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Best Practices in Creating a Healthy School Lunch Program

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Best Practices in Creating a Healthy School Lunch Program

By

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requirements for the degree of
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Table of Contents

Abstract	1
Acknowledgements	2
Chapter 1: Introduction	3
Chapter 2: Analysis of Conceptual Context	6
Chapter 3: Methodology and Validity	25
Chapter 4: Results	30
Chapter 5: Summary, Recommendation and Conclusion	50
References	60
Appendices:	65
Appendix A	IRB Application
Appendix B	Consent Form
Appendix C	Research Survey Questions
Appendix D	Research Interview Questions

Abstract

Childhood obesity has become an epidemic in the United States. Diet is the most significant contributor to childhood obesity and a large portion of school children's calories are derived from school meals. This research project will seek to understand the school lunch program and what can be done to improve it. The research seeks to understand the current state of the school lunch program through literature review and surveys of schools. The research will include interviews with directors of nutrition from schools that have achieved best practices. It will focus specifically on improvements schools have made to their school lunches, the difficulty of each change, and how they were able to make the improvements.

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Chapter 1: Introduction and Purpose of Research

As parents we want to do everything that we can to insure that our children are healthy, safe, loved and protected. We want them safe from harm and provided with the best opportunities. That is certainly the way my husband and I feel about our two daughters. We provide them with a safe and loving home. We have well water in our home, so we have installed a whole house filtration system to provide them with clean water. We serve a home cooked meal for them most nights of the week, and we talk to them about making smart food choices. We live in a wonderful area with one of the best school districts in the State, so we assumed that the food in the schools would be well rounded and nutritious. When we examined the menu at the schools we found items such as: Pepperoni Pizza (500 calories per serving, 22 grams of fat and 22 grams of protein) and a Zesty Chicken Ranch Wrap (475 calories, 31.5 grams of fat and 24 grams of protein) (Mahtomedi, 2011). These two meals are a third to a half of a child's recommended daily consumption of fat (Mayo-Nutrition, 2011). We talk to our children about making healthy food choices at school and monitor their lunch purchases periodically to insure that they follow through. I believe that parents should be able to trust that schools are providing exclusively nutritious, healthy meals to all children.

One of the first papers that I wrote when I started my classes at St. Catherine University was on the childhood obesity epidemic. As a person who works in the healthcare insurance industry, I was concerned about the impact that this epidemic was having on our children and the overall cost of healthcare. According to Center for Disease Control and Prevention (CDC), over one third of the children in the United

States are overweight and nearly one fifth are considered obese. It is estimated that by 2015, one in every four children will be obese (CDC-Obesity, 2011). Additionally, one in three Caucasian children and one in every two African Americans and Hispanics will develop diabetes in their lifetime (CDC-Diabetes, 2011).

As parents, we have been careful to make good food choices for our family so that our children would not be part of these negative health statistics. As I have continued on my educational journey, I find myself drawn to child nutritional concerns. The following information solidified my direction. Diet is a major contributor to childhood obesity (CDC – Obesity, 2009). According to the United State Department of Agriculture’s 2007 School Nutrition Dietary Assessment Study, elementary students participating in the National School Lunch program consumed 100 calories higher than non-participating students. Among high school students participating, the difference was 265 between participating and non-participating student (Gordon & Fox). Based on this information, I felt that the best way to address the childhood obesity issue was to provide good nutrition through the vehicle that was the largest contributor to children’s nutrition, school meals.

I have found through my research that there are many organizations, such as The Alliance for a Healthier Generation (2011) and Let’s Move (2011), that provide the ‘what’ in creating a healthy school meal program but offer very little information on the ‘how’. They provide information to schools on what needs to be changed, such as adding salad bars or removing ala carte options. What seems to be lacking are the

methods schools can use to make changes and specific examples of what schools have done.

In order for schools to make the challenging move to a healthy meal program they must have the tools to make the changes. There are resources, such as, Ann Cooper's book, 'Lunch Lessons' and articles written by Brian Wansink, that provide schools with guides. However, schools need to understand what best practices look like on a local level. Through my research I hope to provide information to schools to help them understand what best practices in creating a healthy school lunch program looks like in order to help their schools create the best possible school meal program that provides children with optimal nutrition for their programs.

I believe the Five Practices that are outlined in the book "Leadership Challenge" by Kouzes and Posner (2007) are integral to any change model. The Five Practices are; 'Model the Way', 'Inspire a Shared Vision', 'Challenge the Process', 'Enable Others to Act', and 'Encourage the Heart'. In order to revamp a school lunch program, school leaders should also follow these practices. Schools cannot make the necessary changes to their meal program without challenging the current state. This is an example of Kouzes and Posner's 'Challenging the Process' (Kouzes & Posner, 2007). Schools would be challenging the process by creating new and innovative ways of providing healthy lunches to their students.

The purpose of my research is to provide a good understanding of the past and current state of the National School Lunch Program. In order to gain more detailed information I plan on surveying schools to determine the current state of school meals

in Minnesota. I will then use that information, along with my literature review, to determine which schools have developed best practices in creating a healthy school meal program. I will interview schools with best practices to determine the 'what' and the 'how' of their change plan. My plan is to incorporate those best practices into a guide for schools to develop healthy meals. Finally, I want to take this information and lay it out in a straightforward manner, a process, providing schools with 'how' to make a healthy difference in their school meal program.

Chapter 2: Analysis of Conceptual Context

In 2004, I was fortunate enough to attend the Sundance Film Festival. One of the hot movies of the year was a documentary entitled, 'Super Size Me' (Spurlock, 2004). Morgan Spurlock wrote, directed, produced and starred in the documentary. The film follows Spurlock over a thirty day period where he eats nothing but McDonald's fast food. In the film, Mr. Spurlock also provides some insight into the National School Lunch Program by showing two contrasting schools. One school was serving primarily processed meals, many of which were high in fat and calories. The other school, Appleton Central Alternative High School, in Appleton, Wisconsin, was able to make significant changes to their lunch program. Natural Ovens Bakery provided funding to the school and helped the school reduce fat, sugar, beef and processed foods. Appleton now provides more fresh fruits and vegetables. They removed candy machines and soda machines and replaced the soda with bottled water. According to the United States Department of Agriculture, a number of studies have shown that

schools have seen better test scores, reduced nurse visits and absences, improved student behavior, and all attributed to better nutrition (USDA – The Link).

I have been concerned with public school lunches for years and was very excited to see that some of my concerns were being addressed in this documentary. After the movie, Mr. Spurlock greeted and talked to people outside the theater. I was able to meet him and ask him why he decided to include information about the Federal School Lunch Program in his documentary. He said that he was concerned about what he had been hearing about the current state of lunches in the schools and decided to take a closer look. Through his research he was also able to find the Appleton school which had been able to change their program to provide children with healthy meals. He was genuinely concerned about school meals, and he energized many who attended the movie that day.

A significant reason for putting a focus on school meals is the childhood obesity epidemic in the United States. Research done at Southern Methodist University, funded by the U.S. Department of Agriculture, found that children who eat school lunches that are part of the federal government's National School Lunch Program are more likely to become overweight (Millimet, Tchemis, & Husain, 2009).

Childhood Obesity

Childhood obesity has reached epidemic proportions according to the Center for Disease Control and Prevention (CDC-Obesity, 2011). Childhood obesity is more prevalent in children of color and in girls of color in particular. According to the

National Health and Nutrition Examination Surveys (CDC-Prevalence, 2011), done in 2003- 2006, 17.3% of Non-Hispanic white boys are obese, 18.5% of non-Hispanic black boys are obese and 22.1% of Mexican American boys are obese. There was even more disparity in the statistics for girls; 14.5% of Non-Hispanic white girls are obese, 27.7% of non-Hispanic black girls are obese and 19.9% of Mexican American girls are obese. The NHANES surveys done in 1976 – 1980 and again in 2003 – 2006, showed that childhood obesity increased by 10.5% in children 6 – 11 years and by 12.6% in children 12 – 19 years (CDC-Prevalence, 2011). This creates a disadvantage for minority children from an early age by increasing their risks of disease due to obesity.

In addition, there is a higher prevalence of obesity in children from low-income families, “Children from low-income backgrounds are at greater risk of becoming obese. Poverty and obesity often go hand in hand because low-income parents may lack the time and resources to make healthy eating and exercise a family priority” (Mayo-Risk Factors, 2010). Underprivileged children already have disadvantages, such as, substandard housing, poor academic achievement, abuse and neglect, and physical health problems (APA, 2012).

There has been a substantial amount of focus nationally on the rising cost of healthcare, and obesity is a significant factor in the cost of healthcare. According to the Centers for Disease Control and Prevention, the United States spent \$147 billion treating obesity and related diseases in 2008 (CDC - Overweight, 2011).

Causes of Obesity

The primary causes of childhood obesity are (Mayo-Risk Factors, 2011):

- Diet – regular consumption of high calorie, high fat foods
- Inactivity – Less physical activity and more sedentary activities
- Genetics – There may be a predisposition of children of obese parents to be obese themselves
- Psychological – As a coping mechanism to stress or boredom
- Family – When parents don't make healthy food choices at the grocery store, children are more likely to eat unhealthy foods
- Socioeconomic – Low income parents may not have the time or resources to make healthy food choices, and local markets many times don't offer great choices

Diet is the most significant cause of childhood obesity. Though the other factors certainly play a role, intake of too many calories is the primary reason children are obese (Mayo-Risk Factors, 2011).

Health Implications

Childhood obesity has major short and long term health implications. According to the Centers for Disease Control and Prevention (CDC-Healthy Weight, 2011), the health risks associated with childhood obesity include psychosocial, cardiovascular disease, asthma, hepatic steatosis, and type 2 diabetes.

The long term effects are even more staggering. In addition to the effects listed previously, the National Institute of Health (NIH-Overweight, 2011) lists these additional diseases that affect adults who are obese: certain types of cancer, sleep apnea, osteoarthritis, gallbladder disease, fatty liver disease, and complications of pregnancy. There are also conditions that can result from the diseases mentioned previously, such as: chronic renal disease, stroke, diabetic neuropathy, and more.

