

PREVENTION IN THE PRAIRIES: TOBACCO PREVENTION AND SODIUM REDUCTION
INITIATIVES IN KANSAS

by

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Abstract

As a Governor's Internship award winner, I had the pleasure of working as an epidemiologist intern in the chronic disease program within the Kansas Department of Health and Environment, Bureau of Health Promotion (KDHE). The Centers for Disease Control and Prevention (CDC) awards millions of dollars each year in grants to health departments across the country and KDHE was among the top recipients of grants this past year. Specifically, I was involved with two grants given to the chronic disease program to address the major issues of tobacco use and levels of sodium in diets. Tobacco is a leading cause of death and illness in this country and efforts need to be made in reducing this reality. Heart disease is the number one cause of death in the U.S. and is directly related to sodium levels. The main CDC funded project I assisted with was a chronic disease risk reduction grant regarding tobacco prevention and cessation among all age groups across the state. This project was a statewide initiative allowing each county or group of counties to propose their own programs to reduce tobacco use. It was composed of three stages: planning, capacity building, and sustainability and maintenance. For each stage, grantees proposed programs within their own communities to prevent and reduce tobacco use. The second CDC funded project I assisted with was an observational study of sodium intake in Shawnee County, Kansas. This project produced baseline data of sodium consumption patterns in the county. The study was composed of a telephone questionnaire, a 24-hour dietary recall, and ending with educating the participants of sodium amounts. As an epidemiologist intern, I evaluated data, compiled research information, and interacted with counties regarding initiatives. Both projects allowed me to use, in a state government setting, the skills and techniques I have learned in the MPH program. These public health issues are impacting the health of Kansans, and state and local health departments are utilizing these programs to increase public awareness and decrease illness.

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I also want to acknowledge the individuals who have taught me so much in work, both here at Kansas State and at the KDHE. I would like to thank Dr. Brad White, Dr. Natalia Cernicchiaro, and Dr. David Amrine; I am very fortunate to have been able to work with all of you. I would also like to thank Dr. Ghazala Perveen at the KDHE; your guidance made my capstone so incredibly fruitful.

Dedication

I would like to dedicate this report to my late Grandfather Garvey and my parents, John and Patricia Garvey. Without these people, I would never have had the encouragement to work towards something I believe in. Love you all.

Chapter 1- Introduction to Public Health Methods

Health can be the biggest variable in an individual's life; it is continuously changing and can be influenced instantaneously. From foodborne illness outbreaks to an increase in coronary heart disease to fiscal responsibilities due to illness or injuries, health is constantly a factor that needs to be addressed. Public health examines the population as a whole to prevent illness or disease on the individual level. The World Health Organization (WHO) describes health as "the state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity."¹ Currently, the WHO is researching methods of joining public health with sustainable development. The WHO believes that a greener, healthier earth will lead to healthier individuals. They stated that, "A healthy environment is a prerequisite for good health."² Evident in the previous statement, the WHO is approaching health on a global level. The Centers for Disease Control and Prevention (CDC) take the WHO's fundamental, global idea of health and focuses its attention at the national level.

The CDC considers health risk factors of all varieties, and impacts many fields of public health. Currently, the CDC funds multiple programs across the country to lower the effect of illness or injury on Americans. The CDC conducts research programs ranging from arthritis awareness to tobacco control programs to overdose prevention. In the state of Kansas the CDC is conducting a National Tobacco Control Program (NTCP) of which I was fortunate enough to assist while interning at the Kansas Department of Health and Environment (KDHE).

The KDHE Bureau of Health Promotion works to make major strides in the advancement of health within Kansas to influence the entire country. The KDHE's main goal is to promote the

¹ Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948

² "The Future We Want: A Healthier Planet." WHO. N.p., 19 June 2012. Web. 01 July 2012. <http://www.who.int/mediacentre/news/statements/2012/rio20_20120619/en/index.html>.

health of its residents while protecting them from disease, illness, and injury.³ The KDHE separates environmental factors from health factors to better focus their efforts in specific areas.

The segment of health at KDHE:

“collects, analyzes and publishes information on many aspects of the health status of Kansas residents. Assessment includes examining trends in health, disease and injury.”³

The KDHE takes this definition to heart when examining areas of impact on health within the state. The Bureau of Health Promotion focuses on specific impacts such as diabetes, chronic diseases (cancer or heart disease), injury prevention, and tobacco prevention and cessation.

As a population-based field, it is imperative to approach public health from various disciplines. There are many ecological frameworks and models examined in public health as a means to study health and behavior. Ecological models are based on the idea that health and behavior are influenced by many outside factors. The Social Ecological Model (SEM), also known as McLeroy’s Ecological Model of Health Behavior, examines the various levels at which an individual’s health may be impacted. The levels of influence described by the SEM are intrapersonal, interpersonal, institutional, community, and society.⁴ The SEM adequately illustrates the multi-disciplinary values on which public health is based. My time spent at KDHE illustrated the foundations of McLeroy’s Ecological Model of Health Behavior by addressing the state’s tobacco prevention and sodium reduction needs at each level.

For my field experience, I was placed on two different teams researching and compiling data for both a tobacco cessation grant for the entire state of Kansas and a sodium reduction study within Shawnee County. The tobacco prevention and cessation grant was a statewide

³ "Our Mission." Kansas Department of Health & Environment: Division of Public Health -. N.p., n.d. Web. 02 July 2012. <http://www.kdheks.gov/health/our_mission.html>

⁴ McLeroy, K.R., Bibeau, D., Steckler, A., & Glanz, K. (1988). An ecological perspective on health promotion programs. *Health Education Quarterly*, 15(4), 351-377. doi: 10.1177/109019818801500401

program encouraging every county to propose and enact new initiatives within their own communities to prevent tobacco use. This program was funded through the U.S. Department of Health and Human Services with each county having the option to match funds. This program took the fundamental ideas of the SEM by using a state program to influence health behavior at the community and interpersonal levels. The second program I was placed on was a cross-sectional study of sodium intake in Shawnee County. This study was one of three of its kind in the country; the other two were in California and New York. This project sought to educate individuals on the dangers of high sodium intake as well as to make them aware of its presence in many foods.

In this report, I will document my experiences as an epidemiologist intern at KDHE, and expand on the topics of tobacco prevention and sodium reduction. My position at KDHE exposed me to a side of public health that I had yet to experience. I was able to work closely with the bureau's health director and learn valuable skills from her. I was able to analyze data unlike that I had seen in class or in previous work experience. I took the lessons I learned in my classes and applied them in a government setting.

Tobacco has had a negative presence in our culture for decades. With the amount of information regarding the devastating health effects, it is important to educate as many individuals as possible regarding the side effects of its use. Tobacco use is a difficult habit to stop but there are numerous programs that aid individuals in the fight against addiction. In this report, I will review a few of these programs that are in place in the state of Kansas. Along with tobacco, sodium causes too many deaths per year.

Sodium seems innocent when examined in a small dose, however can cause major illness in large quantities over a lifetime. This unsuspecting compound is the root cause of many diseases that affect the heart. State and local governments are beginning to move forward in educating communities regarding sodium and Kansas is passionately involved in the efforts.

