elements.

Although I consider this project a success, there are some significant limitations. First, the short duration did not allow for adequate data collection. A total of 30 data points met my criteria for inclusion but this is not enough to meet the standards of statistical significance in calculating correlations between class attendance and weight loss. Another limitation is that the Topeka MOVE! program changed from a four week program to the current eight week format beginning with the April/May session. I used that session as the baseline data to compare to the two subsequent sessions in which I participated. There may have been an improvement in the program processes despite my efforts simply as a result of program staff getting more accustomed to the new format.

Kahwati (2011) found that 18.6% of MOVE! participants lost at least 5% of their total body weight six months after completing their last MOVE! class. This project did not encompass a six month follow up and with the data that met the inclusion criteria, the average weight loss after completing the program was 2% and 13.3% of participants had lost at least 5% of their initial body weight.

One of the objectives of this project was to increase the referral rate by primary care physicians. Within the first week of my project, we were able to eliminate the requirement of a physician's referral to participate. By doing so, measuring physicians' perceptions of the program became less necessary. The short duration of the project also limited my access to the primary care medical staff meetings. Only one formal meeting was held during my time at the VA so conducting surveys of the physicians was not possible.

I have really enjoyed my time at the Topeka VA Hospital. The increased participation in MOVE! has been rewarding and I have really enjoyed the relationships I have established with many of the veterans. My preceptor, David Scharpenburg, has been great to work with and we will continue to keep in contact, both personally and professionally. The veteran population can be a challenge to work with because they have so many confounding factors that contribute to their obesity. Most of the vets that I had contact with were appreciative of the support that I provided and expressed a high level of satisfaction with the MOVE! program. The medical staff was supportive and willing to support our program any way they could. The diversity of the veteran population makes the VA a great setting for conducting a MPH Capstone Project and I would recommend that individuals in the Physical Activity,

Nutrition and Food Safety sections of the MPH program consider working with the VA on their projects or theses.

In the future, I would like to see longer duration studies on the success of the MOVE! program in Topeka and across the nation. Although MOVE! encompasses nutrition, behavior modification and physical activity, there has not been an analysis of which of these components is the most important to weight loss success within the program. It would be interesting to look at outcome data for individuals who attended the classes on two of these areas but missed the third topic. I also expect further research into the success or failure of the WOW! program and how its outcomes will compare to MOVE!.

This project has been a great experience and I expect my professional relationship to continue with the Topeka VA Hospital. I would also like to see a formal affiliation established between Kansas State University and the Topeka VA to allow more students to continue the work that was began with the project.

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