Diet is one of the primary causes of obesity, and school lunches are a significant part of a school age child's diet. According to Agriculture Secretary, Tom Vilsack. "With many children consuming as many as half their daily calories at school, strengthening nutritional standards is an important step in the Obama administration's effort to combat childhood obesity and improve the health and wellbeing of all our kids." (USDA Unveils). Focusing on improvement of school lunches should make a significant impact on the obesity epidemic.

Stakeholders

There are quite a few stakeholders in providing healthy meals to children. Children of course are significantly affected because the calories and fats that they eat today have long term health implications. In addition, children who overeat and are obese are affected by the stigma of being overweight. Parents are affected because most parents want their children to be healthy and happy. Schools are affected because children are less attentive when they are eating unhealthy foods; schools see absences due to obesity related illnesses and are affected by children falling behind due

to gaps in attendance (Geier, Womble & etal, 2007). Companies and health insurance payers are affected by parents who are required to take days off of work due to their child's obesity related illnesses, as well as increased healthcare costs associated with obesity. Health care professionals are being asked to look for cost savings in the healthcare industry, and affecting a change in children's meals could certainly impact children's health and reduce healthcare costs. Federal, state and local governments are affected by the school meals. Illness due to childhood obesity affects healthcare costs in government healthcare programs such as Medicaid. Government agencies are employers, and all employers paying for healthcare are affected by the increased costs of treating illnesses related to childhood obesity. Finally, taxpayer dollars fund the National School Lunch program and therefore virtually everyone in the United States is affected by this issue.

Ethical Implications

The school lunch program is used more heavily by Non-Hispanic Blacks, Hispanics and Native Americans than by Non-Hispanic Whites or Asians. Non-Hispanic Blacks, Hispanics and Native Americans were also more likely to be participating in the free lunch program than the other ethnic groups (NHANES, 2011). In addition, students from low income families were more likely to use the program than students from higher income families (NHANES, 2011). Poor families are relying on the federal program to help them feed their children.

These statistics, coupled with the fact that Hispanic boys and Non-Hispanic and Hispanic girls have a higher obesity rate than white children, provide even greater reason to provide the healthiest choices possible through the school lunch programs (NHANES, 2011). Providing healthy school lunches clearly has both ethnic and socioeconomic implications.

For low income families the National School Lunch Program maybe a necessity whereas higher income families have a choice to purchase school lunches or to send a lunch with their child to school. However, regardless of a child's ethnicity or socioeconomic status, all should be provided with healthy lunches. Our children are our future, and they will also be the future obese adults if we do nothing to change the trend.

"People are never a means to an end, they are the ends" (Johnson, 153). Altruism is one of the 'Ethical Perspectives' outlined in 'Meeting Ethical Challenges of Leadership' (2009). I would define Altruism as helping others regardless of the cost. Though it is not realistic to think that the government can and will make changes regardless of the cost, I believe the cost savings of reducing the impact of the childhood obesity epidemic could help pay for the cost of providing nutritious lunches to all children. The National School Lunch Program has provided children with lunches that are not as healthy or nutritious as they could be. Low income families are particularly affected by this because of their need to rely on the school meals to feed their children. Based on the altruistic view, all children should be provided a healthy and nutritious lunch.

History of the National School Lunch Program

School lunches did not start out as a national program; they started as local programs, in cities and states. One example of a local program was the meal program started by the Children's Aid Society of New York in 1853. They provided meals to students attending a vocational school. Other local programs began much later, in the late nineteenth and early twentieth century. Two examples of these programs were in Philadelphia and Boston. These programs were established primarily to help the underprivileged. Originally the program was developed to target children who were not receiving enough calories and nutrition. Today we deal with the opposite problem of too many calories, but certainly nutritional value continues to be an issue (USDA-History, 2011).

During the Great Depression, the United States began to offer school meals to those in need. A law was passed in 1937, allowing schools to operate lunchrooms (USDA-History, 2011).

The early stages of the Federal program began, not in direct response to the need of the poor, but to help farmers by buying their produce through the commodities program. The commodities program essentially buys surpluses of produce to insure farmers are getting funds for their products and are paid a fair price. The commodity products were then provided, free of charge, to the schools by the Federal Government (Poppendieck, 2010, 47 -48).

The National School Lunch Act (79 P.L. 396, 60 Stat. 230) was not approved until June 4, 1946. "It is hereby declared to be the policy of Congress, as a measure of national security, to safeguard the health and well-being of the Nation's children and to encourage the domestic consumption of nutritious agricultural commodities and other food, by assisting the States, through grants-in aid and other means, in providing an adequate supply of food and other facilities for the establishment, maintenance, operation and expansion of nonprofit school lunch programs." (USDA-History, 2011) This declaration not only states that we should protect the health and well-being of our children, but goes on to say that food should be nutritious. This declaration was made 65 years ago.

Current State

Many of the lunch choices provided at my children's school, in Mahtomedi, Minnesota are high in simple carbohydrates and fats. This situation is present in many of our schools. Some of the choices at Mahtomedi Schools include: Sloppy Joes, Pepperoni Pizza, Italian Dunkers and Macaroni and Cheese. Given the choice between pizza and a salad bar, students don't always make the best choices. The National School Lunch Program nutrition requirements that no more than thirty percent of the calories come from fat are a weekly average. However, if children make a choice to have pizza every day, the National School Lunch Program requirements can't help them (USDA-NSLP, 2011). Many of the choices have a lot of simple carbohydrates, animal protein and fat. Simple carbohydrates, primarily considered bad carbohydrates, are

made up of small molecules of sugars that are easily digested and absorbed by the body. Simple carbohydrates are found in processed and refined sugars such as candy, table sugar, syrups, and soft drinks. The majority of carbohydrate intake should come from complex carbohydrates, such as; whole grains and legumes, and naturally occurring sugars rather than processed or refined sugars.” (NIH-MedicinePlus, 2011).

Schools can replace simple carbohydrates with complex carbohydrates. For example, white rice can be replaced with brown rice and soft drinks can be replaced with water and flavored, unsweetened, water. Making the shift from simple to complex carbohydrates takes minimal additional funding and effort but can make a significant difference in the health of the meals served in schools.

Following are two examples of meal choices at Mahtomedi Schools (Mahtomedi, 2011):

Food	Fat	Calories	Food	Fat	Calories
SW Chicken Salad	23.5	454	Stuffed Pizza	15.0	380
Mandarin Oranges	1.0	60	Banana	0	90
Vegetable Blend	3.0	30	Corn	2.0	60
Milk	2.5	80	Milk	2.5	80
Total – Lunch 1	43.0	964	Total – Lunch 2	37.0	885

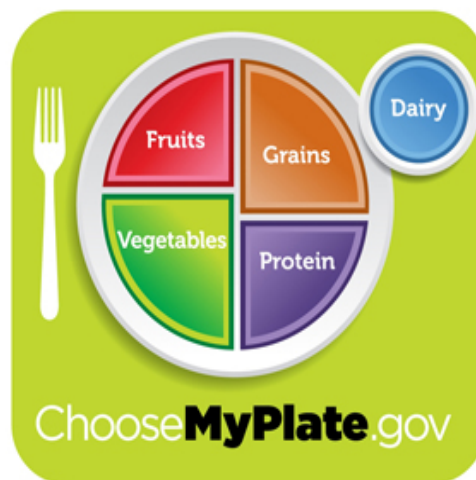
The recommended fat and calorie consumption for boys is 50 – 70 fat grams per day and 1800 – 2600 calories per day and for girls are 44 – 62 fat grams per day and 1600 – 2200 calories per day (Mayo-Nutrition, 2011). Therefore the two lunch

examples listed above make up half to a full day's fat grams for girls and over half of the recommended daily fat grams intake for boys. These meals do not promote a healthy diet.

All school lunch options should be healthy in order to insure our children with the most nutritious food possible. Certainly the lunches can vary in calories and fat but they should all be low in fat and provide no more than one third the calories recommended for daily consumption.

Dietary Requirements

In 2011, the National School Lunch program states expanded nutrient data that has been key to planning healthy meals that support the updated dietary guidelines and the MyPlate recommendations (USDA – Food Fact Sheets). This tool is vastly improved from the original tool but still has some gaps.



(MyPlate, 2011)

According to the Harvard School of Public Health, while the new 'MyPlate' icon is an improvement over the previous icons, it still does not give people the nutrition advice they need in order to choose a healthy diet. (HSPH, 2011). Harvard provides specific examples of the shortfalls of the new food guide:

- Grains – All grains are not alike, and the food guide does not provide this information. Whole grains (complex carbohydrates) provide much needed fiber and take longer to digest, which means they are not as easily turned into sugar and then fat.
- Fats – Fats do not appear on the food plate at all, which provides a mixed message. Should consumers eat any fats, and if so which ones should they eat? There are healthier fats, also known as unsaturated fats, such as olive oil and sunflower oil.
- Dairy – Dairy has a prominent place on the food guide, but dairy has not been proven to reduce osteoporosis and may increase the possibility of other diseases.
- Other – The new food guide doesn't address sweets, processed foods, and salt content. American citizens need to understand the impact these things have on their diet and how much of this food is appropriate to consume in a day.

The new food guide does give guidance on the number of servings that should be consumed each day for each food group but does not provide any assistance in

foods that are missing from the food groups, as listed above, leaving people unsure how much they should consume of each food group.

The National School Lunch Program notes on their website that school meals are required to provide no more than thirty percent of calories from fat (USDA-NSLP, 2011). Harvard School of Public Health indicates that this is an adequate guideline, but further stresses that those fats should come from fish oils, rather than red meats and unsaturated rather than saturated fats (HSPH, 2011).

Unfortunately, school lunch requirements to provide meals that are no more than thirty percent of calories from fat are weekly averages, but there are individual meals that have a much higher fat content than thirty percent. In addition, much of the fat is derived from red meats and unsaturated fats. As stated previously, fat derived from red meats and unsaturated fats should be significantly reduced or eliminated.

Organizations Making a Difference

A number of organizations have begun to address childhood obesity, and have been able to drive changes.

1) Michelle Obama made national news by launching her "Let's Move" campaign to curb childhood obesity (Let's Move, 2011). Let's Move has accomplished a number of initiatives to fight childhood obesity. Some examples include:

- Several of the largest food providers; such as, Sodexo and Aramark, are committed to improving the foods they send to schools by reducing levels of fat and sugar in foods and increasing whole grains

over the next five years and to double the fruits and vegetables over the next 10 years.