Chapter 2- Tobacco Prevention and Cessation

Section 2.1 - Introduction

Tobacco use is a leading cause of disease and illness in the United States. It is the most preventable cause of death among all age groups.⁵ Due to the prevalence and severity of disease, the CDC has introduced an Office on Smoking and Health to help combat tobacco use in the country.⁶ Currently, the CDC is conducting a National Tobacco Control Program (NTCP) across all fifty states and eight territories. The NTCP provides financial and technical support to all of its programs.⁷ The program has four goals:

1. "To eliminate exposure to secondhand smoke,
2. To promote quitting among adults and young people,
3. Prevent initiation among youth,
4. And to identify and eliminate disparities among populations."

Children, young adults, adults, elderly, and, even, buildings and structures are all affected in some way by tobacco use and are addressed in this report. I will also be presenting the different programs that aid in cessation for both insured and uninsured individuals in Kansas.

From mouth cancer to lung cancer to emphysema, tobacco is the recreational drug that is the root source of many debilitating illnesses. Secondhand smoke, alone, causes 1 in 5 deaths; and tobacco related healthcare costs exceed \$96 billion dollars annually.⁸ In the past ten years, many states have gone to great lengths to prevent and control tobacco usage in public places. In

⁵ Centers for Disease Control and Prevention. Centers for Disease Control and Prevention, 10 Apr. 2012. Web. 02 July 2012. <http://www.cdc.gov/tobacco/basic_information/index.htm>.

⁶ "National Tobacco Control Program." Centers for Disease Control and Prevention. Centers for Disease Control and Prevention, 15 Mar. 2012. Web. 02 July 2012. <http://www.cdc.gov/tobacco/tobacco_control_programs/ntcp/index.htm>.

⁷ "National Tobacco Control Program." Centers for Disease Control and Prevention. Centers for Disease Control and Prevention, 15 Mar. 2012. Web. 02 July 2012.

⁸ "Economic Facts About U.S. Tobacco Production and Use." Centers for Disease Control and Prevention. Centers for Disease Control and Prevention, 25 Apr. 2012. Web. 17 July 2012. <http://www.cdc.gov/tobacco/data_statistics/fact_sheets/economics/econ_facts/index.htm>.

Oregon, for example, the state health department is focusing efforts on lower income smokers and mentally disabled individuals. “In Oregon, people with lower income and lower education are three times more likely to smoke than those with greater resources.”⁹ Oregon enforced three new policy changes regarding tobacco use in mental health facilities; this was a huge milestone because there are few policies regarding tobacco and mental health facilities.¹⁰ In the state of Kansas, 18% of the adult population smokes and 12% of the youth population smokes.¹¹ Kansas is ranked twenty-third among the states for highest number of adult smokers.¹¹

The Chronic Disease Risk Reduction (CDRR) community grant program provides funding and technical assistance to Kansas communities to reduce chronic disease risk through evidence-based strategies that impact tobacco use, physical activity, and nutrition.¹² The CDRR grant program is operated within the Kansas Department of Health and Environment Bureau of Health Promotion. I was placed on the committee to summarize and highlight the CDRR work taking place across Kansas during the 2011 state fiscal year (July 1, 2010 – June 30, 2011).

The grant program is structured to promote community progress in three progressive stages, from an initial planning phase to capacity building to sustainability and maintenance.¹² Tobacco control is supported through all phases of the program process; while physical activity, nutrition, and obesity prevention programming are secondary phases of the program. During each phase, the grantee is required to demonstrate the comprehensive activities with all outcomes before continuing onto the next phase. In state fiscal year 2011 (July 1, 2010 – June 30, 2011),

⁹ "Tobacco Control Integration Project (TCIP) | Tobacco Prevention." Tobacco Control Integration Project (TCIP) | Tobacco Prevention. N.p., n.d. Web. 02 July 2012. Page 2
<<http://public.health.oregon.gov/PreventionWellness/TobaccoPrevention/Pages/tcip.aspx>>.

¹⁰ Drach LL, Morris D, Cushing C, Romoli C, Harris RL. Promoting smoke-free environments and tobacco cessation in residential treatment facilities for mental health and addictions, Oregon, 2010. [Erratum appears in *Prev Chronic Dis* 2012;9. http://www.cdc.gov/pcd/issues/2012/12_0052.htm.] *Prev Chronic Dis* 2012;9:110080. DOI: <http://dx.doi.org/10.5888/pcd9.110080>.

¹¹ "Kansas State Highlights." Centers for Disease Control and Prevention. Centers for Disease Control and Prevention, 24 Feb. 2011. Web. 02 July 2012.
<http://www.cdc.gov/tobacco/data_statistics/state_data/state_highlights/2010/states/kansas/index.htm>.

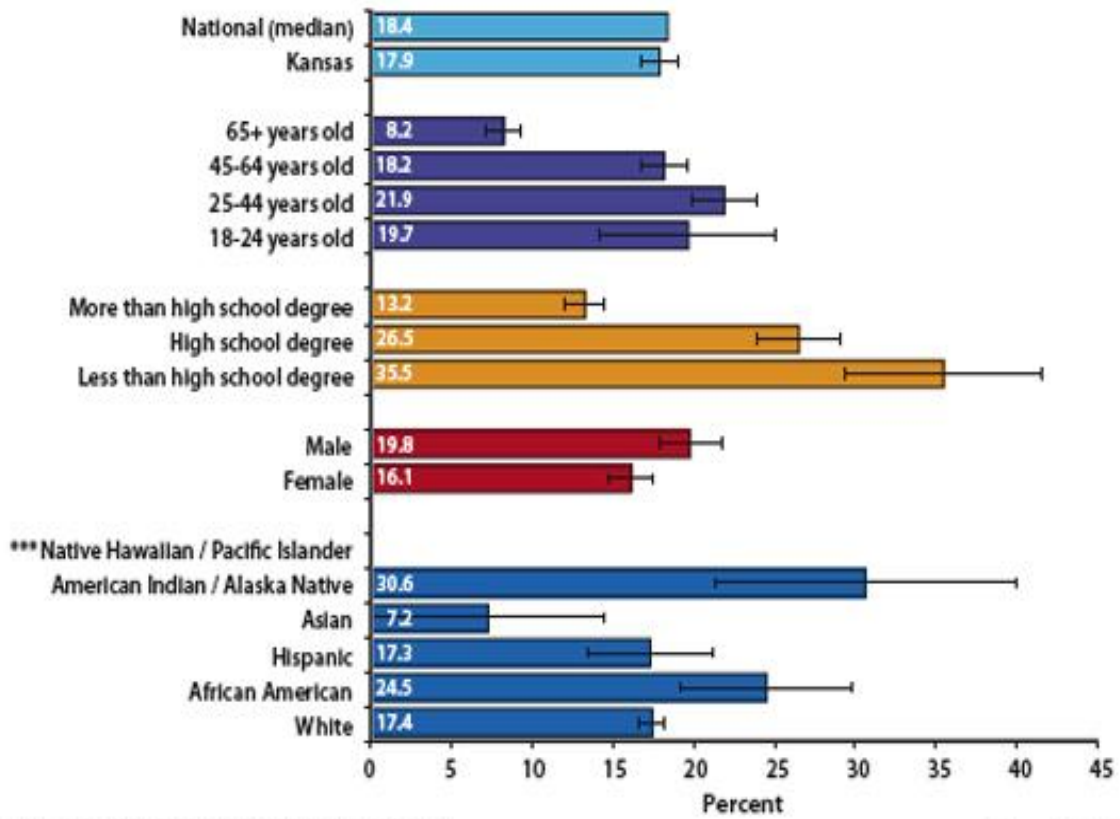
¹² "Chronic Disease Risk Reduction." *Kansas Department of Health and Environment: Aid to Local Agencies Document Library*. N.p., n.d. Web. 02 July 2012.
<http://www.kdheks.gov/doc_lib/ChronicDiseaseRiskReduction.html>.