- Fruit and vegetable producers have committed to put salad bars in 6000 schools over the next three years.
- Almost 2,000 chefs have volunteered their time to schools through the Chef's Move to Schools program.
- Businesses, such as All-Clad, are donating money and resources to the Chef's Move to Schools program.

- 2) Chef Ann's 'Lunch Lessons' is providing schools with a guide on how to change school meal programs to provide children with healthy, nutritious and good tasting food. (Cooper, 2006)
- 3) Jamie Oliver's 'Food Revolution' television show has exposed issues with the school lunch program in the United States. Though Jamie Oliver's techniques are unconventional, he has educated and empowered people to speak up and do something about the issue of childhood obesity. (Jamie Oliver, 2011)
- 4) National Farm to School Network is a program that connects schools with local farms. Its objective is to provide nutritional, local food to schools and support local and regional farms in the process. The Farm to School Network now has over 2000 programs, up from just a handful in the 1990's. (Farm, 2011)

- 5) A component of Alliance for a Healthier Generation's program is The Healthy Schools Program which provides tools and solutions to help schools become healthier. (Alliance, 2011)
- 6) Physicians Committee for Responsible Medicine is a joint venture between the American Heart Association and the Clinton Foundation to reduce the prevalence of childhood obesity. They provide educational materials and solutions to improve children's health. They also present awards to schools that achieve specific criteria. (Physicians Committee, 2011)

These organizations are all committed to fighting childhood obesity. They all believe that creating healthier lunch programs is a key component in the fight against obesity. Finally, they emphasize educating, not only in schools, but in homes, about the importance of eating a healthy diet.

Solutions

There are many things that can be done to improve the National School Lunch Program and attack the childhood obesity issue. Some possible solutions include;

- Increase the amount of fresh fruits and vegetables served.
- Main dish vegan options are a great way to provide foods that are low in fat and high in fiber.
- Decrease or eliminate processed foods which are typically high in fat and sodium.

- Decrease the number of food options that include red meat, which is high in fat and cholesterol.
- Eliminate dairy products that have added sugars, such as flavored milk, and only serve low fat dairy products, and skim or one percent milk.
Reduce sodium content in foods.
- Provide more fresh food options which are not processed, are typically better tasting, and have higher nutrient content.
- Provide whole grain bread and pastas, which are high in fiber and have lower carbohydrates.
- Provide low sugar snacks.
- Eliminate sodas and fruit juices which are high in sugar.
- Provide low or no fat salad dressings.

These solutions are an accumulation of suggestions from Mayo (2011) and CDC (2011). Changes such as these would provide children with low fat, low carbohydrate, highly nutritious lunch food options.

Chef Ann, author of *Lunch Lessons*, writes about many things that can be done to improve the health of school meals (Cooper, 2006). Some of the major changes that she discusses in her book require legislative changes. However, she also provides ideas for change at the local and school district levels. She makes a clear distinction between “No” foods, food that should be rarely consumed and “Yes” foods, which are foods that are healthy and can be eaten regularly.

- Foods to Say 'No' to – Highly processed, high in trans fats, high fructose corn syrups, fried foods, foods produced with hormones or antibiotics and refined sugars and flours
- Things to Say 'Yes' to – Foods made from scratch, salad bars, gardening classes, cooking lessons, food tastings, 30 minute recesses

Although some of the ideas that Chef Ann provides require a major increase in funding, such as preparing meals from scratch at the schools, some can be done with little to no extra funding. In addition, school districts may obtain additional funding to assist them in creating healthier meals, such as special grants (Educational Leadership, 2011, 75 – 78). Examples of grants that are available to schools include; salad bars (through Let's Move), school food equipment (through School Nutrition Association) and educational resources (through USDA).

The Physician's Committee for Responsible Medicine (Physician's Committee, 2011) has recommended changes to the National School Lunch Program. They are recommending that low-fat vegetarian and vegan entrees be served regularly, and that low-fat vegetable dishes and fresh or dried fruits be served daily. They also recommended that the commodities program (foods donated to the National School Lunch Program by the United States Department of Agriculture - USDA) be restructured to include foods that offer health benefits to children. Among their recommendations is the USDA discontinue buying beef, pork, chicken, cheese, processed meats and other foods high in saturated fats. School districts belong to the National School Lunch Program for two important reasons: they get subsidies from the government for their

participation, and they receive free food from the commodities program. However, just because the schools can receive the free food through the National School Lunch Program, does not mean they should accept the food, given the concerns about the food that is available through the program (Physicians Committee, 2011).

The Farm to School Program is another way of providing fresh, healthy, plant-based foods to school children. The program connects schools with local farms to improve student nutrition, provide educational opportunities and support for local farmers. The Center for Food & Justice and the Community Food Security Coalition worked collaboratively on developing this program (Farm, 2011).

Providing healthier lunches is a solution that ultimately benefits everyone. Having healthier children translates into healthier and more productive adults and into lower health care dollars now and for the future. These ideas are not all new and are very straightforward. The challenge is for school districts to implement these healthy choices in a cost effective manner.

Leadership

In order to achieve change in school lunches, leaders need to be willing and able to affect change. The five practices of exemplary leadership, outlined by (Kouzes & Posner, 2007), are essential to effective leadership. Two practices are critical for school leaders working to change their meal programs. First, the school must 'Challenge the Process' to affect change. "All change requires that leaders actively seek ways to make things better, to grow, innovate and improve" (Kouzes and Posner, 2007, 164). School

districts need to look at the lunch program that they have, determine what things need to be changed and determine how they can make the changes. In order to do this they need leaders who are willing to challenge the status quo. The second practice that leaders in schools need to use is 'Enable Others to Act' (Kouzes & Posner, 2007, 221 – 270). Leaders need to provide the tools, such as a step by step guide on how to make healthy changes in the school lunch program. School leaders need to provide the support to allow their schools to effectively make the changes happen. A plan of action should be developed by the Directors of Nutrition in each school, in collaboration with the school administration and board. When funding is needed to support the changes, school administration and board members should help support the funding requirements. Finally, leaders in the community should be enlightened and engaged in this process so they can help support it.

Chapter 3: Methodology and Validity

Proposed Research Question

My proposed research question is: What is the current state of school lunch programs in Minnesota, and what are the best practices for developing a healthy school lunch program?

Proposed Methodology

I plan to answer my research question through two types of methodologies: school surveys and interviews. The purpose of surveys is to understand the current state of school lunch programs in Minnesota. The purpose of the interviews is to gain insight from change agents in schools that have instituted best practices to understand both what was accomplished and how it was accomplished. Understanding the 'what' and the 'how' will help other schools more efficiently maneuver the change to healthy school lunches.

The surveys will be sent to the directors of nutrition in the school districts in Minnesota using SurveyMonkey. SurveyMonkey is an on-line survey tool that sends surveys via e-mail. I plan to ascertain the current state of the meal program by asking questions that determine how often and what types of foods they currently serve. I also plan to ask questions that provide insight into what schools have done to improve their school lunches, using the criteria listed within the Solutions section of my paper.

Surveys will be left open for two weeks and a reminder will be sent one week after the initial email.

I will use the survey information to establish the number of schools in my sample that have made significant changes to their lunch program, and to determine the number and type of changes that schools have made to improve their lunch programs.

In my cover memo, accompanying the survey, I will outline the purpose of the survey. I will ask respondents whose schools have achieved at least half of the solutions, outlined in the Solutions section of my paper, to contact me to discuss the potential of an interview about best practices.

I will contact the directors in schools that have been called out by news media and other organizations, such as Alliance for a Healthier Generation and Physicians Committee for Responsible Medicine, as making significant changes in their lunch programs, to ask if they would be willing to participate in an interview. In my discussion with these directors I will verify that their district has made at least half of the changes outlined in the Solutions section of my paper and determine if they would be willing to participate in an interview. If I have more than six schools, I will reduce the number of schools by choosing schools that have made the greatest number of changes, outlined in the Solutions section of my paper. This will help focus on the schools that have truly implemented best practices. Once I have determined my pool of directors of nutritional services I plan to interview, I will schedule 45 minute interviews with three to six directors that have made a significant nutritional change to their school lunches. I will develop questions that will determine what each school

district did to make changes in the meal program and how they accomplished the change. I will obtain information about the financial impact of these changes, what changes they were able to do with little to no additional financial assistance and what, if any, took significant financial resources to accomplish. I will ask for any data needed at least two weeks prior to the interviews, to allow the director plenty of time to provide the information and to insure that the interviews are focused on how they were able to make changes to their lunches. If needed, I will ask for a follow-up phone call. I will offer the directors that I interview an executive summary of my thesis for their professional use.

I will use the interview data to determine what school lunch program changes these schools have in common. In addition, I will use the data to determine which changes had the greatest impact and how much, on average, the changes cost. I will categorize items that can be done with little to no cash outlay, vs. items that require substantial additional funds. I will also categorize items that take a great deal of system change versus those that are relatively straightforward.

I plan to use this research to determine how schools can effectively change their lunch programs. I would like to put together a guide for making changes that schools can use as a tool to assist them in making the change to a healthy school lunch. Why reinvent the wheel when others have preceded them in creating healthy school meal programs?

Validity

As a professional working in the healthcare industry and as a mother of two daughters attending public school, I have a great deal of passion and interest in making a meaningful change in the school lunch program. I acknowledge that I have prejudices and predetermined ideas on what I think my research might show. I have always considered myself a very ethical and honest person and therefore will strive for the highest level of integrity in writing my thesis. Recognizing my own biases, I will use three validity tests outlined by Joseph Maxwell to validate my findings and conclusions (Maxwell, 2005):

- Searching for Discrepant Evidence and Negative Cases - I would, ask others for feedback to check my biases and assumptions and flaws in my logic or methods.
- Triangulation - I believe that by doing an extensive literature review, surveying all school districts and interviewing three to six people, my data will be collected from a diverse range of people, using a variety of methods.
- Quasi-Statistics - I believe the data obtained through the surveys and interviews will have a quantitative component. The survey data will provide information on what the majority of schools currently provide in the way of school lunches and help determine how much more needs to be changed. The interview data will provide information about schools that have made significant changes and what was done to improve their lunches. This data will help me test my theory that many schools have not made the changes necessary to provide healthy meals to school children.

Finally, I will obtain feedback from my informal readers, my advisor and my formal readers after their review of my data collection and analysis. I will reduce the possibility of prejudices and misinterpretations of my data collection through these important independent people.

Summary

There is a childhood obesity epidemic in the United States that will continue to grow if nothing is done. The most significant factor in obesity is diet and a large portion of school children's calories come from the school lunch program. Therefore, making a difference in the calories and nutrition in school lunches is of utmost importance. Giving schools the tools needed to change the school lunch program will provide the guidance for schools to make the necessary changes.

Chapter 4: Results

My original research included surveys of Minnesota schools, as well as, interviews with schools identified as implementing best practices. The purpose of these research methods was to determine the state of lunch programs in Minnesota schools.

Interviews were conducted to determine how schools went from the existing program to implementing best practices. The ultimate goal was to compare and contrast the overall state with the ideal state of best practices.

Surveys

In order to send the surveys to the schools in Minnesota, I had to identify someone to work with at the Minnesota Department of Education (MDE). I called and emailed a number of people before identifying the appropriate person to work with at the MDE. The person that assisted me is the Supervisor of the School Nutrition Programs, Food and Nutrition Service at the MN Department of Education. The supervisor reviewed the survey I had developed and provided constructive suggestions for change. I updated the survey based on her feedback. She directed me to a web location that provided email addresses for all of the school districts in Minnesota, both private and public. The list included people in leadership roles at Minnesota schools. I then sent the survey on February 29, 2012, using Survey Monkey, to all 3,308 leaders on the list, with the exception of leaders from the six districts that I interviewed. Surveying and interviewing the same districts would have been a duplication of information. I included the following statement in my email, "Note: Please forward this

email to the person responsible for administering the School Lunch Program in your school(s).” The survey was left open for one week. There are 559 school systems in Minnesota and 215 people responded, providing approximately 39 percent response rate. This may be somewhat overstated if respondents didn’t follow my instructions.

Survey Description

My survey was a Cross-Sectional Survey conducted electronically. I designed the survey using 15 questions, including five demographic questions, two questions rating the past and present nutritional quality of their lunch program, one question rating the difficulty of making changes, five questions on the changes districts have made to improve their lunch program, one question asking them to rank the changes they made and one final open ended question (Fink, 2010). The questions in the survey were primarily multiple choice and ranking questions. Several of the questions asked the respondents to include text information if they checked the ‘other’ box, which allowed the respondents to provide more detailed information. The full survey is provided in Appendix C.

Key Survey Findings

In addition to the aggregate data, I analyzed the data in three different ways. I felt that the different slices of data could provide valuable information. Using these divisions, I had the following key findings:

1. School district student size:

- Respondents from schools with under 500 student enrollment had one to five years experience, whereas respondents from schools with over 500 student enrollment had an average of 10 years experience. This could be significant if experienced directors are more knowledgeable about how to accomplish the changes needed to make healthier lunches.
- There was a correlation between the size of the district and the food nutrition ranking they gave their school. The larger the district, the higher they ranked the nutritional quality of their lunch program.
- There was also a correlation between the size of the district and the person they identified as making the changes. In the larger the districts, the food service team was identified as initiating the change in their district, whereas, in smaller districts other leadership was identified as initiating the change. It is possible that the smaller districts don't have a nutrition director on staff and therefore other leadership is in charge of making such changes.

2. Percentage of children in the districts who receive free or reduced meals:

- The percent of free and reduced lunch was lower as the district size went up.
- The percent of school districts that obtained grants to fund the changes increased as the percent of free and reduced lunches increased. Schools

indicated that many grants have a high free and reduced lunch ratio as part of their criteria.

- Raising meal prices was consistently the number one way that schools indicated they paid for the changes to their school lunches. Schools that have under fifty percent (50%) free and reduced lunches chose raising meal prices as their number one choice between sixty three percent (63%) and eighty three percent (83%), whereas schools that have over fifty percent (50%) free and reduced lunches chose raising meal prices as their number one choice only forty eight (48%).

3. Urban, Suburban or Rural:

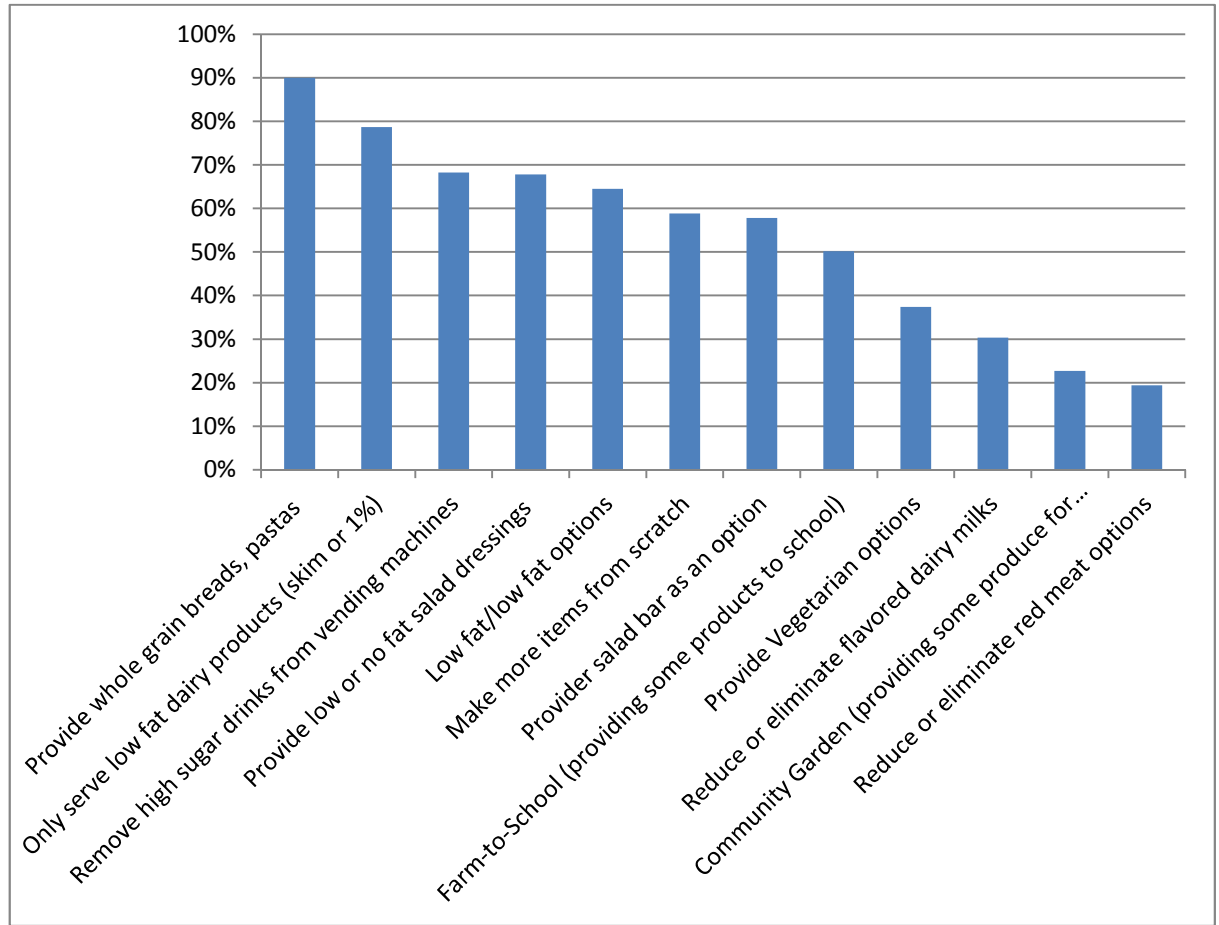
- Suburban schools found it most difficult to make the changes, whereas urban schools found it easier to make the changes.
- Changes in urban schools were most often initiated by food service staff and leadership, whereas, suburban and rural schools were initiated primarily by food service staff.
- The majority of urban schools required less additional funding to initiate changes. The majority of suburban districts needed more funding to initiate changes and rural districts were evenly split between needing more funding and not needing more funding to initiate the changes.
- When asked, "What were the most significant reason(s) for making the changes in your district?". the percent of schools that chose 'Concern for nutritional value of lunches for all children' was highest for urban schools

and went down slightly for suburban and again for rural, conversely the percent of schools that chose 'USDA requirements/recommendations' was low for urban schools and went up significantly for suburban and rural schools.

Aggregate data:

- Fifty percent (50%) of schools had over forty one percent (41%) of their students receiving free and reduced lunches.
- The changes that respondents felt had the greatest impact on overall nutrition were:
 - Provide whole grain breads, pastas
 - Provide salad bar as an option
 - Make more items from scratch
 - Only serve low fat dairy products (skim or 1%)

- When asked what changes the school districts made in their districts, the schools ranked their choices as follows:



- The majority of schools indicated that food service staff initiated the changes in their school lunch program.
- The division between schools that required additional funding to make the change to their school lunch program and those that did not require additional funding was split evenly at fifty percent (50%).

- The funding types used most often to make changes in schools were:

Raising meal prices	67.0%
Group purchasing/food buying group	42.9%
Shift in existing school budget	37.5%
Sales from a la carte products	33.0%

Survey Comments

The schools were given a list of potential changes to choose from but they were also given the option to list additional changes. Some of the most significant changes noted were;

- “fresh fruits and veggies each afternoon for snacks”
- “reduction of sodium in recipes”
- “no vending machines”
- “children can have as much fruits and vegetables as they want with no extra charge”
- “we have a sandwich/salad option at our secondary schools”
- “chef partnership”
- “we use a program that cooks from scratch and uses locally grown organic products”

Schools were asked to provide their funding source if they needed additional funding to make changes in their school lunch program. The additional sources that they listed in the other section were; Fresh Fruit and Vegetable Program grant,

Statewide Health Improvement Program (SHIP) funding/grants, and Healthy Food Financing Initiative, Farm to School, Midwest Dairy Council, Olmsted County Steps to Success program, medical foundations and other resources.