through a combination of state funding and federal grants, funds available to local grantees totaled \$1,277,752. Grantees are required to provide a minimum 25% in-kind match, but many exceed this amount. During fiscal year 2011, grantees across the state raised \$544,077 in matched funding, producing a total of \$1,821,829.¹³

Figure 1 demonstrates the breakdown of Kansas smokers by demographic. As illustrated, the average number of adult smokers in Kansas is lower than the national average of adult smokers. The 24 – 64 age range does contain the most smokers in the state and in my opinion, cessation efforts should be focused on them. Especially individuals who have less than a high school degree should be addressed. In my opinion, a lack of health education could be attributed to a more than two-fold increase in adult smokers without a high school degree than those with more than a high school degree.

¹³ "Chronic Disease Risk Reduction." *Kansas Department of Health and Environment: Aid to Local Agencies Document Library*. N.p., n.d. Web. 02 July 2012.
<http://www.kdheks.gov/doc_lib/ChronicDiseaseRiskReduction.html>.

Figure 1. Current Smoking Prevalence Among Adults By Demographic Characteristics



*** Data not shown because sample size is less than 50.

Source: BRFSS, 2007-2008

In addition to the grant phase and area of focus, grantee activities can also be described in terms of the MAPPS¹⁴ (the five MAPPS categories are Media, Access, Point of Purchase, Price and Social Support and Services) strategy they employ and the program outcome they seek to achieve. MAPPS strategies are CDC approved evidence-based strategies to improve health behaviors through community environments for reducing tobacco use, improving nutrition and increasing physical activity.¹⁴ Each county or community chose a category and worked towards producing a successful initiative.

In the 2011 fiscal year, the CDRR program approved thirty-seven applications from local health departments and community based organizations. While most grantees implemented CDRR activities in one county, some provided services within a multi-county area as well as implementing more than one initiative. Consequently, the number of counties served by the CDRR program, forty-six, is higher than the number of grantees. These thirty-seven grantees undertook ninety-six activities across the state of Kansas. The scope and intensity of each activity varies by the size of the grantee population, funding and internal capacity. Because of these differences, it is difficult to compare one grantee's activities to another; however, each activity does represent a separate initiative for that area and a distinct opportunity for a healthier Kansas. There are three phases the grantees may choose from for their specific initiative. The phases are: planning, capacity building and implementation, and sustainability and maintenance.

¹⁴ "Community Health Assessment and Group Evaluation (CHANGE): Building a Foundation of Knowledge to Prioritize Community Needs." Centers for Disease Control and Prevention. February 07, 2012. Accessed July 02, 2012. <http://www.cdc.gov/healthycommunitiesprogram/tools/change.htm>.

Section 2.2 - Phase One: “Planning”

The first phase grantees may apply for is the “Planning” phase. In this stage, grantees form functioning, sector-diversified coalitions that are compliant with the CDC Community Health Assessment and Group Evaluation (CHANGE) tool, which are steps toward robust future community health interventions.¹⁵ The CDRR program recommends and provides technical assistance to grantees at all phases who undertake CDC’s CHANGE Tool.¹⁵ The CHANGE Tool meets CDRR’s community assessment needs by providing a community snapshot of the policy, systems and environmental change strategies currently in place and helps to identify areas for improvement. Once finished, the CHANGE Tool’s Community Action Plan directs communities toward activities as they work towards completing the future steps in the initiative.

All Planning grantees are required to complete the CHANGE Tool and grantees at more advanced phases are encouraged to complete more than one CHANGE Tool if their previous community assessment was conducted more than five years ago. State fiscal year 2011 was the first year the CHANGE Tool was included in the CDRR grant; therefore, very few of the organizations have advanced to the final step of the CHANGE Tool. It is vital to the grantees that they accomplish a successful planning phase in order to be able to advance in the initiative. Due to the fact that Kansas has become successful with implementing the CHANGE tool, they are seen as a leader in this program. Kansas is nationally recognized for its aid in the testing and creation of the CHANGE tool. A large number of grantees have successfully utilized the CHANGE tool in their assessments.

Table 1 presents the progress of all 34 grantees currently working on the CHANGE Tool. As shown, a majority of the counties have chosen to participate in steps 4-6; these steps are

¹⁵ "Community Health Assessment and Group Evaluation (CHANGE): Building a Foundation of Knowledge to Prioritize Community Needs." Centers for Disease Control and Prevention. February 07, 2012. Accessed July 02, 2012. <http://www.cdc.gov/healthycommunitiesprogram/tools/change.htm>.

focused on educating the community and schools. It is important to have information readily available for the public. This is especially true for young individuals. It is imperative to begin tobacco prevention programs at a young age. Steps 7 and 8 are adult-centered initiatives; these steps are rarely categorized in the planning step. In Cheyenne County, for example, grantees are focusing efforts on the tribal nations; a high majority of the adults are confirmed smokers.

Table 1. CHANGE Tool Status of Grantees in Kansas

County	Phase	Steps 1-3 *	Steps 4-6*	Steps 7 & 8 *
Allen	Capacity			X
Cherokee	Planning		X	
Cheyenne	Planning			X
Cowley	Planning	X		
Crawford	Planning		X	
Douglas	Capacity			X
Edwards	Capacity		X	
Ellsworth	Planning	X		
Finney	Implementation		X	
Ford/Gray	Capacity			X
Geary	Planning		X	
Grant	Planning	X		
Harvey	Capacity		X	
Jewell	Planning	X		
Johnson	Implementation		X	
Lane	Planning		X	
Lyons	Capacity		X	
Meade	Planning		X	
Miami	Capacity	X		
Mitchell	Capacity		X	
NEK	Implementation		X	
Norton	Capacity		X	
Ottawa	Capacity	X		
Pottawatomie	Capacity		X	
Reno	Capacity	X		
Republic	Planning		X	
Rooks	Planning			X
Russell	Planning		X	
Saline	Implementation	X		
Seward	Planning		X	
Sherman	Planning	X		
Shawnee	Planning	X		
Thomas	Capacity			X
Washington	Planning	X		

Source: BRFSS, 2007-2008

Section 2.3 – Phase Two: “Capacity Building”

The second phase grantees may apply for is the “Capacity Building” phase. Once grantees have progressed through the planning phase, they may apply for and undertake community-based primary prevention work in either the area of tobacco prevention or obesity prevention. Tobacco control phases are divided into three categories: preventing initiation of tobacco use among young people, eliminating nonsmoker’s exposure to secondhand smoke, and promoting quitting among adults and young people. Among the grantees, fourteen of them undertook initiatives to prevent smoking among young adults, seven of them sought to eliminate nonsmoker’s exposure to secondhand smoke, and thirty-two of them promoted quitting among young people and adults.