Schools were asked to list additional changes they would like to make in their districts. In addition to the choices provided in the survey, respondents also listed;

- “made to order sub sandwiches”
- “gluten free choices”
- “more time for students to eat”
- “more black, pinto and garbonzo beans”
- “increased variety of fresh fruits and vegetables”
- “develop easy, quick scratch recipes”
- “Chef to School”
- “second option reimbursable lunches”
- “reduce the amount of unnecessary food additives and preservatives, and reduce sodium”
- “need to be concentrating on educating parents”
- “kitchen prep space and time are the biggest factors that limit what our schools can do to improve nutrition”

Finally, in an open ended question, schools were asked to provide any other pertinent information. Here are some of the most interesting and intriguing comments;

- “we are working closely with University of Minnesota nutrition coordinator to get the kids to try new things, that has been a very positive experience for all”

- “the added fruits and vegetables from the Farm to School program have been a huge success, however, adding more beans/legumes has not been as popular”
- “foods that our students eat or don’t eat makes a dramatic impact on their behavior referrals and suspensions”
- “the Great Trays Partnership and training has made making changes easy for my staff”
- “our partnership with a local grower of produce”
- “the majority of successful changes have come from cooking more from scratch”
- “using raw unprocessed meats”
- “we are currently involved with ‘Chefs Move to Schools’ ”
- “we have worked with local chef from Indian Harvest for over a year developing recipes highlighting whole grains”
- it’s an exciting time for school nutrition programs”
- “need quality standardized recipes to increase consumption of legumes for students”

Interviews

Interviews were also used as a research tool. The interviews were conducted with the directors of nutrition in six school districts. These districts were identified as implementing best practices through articles written by the media and awards the schools received for the changes they have implemented. In addition, I identified other schools through snowball sampling in my initial interviews. Snowball Sampling is a

technique whereby the researcher asks a respondent if they know of anyone else that would be a good candidate to interview (Cambridge Dictionary, 2012). In this case, I asked the respondents if they knew of anyone else that had implemented best practices.

Nutrition Directors from six school districts in Minnesota agreed to meet with me and answer questions. All of the nutrition directors, with the exception of School District B (noted below), agreed to have their interview recorded. The interviews from all five of the districts that I recorded have been transcribed. In the interview with school district B, I took notes and subsequently typed up the notes. The school district names have been omitted to protect the anonymity of the directors interviewed. The school district demographic information is listed as follows:

- School District A
 - Mid-size suburban school district in St. Paul/Minneapolis metropolitan area
 - 34% of their students are receiving free or reduced lunches.
 - K – 12 student population is approximately 7,000
- School District B
 - Large urban school district in St. Paul/Minneapolis metropolitan area
 - 73% of their students get free or reduced lunch
 - K – 12 student population is approximately 37,000
- School District C
 - Mid-sized urban district in greater Minnesota
 - 32% of their students receive free or reduced lunches

- K – 12 student population is approximately 3,500
- School District D
 - Mid-sized suburban school in St. Paul/Minneapolis metropolitan area
 - 24 – 25% of their students receive free or reduced lunches
 - K – 12 student population is approximately 10,500
- School District E
 - Mid-size rural school district in greater Minnesota
 - 17% of their students receive free or reduced lunches
 - K – 12 school population is approximately 3,000
- School District F
 - Large urban school district in greater Minnesota
 - 22% of their students receive free or reduced lunches
 - K – 12 student population is approximately 16,000

Through my literature review, I compiled a list of best practices identified from several sources. In my interviews with the directors I asked what their district had done in each of these areas and that information is provided as follows:

Farm to School program – Purchasing from local farmers typically means the produce is fresher and better tasting. An added benefit to the Farm to School program is that the schools are buying local and consequently keeping the money local. All of the districts interviewed have initiated some form of the Farm to School program. One district in particular works with a single farm to grow a large amount of their produce.

Vegetarian options – Vegetarian options are naturally lower in fat and depending on the option, it can provide more fruits and vegetables. Most of the schools have provided a meatless option, alongside an entrée with meat. Many of the schools have initiated a broader array of choices.

Low fat/no fat options – Reducing fat in things such as sauces, gravies and salad dressings, removes empty calories and allows schools to meet United States Department of Agriculture guidelines. All of the schools interviewed have low fat options and a few have no fat options.

Increasing the number of items made from scratch – Many processed foods are high in fat, salt, sugar, dyes, etc. There is more control over the quantity of these ingredients when the foods are made from scratch. For instance, a packaged teriyaki sauce is typically high in sodium and sugar, whereas, a teriyaki sauce made from scratch can be much lower in sodium and sugar and reduces the amount of unwanted additives. All of the schools have been continuously increasing their menu items made from scratch.

Removing high sugar drinks from vending machines – All of the schools have removed high sugar drinks from their vending machines in the high schools and some have eliminated vending machines in elementary schools all together.

Salad or Fruit and Vegetable bar options – Providing children with salad, fruit and vegetable choices, increases the likelihood that children will make healthier choices. All of the schools provide either a salad bar or prepackaged salads. Two of the schools

have implemented salad bars, three are prepackaging salads and one school is serving a fruit and vegetable bar.

Low or no fat salad dressings – The schools have all moved to using low fat salad dressings. Only one of the schools uses no fat salad dressings. Most of the schools feel that the no fat dressings are too high in sugar and students don't choose them because they don't taste as good.

Eliminating dairy products with added sugars – Reducing the sugar content in dairy products cuts empty calories from student lunches. Two schools have eliminated chocolate milk, except as a treat one day a week. The other schools still serve chocolate milk but are working with the maker to reduce the sugar content.

Low fat dairy products (skim or 1%) – All of the nutrients that children obtain from milk can be achieved by drinking skim or 1% milk, thus avoiding the unnecessary fat in 2% or whole milk. All of the schools have moved to skim and 1% milk. None of them serve whole or 2% as an option.

Whole grain breads, pastas – Whole grains have been found to provide necessary fiber and more nutrients than their processed counterparts. The schools have moved to whole grain breads and pastas, where possible. They have also moved from white rice to brown rice and wild rice.

Reducing or eliminating red meat options – Red meats are higher in fat than white meat or fish. Most of the schools use more chicken, turkey and fish than red meat but they still use some government subsidized ground beef, etc. They use the meat to supplement their budgets. They remove the extra fat from ground beef after

cooking to reduce the fat. The directors feel that because this is not an everyday occurrence, that it is acceptable to continue to use this commodity.

In addition to the areas identified as best practices, the directors identified other ideas for change that they had implemented at their schools. Some changes were implemented by a number of the schools, while others were unique to that district.

The schools interviewed were working hard to come up with scratch recipes that their children would enjoy eating. They all had different ways of finding new recipes. Some of the districts have obtained recipes from the Great Trays Partnership which is run by the Minnesota Department of Health (MDH) and provides help to school districts trying to improve the nutritional value of school meals. Several districts have received recipes from staff, parents, and students and have modified them to be used in large quantities at the schools. In particular, School District B, has used ethnic recipes from staff that appeal to their more diverse population. Recipe contests were a popular theme in a number of the schools. The contests primarily involved food service staff competing with other schools in the district. They would do taste testing in their school and then the best recipes would be brought to the food service group to vote on. Recipe contests are a fun way to get school employees, as well as families and students, involved with recipe creation. School district D developed recipes and won an award through the HealthierUS School Challenge (HUSSC, 2012) which is under the United States Departments of Agriculture, Food and Nutrition Services division. HUSSC provides awards to schools that meet the criteria which include; student involvement, nutrition, creativity and originality, ease of use, and presentation.

Some of the recipes created by the schools include kale chips, turkey chorizo quesadilla's, roasted parsnips with sweet potatoes and onions, Hawaiian chicken wrap, broccoli coleslaw, and beef bulgogi.

Most of the districts have implemented food taste testing with their students. This not only provided insight into whether the new items would be something the students would eat but also gave students an opportunity to try new things. School District A calls it 'Food Coaching' where they have older students handing out samples and working with the younger children. This encourages the younger students to try the items because they look up to the older students. School District C calls their taste testing, 'Tasty Tuesdays' and has two older students, one in a tomato costume handing out the samples. They give stickers to kids that try the sample. If the samples are a hit with students, they are put on the menu. When added to the menu and kids try it again, they give out bigger prizes, such as; book marks and plastic wrist bands. School Districts D uses their student council to discuss ideas and taste new items. School District F brings together student groups to taste several items at once and get their feedback.

All of the Districts are doing some type of Farm to School program. They range from purchasing apples from a local grower, to a district that works with one farmer to provide a significant portion of the organic produce for the district. School District A, who uses one farmer, has a very collaborative relationship with the farmer. It is easier for the district because they only have one farmer to work with and the collaborative nature of the relationship means that the district can get what they want. Many

districts stated that Farm to School was difficult for a number of reasons; 1) Most farmers don't clean and process the produce, leaving the schools to do it themselves, 2) Processing in particular can be difficult for the schools, especially for hard to cut items such as squash, 3) It is difficult to work with many different farmers rather than one distributor. Many of the districts are getting local produce from distributors, such as Bix Produce or Upper Lakes Foods. The distributors help schools by purchasing local produce when they can and using other sources when they are not able to get locally grown produce. In addition, the distributors insure that the food is cleaned and processed.

There are other things school districts are doing to support local businesses. School District C works with a local milling company to mill the whole grain, which is then transported to a local bakery to make dinner rolls for the district.

Most of the schools have at least one school garden. The gardens in some cases are multifunctional; they provide educational opportunities for the schools, in the summer they can provide food for summer school programs or local food shelves and they can provide produce for the school in the spring and fall. At School District F they have a green house, where they produce lettuce for their schools. School District A has school gardens at the majority of their schools. School District A is taking some of the food produced in the School Gardens and creating Welcome Baskets for new families. The director from this district said of this practice, "What a wonderful welcoming gift!" They feel it not only is a wonderful way to welcome a new family but also is a great way to promote this program.

School district A has eliminated virtually all high fructose corn syrup and use of red and yellow dyes. Their concern with dyes was evidence that these dyes may cause cancers, attention deficit hyperactivity disorder, allergies, sleep disorders, and behavioral disorders.

Several of the districts mentioned that they had brought in a chef or were planning to bring in a chef to assist with menu development and staff training. The thought is that chefs have been specifically trained to create new recipes, not just follow recipes. They know how to use herbs in place of sodium, how to create lower fat, but good tasting sauces and how to present food so it looks appetizing. In addition, chefs have been trained in knife skills, which allow them to do their work more quickly and more safely.

All of the school districts made changes in the other area's previously outlined as best practices, including; provide vegetarian options, low fat and no fat options, removing high sugar drinks, salad bar or packaged salads, low fat salad dressings, low fat dairy products, whole grain breads and pastas, and reducing red meat.

School District's E and F provided nutrition information on much of their food products for students. School District F used software called NutriSys that generated nutritional information on their school meals and School District E used an algorithm that scored foods. The system was called NuVal and had been developed by a group of physicians and nutritionists.

The schools also have had other ideas that they had not yet implemented. One such idea that a director mentioned was they would like to do a community recipe contest, something like 'Chopped' on the Food Network. It would be a great way to get visibility and community support for the program. In addition it would be a fun way to get community involvement in the program. Another school mentioned they would like to provide staff education. She said, "I know that training isn't just about knife skills and how to use spices and cooking terminology, it's about what good nutrition really is and what it looks like and why. We've done a lot of education with our staff about that. Some other ideas mentioned by the schools included; reducing nitrates, all scratch cooking, compelling school principals and administrators to help, utilizing more deep green and orange vegetables and several mentioned bringing in a chef to create new recipes and teach culinary skills to the staff.

Key Changes

There were a number of changes that the directors shared with me that were key to their success in changing their programs to provide nutritious meals to the students in their districts. The key changes are listed as follows:

1. An essential component to all school meal programs was being profitable. If they are in the red, they cannot make the necessary innovations that they would like to make. So for some, the first thing they had to do was work with their current program and make adjustments to make it profitable. Once they were

able to make those changes and reach profitability, they could then work to build a healthy and nutritious lunch program.

2. Most of the schools said the salad bar and/or the fruit and vegetable bars were the most important change that they made. These changes provided a way for the kids to eat more vegetables and fruit. If children are eating more vegetables and fruits, they are eating less carbohydrates and fats. Another key component of getting the children to eat more fruits and vegetables was the placement of these items first in the lunch line, so it is the first thing the children see as they walk in the lunchroom.
3. The directors felt that moving to more scratch cooking was very important. Most processed foods are high in preservatives, trans-fats, sodium, and have artificial colors. Scratch cooking allows schools to eliminate the unhealthy ingredients prevalent in processed foods and include healthier ingredients.

Compare and Contrast

There was a considerable contrast between the school districts that I interviewed versus the schools that I surveyed. The greatest contrast was with the changes that the schools have been able to accomplish to date. The schools that I had interviewed had made changes in virtually all of the twelve areas I had listed as best practices, whereas the schools that completed the survey had on average made changes in fifty percent (50%) of the areas of best practice.

The school districts that completed the survey, in aggregate, gave themselves a ranking of eight, while the school districts that were interviewed, in aggregate, gave themselves a ranking of 8.6. This is not a significant difference considering the contrast between what the two different groups have accomplished in the way of best practices.

When asked what additional changes the districts would like to make, the schools that were interviewed listed new and innovative opportunities for change, such as planting an orchard, or removing nitrates, whereas the schools that were surveyed listed primarily things that were already noted in the list of best practices.

The schools that were identified as initiating best practices were true change agents. They not only looked for great ideas to implement at their schools but they initiated their own ideas. They were creative in their approach, thinking out of the box. These nutrition leaders not only 'Modeled the Way' but also 'Challenged the Process' (Kouzes and Posner, 2007). They Modeled the Way by helping their district move to a better, more nutritious lunch program and they 'Challenged the Process' by pushing for new and innovative ways of improving their lunch programs. The nutrition directors I interviewed were inspirational in their dedication and drive to push for improvement in the school lunch program.

Chapter 5: Summary, Recommendation and Conclusion

Nutrition is an important factor in the future of the United States. In order to remain competitive in the world, we need a healthy and productive workforce. Even more importantly, in order to improve the health of our children, we must provide them with healthy meals. Given the current state of our children's nutrition, we are on a trajectory leading to poor nutrition and health issues if there is nothing done to make lasting change. Teaching our children and families about proper nutrition is essential to reaching a better state of health and wellness. The National School Lunch Program, through the United States Department of Agriculture, has made great strides towards improving the nutritional value of school meals and putting a greater emphasis on nutrition in our schools. However, many of the changes are ultimately up to the school districts themselves. The school districts that have been able to make significant change have put an emphasis on nutrition in their schools and the nutrition directors have been a key driver in that change.

Through my interviews with nutrition directors and the surveys sent to school districts in Minnesota, I have found the following to be best practices and key to the success of any school lunch program. I have categorized these best practices into Just Do It's, which are things that can be done easily and for little money, low cost but more difficult to implement, and higher cost or difficult to implement.

Just Do It's – Lean process improvements include what are called Just Do It's. Just Do It's are things that are defined as easy, quick solutions that can make a

difference in improving the process. There are many things that schools can change that are simple but can make a difference in improving the nutritional value of lunches, some of the key Just Do It's are listed as follows:

- Provide vegetarian options – many schools have simply provided a meatless option along side of the meat option entrees. For instance, many provide a salad, with cheese as the protein component, vegetarian soy crumbles in spaghetti sauce (in place of ground beef), garden burgers, bean burgers, a cheese omelet, you do a veggie sandwich, a grilled cheese sandwich, bean burrito, bean taco and bean cheese lasagna. Other schools have started providing vegetarian options like a zucchini sauté with brown rice.
- Remove high sugar drinks from vending machines - most schools have already made this change to meet guidelines from the Alliance for a Healthier Generation. There has historically been a reluctance to shift to no sugar or diet drinks in vending machines because schools receive significant revenues from vending machines (Nakamura). However schools that have made the shift have found that students continue to purchase the beverages offered.
- Provide Low or No Fat Salad Dressings – There are a number of low and no fat options for schools to choose from. They are typically similar in price to the full fat dressings. The only difficulty is that at times they are

packaged differently, making it difficult to accommodate the low or no fat dressings in the dispensers the schools currently use.

- Provide only low fat dairy products – The vast majority of schools have converted to low fat dairy products. There is no cost impact and children seem to be able to adapt fairly easily.
- Eliminate flavored dairy products – Though most schools have not eliminated flavored dairy products, many have switched to low fat and lower sugar drinks. There have been varying data on the impact of elimination of flavored drinks on the overall consumption of dairy products in schools. However, the schools that have reduced the use of flavored dairy products have not found a significant reduction in dairy consumption. Schools are working with their dairy producers to lower sugar in flavored milks and yogurts.
- Recipe Contests – In order to move to more scratch cooking, schools need new, good tasting recipes that appeal to the children, otherwise the children won't eat the food. The schools have implemented a number of great ideas related to recipe development, some of those ideas are; recipe contests between food service staff between schools, recipe contests among all staff, and getting students involved in recipe development.
- Taste Testing – If students are involved with this program, it can be very inexpensive to implement. Some are done in the school cafeteria, while others are done through student councils or student groups. Whatever

way this is handled, it is a great way to get children to accept the meals being prepared.

Low Cost but More Difficult - There are some things that are more difficult because they take more time and effort but do not take significant revenues to implement.

- School or Community Gardens – School gardens are not expensive to implement because schools typically use existing, unproductive land and they don't take a lot of resources to initiate. The downside to school or community gardens is that they need a champion who is passionate about the endeavor. It takes a fair amount of work to initiate and to maintain a garden. They also need volunteers to assist with the garden and unless there is a consistent volunteer pool, it is difficult to maintain. Schools that have been able to get a champion and a consistent volunteer pool have had success with their garden(s).
- Reduce or Eliminate Red Meats – Schools have certainly reduced the number of red meat options by serving more chicken, fish and vegetarian dishes. However, eliminating red meats all together is difficult because of the hamburger and beef subsidies that schools receive from the United States Department of Agriculture. In addition, nutrition directors are concerned with students getting taste fatigue by limiting the options so drastically.

- Provide whole grain breads, pastas – Many schools have moved to primarily whole grain breads and pastas. In addition, schools have eliminated white rice and have replaced them with brown or wild rice. Whole grain breads and pastas can be purchased for close to the same price as white flour products and white rice.
- Chef to School – A number of schools have brought chefs in to help them with developing culinary skills. Not only can they help with recipe development, but they can also train staff on knife skills, and efficient food production. The chefs also know how to substitute herbs and spices in place of salt, thus reducing the overall sodium content in meals.

Higher Cost or Difficult to Implement – Finally, there are things that are more difficult and taken more monetary resources to implement.

- Profitability – The school lunch program is a self-funded program within schools, meaning that all of their funding comes from student payments and Federal reimbursements for free and reduced lunches. Therefore, in order to make sustainable changes the schools must first reach profitability.
- Farm to School – Most schools said that the Farm to School was more costly, although not significantly more costly. However, they did say that it had its challenges, such as, getting the farmers to clean and process the food. School District C said the following about Farm to School, 'So you just decide, it's more important for me to be involved in Farm-to-School

than the cost of everything, the bottom line'. Some schools determined that it was easier to work with a food distributor, not only because they offer cleaned and processed the produce but they were able to get different produce from their farmers and so there was a wider variety to choose from. In addition, schools had an easier time getting the quantities that are needed to feed their students.

- Making more items from scratch – Making more items from scratch is more time consuming, so it is difficult for schools to move to all scratch cooking over night. It takes a significant amount of additional labor which in turn costs more. Schools that have been successful at doing more scratch cooking, have done so over time. The benefits of scratch cooking are better tasting and fresher food. In addition, schools can eliminate or reduce preservatives, such as nitrates; because they are serving the foods fresh and therefore don't need to preserve it. Schools can also reduce the use of sodium by using more herbs and spices to flavor the foods. Some great ways to initiate new scratch items in the schools were through recipe contests and taste testing new recipes. Schools created a lot of excitement through recipe contests and got student acceptance with taste testing the new items.
- Salad bar as an option – Some schools have successfully created salad bars and in a few cases, fruit and vegetable bars, however, there are some disadvantages to salad bars. The most significant drawback is the

cost to purchase the salad bar unit itself, which can cost as much as \$12,000 per unit. Typically schools would need two to four units in order to keep their lines running smoothly. Another issue that was raised by a number of schools was lack of control over sanitation and food safety. Most salad bars are set up to be self-serve and therefore students could easily contaminate the food. Many schools have instead gone the route of prepackaged salads which takes a little more time to prepare but the food service has more control over food safety. Unfortunately, prepackaging the salads adds costs for the packaging and the resulting disposal.