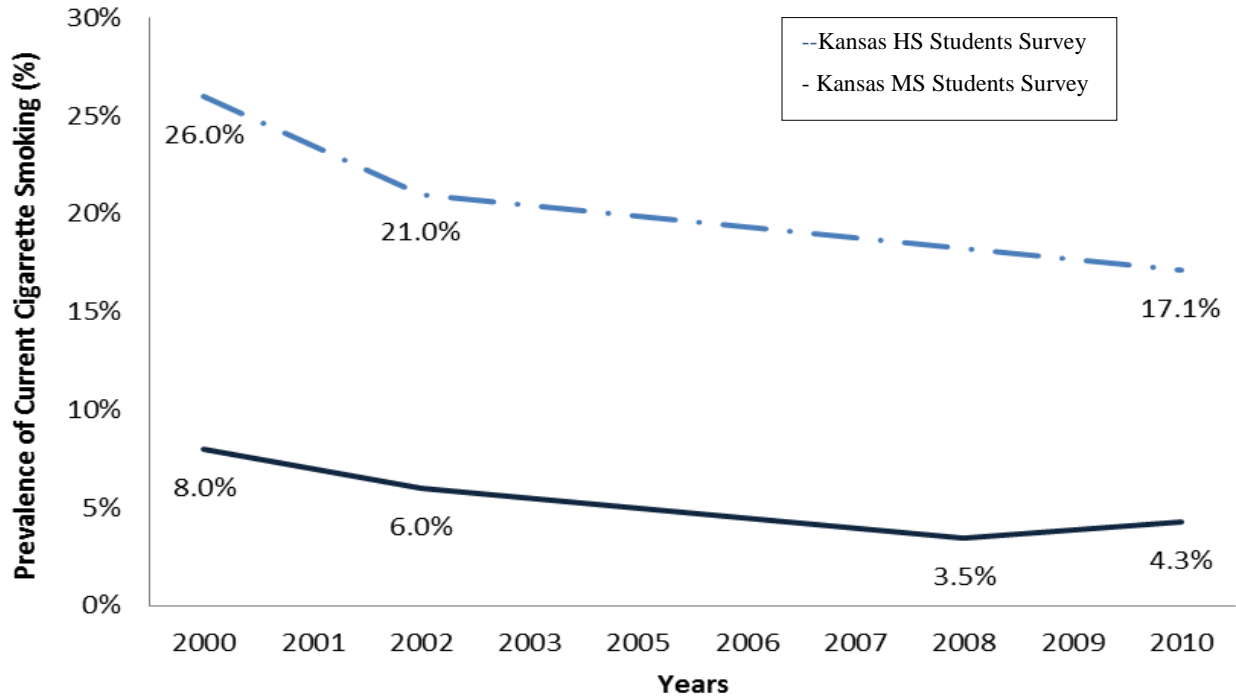
Many counties and communities have begun successful programs geared towards preventing children and young adults from using tobacco. In Ottawa County, 33% of schools have implemented a change in the system’s curriculum to increase the awareness of the devastating effects of tobacco use. This change has reached 340 students with anti-tobacco messaging. In Osage County, grantees have utilized the Respect Thy Neighbor toolkit which provided a blueprint for working with faith-based communities. They were able to develop contacts with the faith communities and religious leaders to promote tobacco-free school grounds. This is an example of grantees making grassroots connections for future school policy changes. The Northeast Kansas region—including Nemaha, Brown, Doniphan, Atchison, Jackson, and Jefferson counties—made great advances in their initiatives. A total of seven school districts and one community college passed comprehensive tobacco-free school grounds policies. In Cowley County, grantees have reported a 93% compliance rate among retailers who did not have staunch tobacco policies regarding minors previously in place.

All of the above counties had agreed that, at first, it was difficult to find school administrators who had the time to work towards new school policies. It is important that retailers check the age of young people who purchase smokeless tobacco. Grantees realized that working at multiple levels (student groups, teachers, and district administrators) within the schools achieved a greater impact. Grantees also found that working with the local health department aided with acquiring necessary information.

Figure 2 illustrates an increase in middle school males who use tobacco. This was largely due to an increased popularization of smokeless tobacco among young people.¹⁶ In many cases, smokeless tobacco is less obvious to school officials and harder to regulate. Also, many athletes in middle school and high school turn to smokeless tobacco while playing sports. In my opinion, if coaches are more aware of tobacco's growing presence and make a conscious effort to discourage their students, these rates will begin to decline. Coaches are often times a major influence on young men and could make a positive impact.

¹⁶ "THE KANSAS YOUTH TOBACCO SURVEY DATA HIGHLIGHTS." Kansas Tobacco Use Prevention Program. Accessed July 02, 2012. http://www.kdheks.gov/tobacco/download/YTS2010_FactSheet.pdf.

Figure 2. Kansas High School and Middle School Smoking Prevalence, Youth Tobacco Survey