- Recess before lunch – Recess before lunch allows kids to get their rambunctiousness worked out of them so that when they are more calm and ready to eat. It can be more costly to move recess before lunch because schools may need to remodel facilities to allow students to clean up after recess.
- Nutritional value of meals– Schools can provide parents and children with nutritional value of their meals through software systems that either provide the same information as the 'Nutrition Facts' that is listed on packaged foods or a nutrition value that provides a number 1 – 100, which is a score providing the overall nutritional value of the food. This is not only valuable to all families wanting to compare and make healthy choices, it is extremely important information for families with diabetic children, where it is crucial that they track food intake.

- Grants – While grants are not easy to obtain, there are a number of grants available to schools. Some of the grants that are available include; Healthier US School Challenge, Fresh Fruit and Vegetable Program, Statewide Health Improvement Program (SHIP), Midwest Dairy Council, Healthy Food Financing Initiative, Salad Bars 2 Schools, and Farm to School. There are many different organizations, both private and public, providing grants to school meal programs. While many target schools that have a high free and reduced lunch population, there are a number of grants that can be obtained by any district. The key is searching for the grants and having someone who can complete the applications.

The schools that have been able to achieve best practices have done so primarily because they have someone leading the way. The person leading the way in schools is typically the director of nutrition. The nutrition directors are knowledgeable, hard working and are dedicated to making school food as safe and nutritious as possible. According to the nutrition director at School District C, "We're always a group that is driven by data and by research and by medical science, to make changes that are appropriate along the way." Without someone to champion the way, these schools would not be making the tremendous strides they have made. Additionally, the federal government has initiated new standards that have gone a long way in requiring schools to change their programs, through incentives and disincentives. The key to attaining best practices is to be open to new ideas and willing to make change happen. The

schools achieving best practices are not necessarily making changes overnight but they have made steady progress.

The nutrition director from School District A summed it up very nicely when she said, "It's trying to help students be as healthy and happy as possible, because we know that people that are healthy and happy achieve more." The reason that these schools have been so successful is their focus on helping their students to be healthy and happy. It sounds so simple and yet it is not easy for schools to make the shift to healthier lunches under the challenges of funding their programs, scrutiny of the public, and children who refuse to eat the healthier options. It is difficult but the schools that have implemented best practices have made healthier lunches for the children in their district, proving that it can be done.

Regulation Changes

On January 26, 2012 new regulations were passed by Congress that will require schools in the United States to improve the nutritional value of their lunches. Most of the changes were identified in the 12 best practices I listed earlier. The rule requires that most schools increase the availability of:

- Ensuring students are offered both fruits and vegetables every day of the week;
- Substantially increasing offerings of whole grain-rich foods;
- Offering only fat-free or low-fat milk varieties;
- Limiting calories based on the age of children being served to ensure proper portion size; and

- Increasing the focus on reducing the amounts of saturated fat, trans fats and sodium.

The schools that I interviewed have already implemented most of the new requirements. Though these new regulations are important step in improving in the overall quality of our nations school lunch program, they fall short of providing the guidance to make lasting change in the school lunch program. Minnesota is fortunate to be ahead of these regulations but the rest of the nation is lagging behind in providing healthy school lunches for our children.

Summary

It is crucial for the health and welfare of our children and our country to provide healthy school lunches. The obesity epidemic will continue to grow and will cause significant health issues for our people. Without change our healthcare costs will continue to escalate and our working population will become less production. In order for the United States to continue to be a productive and viable nation, we need to insure that our children receive good nutrition, so they can become healthy, productive adults.

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Appendix A

IRB Application Form

SCU REQUEST FOR THE APPROVAL
FOR THE USE OF HUMAN SUBJECTS IN RESEARCH
2011-2012 APPLICATION FORM

APPLICATION DATA

Date of application: 11/18/2011

Indicate type of review: Exempt Expedited Full

For all exempt reviews, indicate which of the following categories apply:

- 1. Normal Educational Practices
- 2. Educational Tests
- 3. Survey/Interview Procedures
- 4. Observation
- 5. Secondary Use of Data
- 6. Evaluation of Federal Research/Programs
- 7. Taste Tests

APPLICANT DATA

Investigator name(s):
Connie M. Hakanson

Project Title:
Best Practices in Improving the Dietary Value of School Meal Programs

Advisor:
Martha Hardesty

Program:
Master of Arts in Organizational Leadership

Dates of Project:
1/1/2012 – 1/1/2013

Has this research been reviewed by another IRB? Yes No

Will this research be reviewed by another IRB? ____Yes __x_No
(If yes, please indicate your plans for review)

ABSTRACT

My thesis will attempt to answer the following question: What is the current state of school lunch programs in Minnesota, and what are the best practices for developing a healthy school lunch program?

I plan to answer my research question through two types of methodologies: school surveys and interviews. The purpose of surveys is to understand the current state of school lunch programs in Minnesota. The purpose of the interviews is to gain insight from change agents in schools that have instituted best practices to understand both what was accomplished and how it was accomplished. Understanding the 'what' and the 'how' will help other schools more efficiently maneuver the change to healthy school lunches.

The surveys will be sent to the director of nutrition in approximately 492 school districts in Minnesota using SurveyMonkey. SurveyMonkey is an on-line survey tool that sends surveys via e-mail. I plan to ascertain the current state of the meal program by asking questions that determine how often and what types of foods they currently serve. I also plan to ask questions that provide insight into what schools have done to improve their school lunches, using the criteria listed within the Solutions section of my paper. Surveys will be left open for 2 weeks and a reminder will be sent one week after the initial email.

I will use the survey information to establish the number of schools that have made significant changes to their lunch program, and to determine the number and type of changes that schools have made to improve their lunch programs.

In my cover memo, accompanying the survey, I will outline the purpose of the survey. I will ask respondents whose schools have achieved at least half of the solutions, outlined in the Solutions section of my paper, to contact me to discuss the potential of an interview about best practices.

I will contact the directors in schools that have been called out by news media and other organizations, such as Alliance for a Healthier Generation and Physicians Committee for Responsible Medicine, as making significant changes in their lunch programs, to ask if they would be willing to participate in an interview. In my discussion with these directors I will verify that their district has made at least half of the changes outlined in the Solutions section of my paper and determine if they would be willing to participate in an interview. If I have more than six schools, I will reduce the number of schools by choosing schools that have made the greatest number of changes (outlined in the Solutions section of my paper). This will help focus on the schools that have truly implemented best practices. Once I have determined my pool of directors of nutritional services I plan to interview, I will schedule 45 minute interviews with three to six directors that have made a significant nutritional change to their school lunches. I will develop questions that will determine what each school district did to make a change in the meal program and how they accomplished the change. I will obtain information about the financial impact of these changes, what

changes they were able to do with little to no additional financial assistance and what, if any, took significant financial resources to accomplish. I will ask for any data needed at least two weeks prior to the interviews, to allow the director plenty of time to provide the information and to insure that the interviews are focused on how they were able to make changes to their lunches. If needed, I will ask for a follow-up phone call. I will offer the directors that I interview an executive summary of my thesis for their professional use.

I will use the interview data to determine what school lunch program changes these schools have in common. In addition, I will use the data to determine which changes had the greatest impact and how much, on average, the changes cost. I will categorize items that can be done with little to no cash outlay, vs. items that require substantial additional funds. I will also categorize items that take a great deal of system change vs. those that are relatively straightforward.

I plan to use this research to determine how schools can effectively change their lunch programs. I would like to put together a step-by-step guide for making changes that schools can use as a tool to assist them in making the change to a healthy school lunch. Schools need help. Why reinvent the wheel when others have preceded them in creating healthy school meal programs?

SUBJECTS AND RECRUITMENT - SURVEY

Age Range of Subjects: 24 - 65

Number: 60 - 100 Total Surveys

Number: 3 -6 Total Interviews

Describe how you will recruit your subjects: be specific. Attach a copy of any advertisement, flyer, letter, or statement that you will use to recruit subjects.

Surveys - I will send an email using the following script:

I am a graduate student in the Organizational Leadership program at St. Catherine University. I am in the process of completing my thesis and as part of that thesis I am doing original research. I am sending surveys to all school districts in Minnesota to determine the current state of school lunches in Minnesota. I ask that for your cooperation in completing the survey to the best of your ability. The survey responses will be anonymous and therefore there is no information identifying the participants or their school districts. By completing this survey you are providing permission to use the data provided. I hope that you are willing to complete this survey to provide me with a better idea of the current state of school lunch programs in Minnesota.

For those of you who have adopted changes in at least 50% of the transformations listed below and are willing to participate in an interview, please contact me at 612-308-7042 or connie.hakanson@gmail.com

- Increasing the amount of fresh fruits and vegetables served.
- Provide main dish vegan options
- Decreased or eliminated processed foods
- Decreased the number of food options that include red meat
- Eliminated dairy products that have added sugars and only serve low fat dairy, skim or one percent milk.
- Reduced sodium content in foods.
- Provide more fresh food options
- Provide whole grain bread and pastas
- Provide low sugar snacks
- Eliminated sodas and fruit juices
- Provide low or no fat salad dressings.

Interviews - My initial recruitment for my interviews will be via telephone using the following script:

I am a graduate student in the Organizational Leadership program at St. Catherine University. I am in the process of completing my thesis and as part of that thesis I am doing original research. I am sending surveys to all school districts in Minnesota to determine the current state of school lunches in Minnesota. I am also conducting interviews with schools that have been identified as making significant changes in improving the lunch program in their district. Your school has been identified as one of the schools that have made significant improvements in your school lunch program and I would like to conduct a 45 minute interview with you to understand what you have done to change your lunch program and how you were able to accomplish this. All information will be kept confidential and directors/schools will not be identified. I hope that you will agree to participate in this interview.

Once I have scheduled an interview, I will send a confirmation to each interviewee, via e-mail, the date, time and location of our interview:

Dear _____

Thank you for taking time to speak with me about my thesis project. I appreciate your willingness to be interviewed as a subject matter expert for my original research of Best Practices in Creating a Healthy School Lunch Program. Your experience will contribute greatly to my thesis research.

To confirm, our interview will take place at _____(location), on _____(date) at _____(time) for our 45-minute interview.