Source: BRFSS, 2007-2008

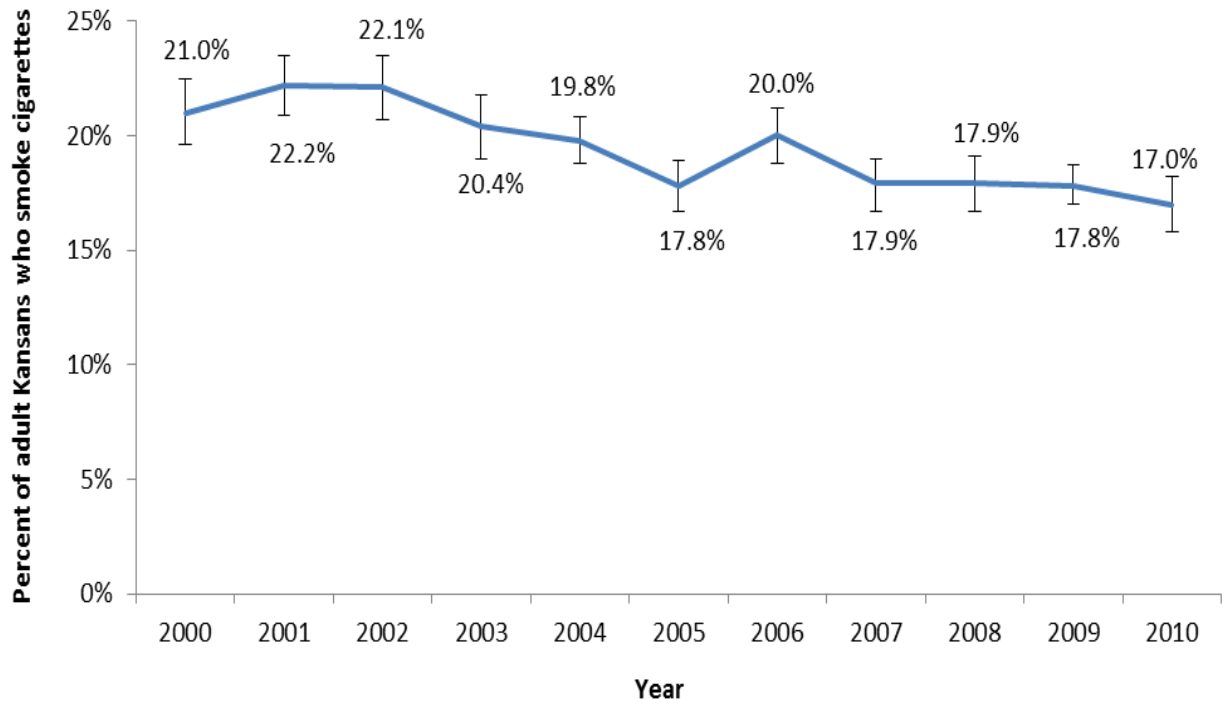
In 2010, the Kansas Indoor Clean Air Act prohibited smoking in restaurants, bars, taxicabs, lobbies, and places of employment. The purpose of the act was to “protect the public health by reducing the exposure to secondhand smoke in public places and places of employment.”¹⁷ Before the act became law, the percentage of indoor Kansan workers who smoked was higher than the national average.

Thanks to the Kansas Clean Air Act, the number of individuals being exposed to secondhand smoke has begun to decline. The Kansas Clean Air Act is an example of the second phase of the grant: “Capacity Building.” Grantees are actually influencing communities and lawmakers. Because of the new regulations in place, grantees were not sure how to approach initiatives influencing secondhand smoke.

Figure 3 shows a decline in smokers that will lead to a healthier, safer Kansas. In my opinion, more education and readily available programs have brought about a necessary decline in Kansas smokers. Besides human health, tobacco use can affect structural stability. A reduction of smokers, specifically indoor smokers, can reduce millions of dollars in building damages spent every year. After this program, it will be interesting to see how this graph is impacted. This figure also gives hope for those exposed to secondhand smoke. Since 2006, the number of Kansans exposed to secondhand smoke has steadily declined.

¹⁷ "Kansas Smoke-Free: Frequently Asked Questions." *Kansas Smoke-Free: Frequently Asked Questions*. N.p., n.d. Web. 18 June 2012. <http://www.kssmokefree.org/FAQ.html>. Page 2

Figure 3. Percent of Adult Kansans Who Currently Smoke Cigarettes



Source: BRFSS, 2007-2008

Another strategy to reduce current tobacco use is eliminating the ability to smoke in multi-family buildings. Not only will tobacco use cause disease but it can also cause structural damage to buildings. Accidental fires due to unattended cigarettes and smoke damage are major concerns to building owners and community members. Structural damage has a major fiscal impact on communities and recently, smoking has become a root cause. In Sedgwick County, grantees worked with multi-family housing facilities to enforce regulations against tobacco use indoors. For existing buildings, grantees had to receive support from both tenants and facility management; this barrier caused some hindrance but did not keep grantees from working towards smoke-free housing. Sedgwick County is one of the only organizations taking on smoke-free housing in the state. Although not required by law to be smoke-free buildings, apartments and townhouses that do allow smoking can cause negative repercussions on public health, public safety, and fiscal responsibilities.

Section 2.4 - Final Phase: “Sustainability and Maintenance”

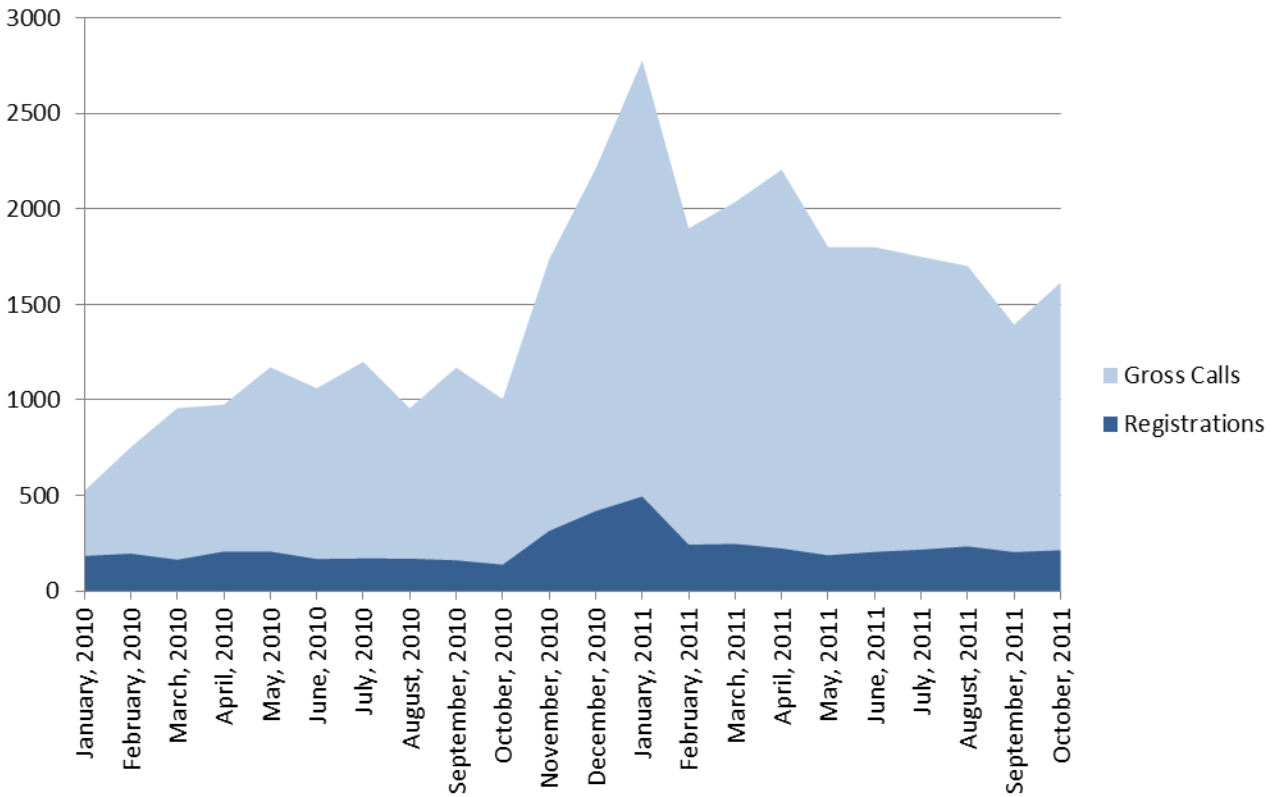
The last phase of the grant is “Sustainability and Maintenance.” The Kansas Quitline is a prime example of an initiative that can provide one-on-one telephone counseling to adult smokers who want to quit tobacco use.¹⁸ Grantees like to promote this cessation program as a means of sustaining a tobacco-free community. Many grantees who were not sure how to initiate policy or environmental work used the Quitline as a means to reach many individuals with cessation information.

The Johnson County Health Department partnered with Walgreens to promote the “Take Care” clinics to promote cessation materials and Quitline referrals.¹⁸ This was a smart partnership because most clinics aid individuals who might not have insurance or a primary care facility. This population typically has a higher rate of tobacco use and are not exposed to tobacco cessation programs; making this clientele ideal for Quitline. The Health Department plans to utilize this partnership to propose a corporate wide referral service to Quitline for tobacco cessation.

Figure 4 illustrates the productiveness of the Quitline service. Between the months of November and January, calls to the cessation program almost doubled when grantees began to promote this service as a means of tobacco prevention. In my opinion, “to quit smoking” is always a popular New Year’s resolution and this could be attributed to the increased call volume. It is encouraging to the program to see that during those months registration numbers increased as well. This proves that many individuals were not just calling for a “one-time fix.” Actually registering with the program shows that many individuals have a real desire to quit.

¹⁸ “Chronic Disease Risk Reduction.” *Kansas Department of Health and Environment: Aid to Local Agencies Document Library*. N.p., n.d. Web. 02 July 2012.
<http://www.kdheks.gov/doc_lib/ChronicDiseaseRiskReduction.html>.

Figure 4. Kansas Tobacco Quitline Gross Calls and Registrations by Month, Jan. 2010-Oct. 2011



Source: BRFSS, 2007-2008

For those individuals and businesses that do have insurance, it is important for them to understand and be aware of the cessation programs within their plan. Six grantees undertook initiatives to increase the provider's knowledge of the direct benefits of providing tobacco cessation to their employees. Workshops were provided for businesses who were interested in learning more about the benefits of providing tobacco cessation to their plans. Tobacco cessation should also be encouraged at the physician level. In Ellis County, four physicians have agreed to suggest the Quitline fax referral to patients who are regular tobacco users. This initiative will increase calls to the Quitline service and increase popularity.

Another subset to this grant was obesity prevention and nutrition health. These health indicators were added to the grant because they can be closely associated with tobacco usage and are, also, associated with chronic disease. In 2010, the Kansas Behavioral Risk Factor Surveillance System stated that 64.5% of all Kansas's adults are overweight or obese.¹⁸ Twenty-six grantees undertook initiatives to educate and help reduce this growing number. From promoting farmer's markets to building walking trails to encouraging breastfeeding for newborn's health, obesity and nutrition should be on all Kansans' minds.

Section 2.5 - Concluding Thoughts

In closing, all grantees had creative ways to reduce the number of smokers in the state of Kansas. It was advantageous to allow each county or community to approach tobacco prevention or cessation in its own way. Every county is different and has different needs; I believe that it was helpful to the program to allow each county to choose its own initiative. It is imperative that we allow each community to work towards their own of tobacco prevention program.

In the first phase, we saw a clear desire by many grantees to begin programs in their communities. Education is a key to preventing tobacco use. If we are able to evaluate communities and take note of what is impacting individuals the most, we are better able to influence individuals to lead a healthy life. The first phase is designed to be a platform for which communities can work from. Each grantee should develop an adequate history of the community that they wish to influence with new programs.

The second phase of the grant was executed by grantees that had already proven their knowledge of their community. Prevention, elimination of secondhand smoke, and promotion of smoking cessation are important among all age groups and this phase allowed grantees to choose an area that their community needed most help. It was encouraging to see many grantees proposed more than one initiative to be able to reach more individuals.

The final phase proved that you can change a bad habit. Through programs like the Quitline and “Take Care,” grantees were able to reach current smokers and provide them with encouragement to quit. Both programs were not dependent upon insurance status nor did they charge a fee. Becoming tobacco-free is a hard feat for many and positive encouragement is important to maintain cessation.

Although there were many successes, many counties did approach some barriers. However, grantees will be able to take these barriers into consideration when planning for the

next year's initiatives. It is important to continue many of these initiatives. Tobacco prevention and cessation will not occur on its own. Cutting funds for tobacco prevention would be devastating towards Kansas health. Tobacco use is a major issue in Kansas public health; health departments and lawmakers need to continue to make advances towards reducing its use in our state.

Chapter 3 - Sodium Reduction

Section 3.1 - Introduction

Sodium chloride is a prevalent, and often times necessary, element consumed in American diets. Elevated levels of sodium intake can have adverse health consequences. Sodium can be found naturally in foods; however, it is more commonly found as an additive. Sodium is found in nearly every manufactured food source as well as medications. Up to 75% of Americans' sodium intake can be attributed to processed foods.¹⁹ The highest prevalence of sodium can be found in manufactured foods: mixed dishes (pizzas, hamburgers, and pasta), meat and meat alternatives (chicken, cheese, bacon, and eggs), and grains (breads, rice, and pancakes).²⁰ Sodium is needed in small doses for preservation and taste; flavor is the most common purpose for high amounts of sodium in food. Sodium is used as an enhancer and preserver of many foods.

Too much sodium in diets can lead directly to cardiovascular disease and high blood pressure. Consumers should be cautious with their medications as well; they should consult a doctor regarding the sodium amounts in many over-the-counter drugs.²¹ Cardiovascular diseases are the number one cause of death worldwide.²² From elevated heart conditions to substantial health care costs, the public health impacts of elevated sodium levels are becoming a major concern. Although sodium intake is not of infectious concern, the chronic impacts on health may

¹⁹ Mattes RD, Donnelly, D. Relative contributions of dietary-sodium sources. *J Am Coll Nutr.* 1991 Aug;10(4):383-93.

²⁰ NHANES 2003-2006

²¹ "Sodium (Salt or Sodium Chloride)." *Sodium (Salt or Sodium Chloride)*. N.p., n.d. Web. 02 July 2012. <http://www.heart.org/HEARTORG/GettingHealthy/NutritionCenter/HealthyDietGoals/Sodium-Salt-or-Sodium-Chloride_UCM_303290_Article.jsp>.

²² He FJ, MacGregor GA. A comprehensive review on salt and health and current experience of worldwide salt reduction programmes. *Journal of Human Hypertension* 2008

cause devastating effects on the population. For the past 40 years, scientists and doctors have been on a tiring quest to reduce sodium in diets and have not been able to reach their goal.

Several examples of sodium reduction initiatives can be found across the country. From state-level actions on the eastern seaboard to the National Milk Producers Federation (NMPF), conscientious groups across the country are working towards a successful and sustainable sodium reduction level. Although there is not a federal law governing sodium amount in manufactured foods, the CDC is working towards educating individuals about the levels of sodium in their diets.

Sodium intake in the United States is well above the maximum daily suggested amount of 2,300 mg.²³ The CDC published a list of the ten most sodium-rich foods. The CDC has concluded that most sodium is consumed via restaurant and grocery store items, as in items which have salt previously added without consumer knowledge.²⁴ Since, sodium is a principal flavor enhancer in most pre-packaged foods; it is also a great preserving agent and utilized by many in the food industry.

In 2011, the CDC funded the Kansas Department of Health and Environment program, “2011 Sodium Reduction in Communities—Shawnee County Survey,” to perform a health risk study to better understand individual consumption of sodium. My second task while at KDHE was to analyze and research this data to establish baseline information. This program sought to achieve three tasks:

1. Calculate the sodium intake of the study participants,
2. Educate individuals about the hazards of high sodium consumption, and

²³ Moshfegh, A., J. Holden, M. Cogswell, E. Kuklina, S. Patel, J. Gunn, C. Gillespie, Y. Hong, R. Merritt, and D. Galuska. 2012. Vital Signs: Food Categories Contributing the Most to Sodium Consumption - United States, 2007-2008. MMWR. Morbidity and Mortality Weekly Report February 10, 92-98. <http://www.proquest.com.er.lib.k-state.edu/> (accessed February 29, 2012).

²⁴NINE IN 10 U.S. ADULTS GET TOO MUCH SODIUM EVERY DAY. 2012. US Fed News Service, Including US State News, February 8, <http://www.proquest.com.er.lib.k-state.edu/> (accessed February 29, 2012), 2-5

3. Recommend lifestyle changes.²⁵

It was necessary for the program to take a snapshot of the sodium intake in the county, to be able to steer its initiatives in the correct direction. The program needed to determine which groups were most affected by sodium in Shawnee County so that future initiatives to encourage sodium education would be successful. Education and recommendations are major facets of sodium reduction. With more knowledge readily available, individuals will be able to become aware of their own sodium levels. Through this program, we were able to produce data which could be used in future programs.

²⁵ Praveen, G et al., “2011 Sodium Reduction in Communities—Shawnee County Survey,” Centers for Disease Control Health Risk Survey. 2011

Sections 3.2 - Current Sodium Amounts in Diets

Mainstream news reports chronicling the prevalence of sodium in the nation's food supply have increased the movement towards reduction in diets. However, it is still difficult to warn individuals of the looming outcomes of high sodium intake and suggest diet changes when most of the population has been eating a certain way their entire lives. Because of its versatility, sodium can be found in products varying from bacon to ice cream to canned green beans.

The minimum amount of sodium that a body needs to function properly is between 180 mg and 500 mg per day.²⁶ In my opinion, this is an astounding difference between the Institute of Medicine's recommended intake of 1,500 mg daily and the maximum intake of 2,300 mg daily. African Americans, diabetics, individuals over 51 years of age, and chronic kidney disease sufferers should adamantly adhere to the 1,500 mg daily sodium intake.²⁷ Generally, if individuals are suffering from a suppressed immune system, their health will be easily influenced by extreme additions to their diet. When considering the amount of sodium that is added to pre-packaged foods, the amount used as table salt is a minuscule amount. In efforts to increase public knowledge of sodium levels, many organizations are taking steps towards approaching companies with sodium reduction suggestions. If companies begin to reduce the level of sodium in pre-packaged foods, individual intake will be reduced.

The NMPF began their initiatives in New York on reducing sodium levels in cheeses and cheese products. Salt plays a significant role in both cheese and butter production in regards to reducing pathogenic growth and spoilage. The NMPF is continuously researching methods to

²⁶ Institute of Medicine. Dietary reference intakes for water, potassium, sodium chloride, and sulfate. Washington, DC: National Academies Press; 2004, page 1

²⁷ U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary Guidelines for Americans 2010. 7th edition. Washington DC: U.S. Government Printing Office. 2010, page 21

lower salt without compromising taste.²⁸ Schools in particular need to begin to reduce caloric and sodium intake in provided meals. The Institute of Medicine for National Academies recommended reducing the threat of unhealthy, high caloric, and sodium rich meals in children's schools to establish a healthier diet routine.²⁹ Reducing sodium at a young age can drastically change the outcome of individuals when they are older. Both Vermont and Alabama have enacted initiatives regarding sodium reduction in school meals and vending machines. In Vermont, school meals are required to have 230 mg of sodium or less; and in Alabama, cafeteria lunches and vending machine meals are required to have less than 360 mg.³⁰

In order to determine the current sodium intake for Shawnee County, the KDHE sodium reduction program consisted of three steps:

1. A dietary and health questionnaire,
2. A minor physical, and
3. A 24-hour dietary recall.

The dietary recall program required participants to recall everything they ate and drank in the past 24 hours; a program would then calculate the sodium intake.³¹ The KDHE program did not account for added table salt when calculating sodium intake.³² Eight hundred participants accomplished each task, and later mailed the participants their sodium intake levels and sodium reduction information with consequential risks of a sodium-rich diet.

²⁸ National Milk Producers Federation." Sodium Reduction Initiatives. Accessed July 02, 2012. http://nmpf.org/washington_watch/nutrition/sodium.

²⁹ Nutrition Standards in the National School Lunch and School Breakfast Programs. 2012. The Federal Register / FIND January 26, 4088. <http://www.proquest.com.er.lib.k-state.edu/> (accessed March 1, 2012), 1-3

³⁰ "Sodium Reduction." Centers for Disease Control and Prevention. April 13, 2012. Accessed July 02, 2012. http://www.cdc.gov/phlp/winnable/sodium_reduction.html.

³¹ Stumbo, P., R. Weiss, Newman, J. Pennington, K. Tucker, P. Wiesenfeld, A. Illner, D. Klurfeld, and J. Kaput. 2010. Web-Enabled and Improved Software Tools and Data Are Needed to Measure Nutrient Intakes and Physical Activity for Personalized Health Research1-3. The Journal of Nutrition 140, no. 12, (December 1): 2104-15. <http://www.proquest.com.er.lib.k-state.edu/> (accessed March 12, 2012).

³² Praveen, G et al., "2011 Sodium Reduction in Communities—Shawnee County Survey," Centers for Disease Control Health Risk Survey. 2011

The United States Department of Agriculture and the United States Department of Health and Human Services emphasizes:

“While nearly everyone benefits from reducing their sodium intake, the blood pressure of individuals, most at risk, tends to be even more responsive to the blood pressure-raising effects of sodium than others; therefore, they should reduce their intake to 1,500 mg per day.”³³

Because sodium has a dose-dependent relationship with increased blood pressure, a reduction in sodium would be the healthiest action. Often times in life, the most sensible choice is not always the easiest.

³³ U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary Guidelines for Americans 2010. 7th edition. Washington DC: U.S. Government Printing Office. 2010, page 24

Section 3.3 - Health Risks Due to High Consumption of Sodium

Chronic heart disease has been, and remains, the leading cause of death in America.³⁴

Observational data has shown a strong positive association between elevated sodium intake and high blood pressure.³⁵ Law, Frost, and Wald observed sodium levels among populations of varying communities and documented the variations.³⁵ In 2011, the First Lady, Michelle Obama, called for Americans to reduce sodium intake in order to reduce chronic heart disease, in her initiative *Let's Move*.³⁶ It is imperative that individuals acknowledge the high levels of hypertension in the U.S. today; one in three Americans has hypertension and half do not have their illness under control.³⁷

Continuing initiatives will give the CDC a better knowledge of what foods are contributing to elevated sodium levels. Programs and initiatives, such as the Institute of Medicine recommendations and the state requirements, are established as different ways to influence Americans into consciously reducing the amount of sodium in their diets. If Americans are given the actual amount of sodium consumed daily, they might make a conscious decision to cut back. If we can reduce the average amount of sodium in individuals to 1,500 mg we can prevent 16 million cases of high blood pressure in the country, and save an “estimated \$26 billion in health care costs.”³⁸

Besides hypertension, high sodium levels may increase the risk of diabetes, obesity, and kidney issues.³⁷ The National Salt Reduction Initiative (NSRI) is working towards making a

³⁴ Heron MP, Hoyert DL, Murphy SL, Xu JQ, Kochanek KD, Tejada-Vera B. Deaths: Final data for 2006. National vital statistics reports; Vol 57 No 14. Hyattsville, MD: National Center for Health Statistics; 2009, Page 5

³⁵ Law MR, Frost CD, Wald NJ. By how much does dietary salt reduction lower blood pressure? I—Analysis of observation data among populations. *BMJ* 1991;302:811-5.

³⁶ Title 3--The President - American Heart Month, 2011 - By the President of the United States of America. 2011. Federal Government Documents and Publications February 3, Page 2 <http://www.proquest.com.er.lib.k-state.edu/> (accessed March 6, 2012).

³⁷ CDC. Vital signs: prevalence, treatment, and control of hypertension - United States, 1999-2002 and 2005-2008. *MMWR* 2011;60:103-8

³⁸ "CDC Awards \$1.9 Million for State and Local Sodium Reduction Initiatives." Centers for Disease Control and Prevention. Accessed July 02, 2012. <http://www.cdc.gov/media/pressrel/2010/r101001.html>.

conscious reduction of salt in diets. The NSRI is a group composed of 85 local and public health departments working towards awareness of sodium levels and lowering sodium levels in processed foods.³⁹ Once the NSRI is able to prove success in its current departments, it will be able to continue its efforts into areas outside of public health departments.

³⁹ Gunn, J., N. Blair, M. Cogswell, R. Merritt, D. Labarthe, C. Curtis, J. Fasano, A. Neuwelt, and T. Popovic. 2012. CDC Grand Rounds: Dietary Sodium Reduction - Time for Choice. MMWR. Morbidity and Mortality Weekly Report February 10, 89-91. <http://www.proquest.com.er.lib.k-state.edu/>

Section 3.4 - Concluding Thoughts and Recommendations

Sodium will not be extinguished from diets; nor do we want to rid the nation of sodium. Consumers need to be aware of its presence and work towards minimizing the amount in their diets. In my opinion, Americans are ritualistic in their food habits; it will be an uphill battle against sodium reduction. Sodium should not be removed completely from diets; people need salt. However, Americans need to work towards influencing producers to cut back on increased amounts in foods so that individuals do not consume substantial amounts unknowingly.

If individuals are able to have the information regarding sodium content, they will be able to make more educated decisions. When the average sodium intake level is well above the 2,300 suggested maximum intake level, it is time to stop and take a look at what we are actually eating. In my opinion, it will be very important to slowly cut the sodium level down. Although low-sodium options are becoming more readily available, it will be important to continue to make steps towards reducing sodium added to foods. Continued reduction of sodium in foods will help with decreasing sodium levels in Americans, but education will continue to be needed to reduce illness.

The side effects to sodium-rich diets are devastating. Hypertension and heart disease are illnesses that have debilitating effects on individuals. If individuals want a healthier lifestyle, a conscious decision to reduce salt will be needed. There has been a real shift towards “living healthy” and high sodium intake levels need to be addressed when choosing to “live healthy”. With KDHE’s baseline data from this grant, public health officials are able to continue to collect data and initiate new programs that will be more specific to its community’s needs.

Public health officials need to influence consumers, producers, and law makers to bring forth this pressing health issue and work towards a healthier nation. Not only is this an issue of health but also fiscal responsibility; if sodium intake levels are reduced, millions of dollars can

be saved in health care bills from sodium related illness.³⁷ It will be a combined effort from different facets of health care to reduce sodium related disease, but can be accomplished and will save lives.

Chapter 4 - Conclusion and Summary

Reducing illness and disease among individuals will be a long and extensive task; physicians, scientists, and healthcare officials work lifetimes to achieve this common goal. No individual wants to be sick nor does any individual deserve to be sick. The ever changing contrast between health and disease will continue to keep investigators striving for a better understanding of both. The tobacco and sodium initiatives are just two examples of ways public health officials are encouraging a healthy way of life. Science is making advances daily; and with the programs the KDHE is working on, Kansas will be able to aid in a better understanding of health. Kansas is making great strides in reducing tobacco use and sodium consumption, but there is still room for improvement. Kansas is one of the leading states in both programs and should continue its efforts.

Continuing the CDC's initiatives will allow us to work towards reducing tobacco usage and work towards cessation. In the past sixty years, great strides have been made to reduce tobacco use. In the 1950s, doctors were telling their patients that smoking will not hurt your health, and now you are not allowed to smoke in almost any public area. In my opinion, educating individuals has been a great way to reduce tobacco use. Presently, we have to continue education efforts especially for smokeless tobacco. I have presented the many ways Kansas health officials are approaching smokers on different levels to produce successful outcomes. It is imperative that more schools have a tobacco-free policy in place. If children are taught about the dangerous repercussions to smoking, we might be able to decrease the number of future adult smokers. While for current smokers, it is important to advocate programs like Quitline and "Take Care" to provide encouragement and help. Kansas can become an example of tobacco reduction and the KDHE is working tirelessly towards it.

Although the CDC's initiative on sodium reduction is in its initial steps, the positive effects to sodium reduction will aid many individuals' health by reducing disease. As more states begin to enforce sodium level policies on the food industry, we should begin to see a reduction in many debilitating illnesses. Many people realize that in high amounts, sodium is dangerous; but actually making a reduction will be difficult. The sodium program was a great way to actually show individuals the amount of sodium in their average diet and give them information on reducing it. Continuing this grant will help educate many individuals regarding sodium intake; active reduction needs to take place. If we reduce salt at the macro level, health will increase on the macro level. Once more states begin sodium reduction initiatives I believe that the federal government will also form sodium reduction laws.

The experiences I learned in my capstone will have a great impact on my aspiring career. Working with the State epidemiologists allowed me to utilize the education I gained in the Masters of Public Health program, while continuing to learn from new "teachers." All of the epidemiologists I had the pleasure of working with truly understood the need to increase the state of health in this country. Tobacco and sodium have such a common existence in our society that often times we do not think about reducing our exposure to them. If we want to feel healthy then we need to make moves towards living healthy.

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