I will e-mail you the consent form one week prior to our interview for your signature.

I look forward to meeting you and discussing the changes that your school has made in the pursuit of healthier school lunches. If you have any questions in the interim, please contact me at 612-308-7042 or connie.hakanson@gmail.com.

Sincerely,

Connie Hakanson

I will send a reminder of our meeting 3 days prior to the meeting to insure there is no confusion about the date and time we are meeting.

Will the subjects be offered inducements for participation? If yes, explain.
No

Please clearly identify any special populations or classes of subjects that you will include and provide a rationale for using them.

RISKS AND BENEFITS OF PARTICIPATION

Check all that apply. Does the research involve:

- Use of private records (medical or educational records)
- Possible invasion of privacy of the subjects and/or their family
- Manipulation of psychological or social variables
- Probing for personal or sensitive information in surveys or interviews
- Use of deception
- Presentation of materials which subjects might consider offensive, threatening or degrading
- Risk of physical injury to subjects
- Other risks

If any of these are checked, describe the precautions taken to minimize the risks.

List any anticipated direct benefits to your subjects. If none, state that here and in the consent form.

Not applicable

Justify the statement that the potential benefits of this research study outweigh any probable risks.

CONFIDENTIALITY OF DATA

How will you maintain confidentiality of the information obtained from your subjects?

I will keep all information gathered electronically on a computer with a secure password, in a password protected file. I will remove all identifying information, such as; interviewees names and school district names from my presentation or written materials.

Where will the data be kept, how long will it be kept, and who will have access to it?

I will keep all information gathered electronically on a computer with a secure password, in a password protected file. I will keep all data for one year.

Will data identifying subjects be made available to anyone other than you or your advisor? Who?

No

Will the data become a part of the medical or school record? If yes, explain.

No

INFORMED CONSENT

How will you gain consent? State what you will say to the subjects to explain your research. Attach consent form or text of oral statement.

Surveys - The survey will explicitly tell participants that their completion of the survey is their consent.

Interviews - I will obtain consent initially over the phone and will follow up with a written consent form either prior to or at the time of the interview. The consent form I will use is attached.

When will you obtain consent (that day?, several days before the project?, a week before?)?

Surveys - At the time the survey is completed.

Interviews - I will obtain consent over the phone initially. I will obtain formal/written consent either prior to or on the day of the interview.

How will you assess that the subject understands what he/she has been asked to do?

Surveys - I will make it clear to participants that they are in no way obligated to take the survey, but if they do complete the survey, they are providing their consent for me to use this information. It will also be clear to participants that the survey data is returned to me blinded, so their anonymity is guaranteed.

Interviews - At the time of our in person meeting, I will review the consent form with the participant and then ask if there are any questions.

ASSURANCES AND SIGNATURES

The signatures below certify that:

- The information furnished concerning the procedures to be taken for the protection of human subjects is correct.
- The investigator, to the best of his/her knowledge, is complying with Federal regulations governing human subjects in research.
- The investigator will seek and obtain prior written approval from the Committee for any substantive modification in the proposal, including, but not

limited to changes in cooperating investigators, procedures and subject population.

- The investigator will promptly report in writing to the Committee any unexpected or otherwise significant adverse events that occur in the course of the study.
- The investigator will promptly report in writing to the Committee and to the subjects any significant findings which develop during the course of the study which may affect the risks and benefits to the subjects who participate in the study.
- The research will not be initiated until the Committee provides written approval.
- The term of approval will be for one year. To extend the study beyond that term, a new application must be submitted.
- The research, once approved, is subject to continuing review and approval by the Committee.
- The researcher will comply with all requests from the IRB to report on the status of the study and will maintain records of the research according to IRB guidelines.
- If these conditions are not met, approval of this research may be suspended.

Note: Approval of your final proposal indicates that your advisor and instructor have signed off on the IRB at the departmental level. Therefore you do not need the following signatures on this form unless you need to send it on to the university review board.

As primary investigator, I understand and will follow the above conditions.

Signature of Investigator

Date

As Advisor or Sponsor, I assume responsibility for ensuring that the investigator complies with University and federal regulations regarding the use of Human Subjects in research.

Signature of Advisor or Sponsor

Date

(Student investigators must have an advisor. Staff and non-SCU applicants must have a departmental sponsor)

As Program Director, I acknowledge that this research is in keeping with the standards set by our program and assure that the investigator has met all program requirements for review and approval of this research.

Signature of Program Director

Date

Appendix B

Research Interview Consent Form

Research Study Title: Best Practices in Creating a Healthy School Lunch Program

Investigator: Connie Hakanson
612-308-7042
cmhakanson@stkate.edu

You are formally invited to participate in a research study investigating the best practices in creating a healthy school lunch program. I am conducting this study as a part of my fulfillment towards a master's degree in Organizational Leadership at St. Catherine University in St. Paul, MN. My research is being conducted under the supervision of Martha Hardesty, a faculty member at St. Catherine University. You were selected as a possible participant in this research because your school district has made significant strides in improving the dietary value of your district's school lunch program and you are seen as your school district's subject matter expert. Please read this form thoroughly, and contact me with any questions before you agree to be in the study.

Study Purpose:

The purpose of this study is to explore the best practices in creating a healthy school meal program. The goal of the study is to create a guide which outlines best practices that school districts could use to improve their school lunch program. I plan to interview 3 – 6 people from districts that have accomplished significant and sustainable changes in the dietary value of their lunch programs.

Procedures:

If you decide to participate, you will be asked to sign this consent form and agree to an interview session of 45 minutes. You will be asked a series of questions. If you are willing, I would like to record the interview but that decision is completely at your discretion. I will be happy to share an executive summary with you upon completion.

Risks and Benefits:

This study has minimal risks. There are no direct benefits to you for participation in this study, although, participation does allow you the opportunity to share your expertise in the area of the school lunch program which could help other districts achieve similar results. You may terminate the interview at any time for any reason.

Confidentiality:

Any information obtained in connection with this research study that can be identified with you will be disclosed only with your permission; your results will be kept confidential. In any written reports or publications, no one will be identified or

identifiable and only group data will be presented. All information from interviews will be presented in aggregate form only, and if necessary, pseudonyms will be used.

I will keep the research results in my home. My faculty advisor and I will be the only two individuals who will have access to the records while I work on this project. I will finish analyzing the data by May 2012. I will retain data gathered during this study for one year and will then destroy all original reports and identifying information that can be linked back to you.

Voluntary nature of the study:

Participation in this research study is voluntary. Your decision whether or not to participate will not affect your current or future relations with St. Catherine University. You are free to stop your participation in this study at any time without affecting these relationships.

New Information:

If, during the course of this research study, the investigator learns about new findings that might influence your willingness to continue participating in the study, you will be informed of these findings immediately.

Contacts and questions:

If you have any questions, please feel free to contact me, Connie Hakanson, at 612-308-7042 or via email at cmhakanson@st.kate.edu, or my faculty advisor, Martha Hardesty, at 651-690-6189 or via email at mehardesty@stkate.edu

You are encouraged to keep a copy of this form for your records.

Statement of Consent:

You are making a decision whether or not to participate. Your signature indicates that you have read this information and your questions have been answered. Even after signing this form, please know that you may withdraw from the study at any time.

I consent to participate in the study.

Signature of Participant

Date

Signature of Researcher

Date

Appendix C

Survey Questions

1. Is your school district in an urban, suburban or rural area?
 - Urban
 - Suburban
 - Rural

2. Please choose the size that best describes your school district.
 - Under 250 students
 - 251 – 500 students
 - 501 – 1,000 students
 - 1,001 – 2, 000 students
 - 2001 – 5,000 students
 - Over 5001 students

3. Please indicate which position you hold within your school district.
 - Food service director
 - Food service manager
 - Cook
 - Secretary
 - Business Manager
 - Bookkeeper
 - Principal or Superintendent

4. How long have you been in charge of the nutrition program for your school district?
 - 1 – 2 years
 - 3 – 5 years
 - 5 – 7 years
 - 8 – 10 years
 - Over 10 years

5. Please provide the percentage of children in your district that receive free or reduced price meals.
 - Under 10%
 - 11 – 20%
 - 21 – 30%
 - 31 – 40%
 - 41 – 50%
 - Over 50%

6. On a scale of 1 – 10, (10 being the best) how would you rank the overall nutritional quality of the lunches in your school district?

7. What changes has your district made to your school lunch program?

CHOOSE ALL APPLICABLE:

- Farm to School (provide some products to school)
- Community or School Garden (provide some produce for school)
- Provide one vegetarian options
- Provide Low fat/no fat options
- Make more items from scratch
- Remove high sugar drinks from vending machines
- Provide salad bar as an option
- Provide low or no fat salad dressings
- Reduce or eliminate flavored dairy milks
- Only serve low fat dairy products (skim or 1%)
- Provide whole grain breads, pastas
- Reduce or eliminate red meat options
- Other (please specify)

8. How difficult was it to make these changes, on a scale of 1 – 10 (10 being most difficult)?

9. Who initiated the changes in your district?

CHOOSE ALL APPLICABLE.

- School Food Service Staff
- Parent Teacher Organization
- School leadership
- Students
- Outside group
- Other (please specify)
-

10. Did the changes require additional funding?

- Yes
- No

11. If the changes required additional funding, what type of funding did your district use? CHOOSE ALL APPLICABLE.

- Shift in existing school budget
- Referendum
- Grants
- Sales from ala carte products
- Special events
- Catering
- Raising meal prices
- Menu substitutions
- Cycle menus
- Group purchasing/food buying group
- Portion size consideration
- Grants or Other (please specify)

12. Of the changes made by your district, which had the greatest impact on the overall nutrition of your lunches, using a scale of 1 – 10, 10 being the greatest impact?

- Farm to School (provide some products to school)
- Community or School Garden (provide some produce for school)
- Provide one vegetarian options
- Provide Low fat/no fat options
- Make more items from scratch
- Remove high sugar drinks from vending machines
- Provide salad bar as an option
- Provide low or no fat salad dressings
- Reduce or eliminate flavored dairy milks
- Only serve low fat dairy products (skim or 1%)
- Provide whole grain breads, pastas
- Reduce or eliminate red meat options
- Other (please specify)

13. What were the most significant reason(s) for making the changes in your district? CHOOSE ALL APPLICABLE:

- Concern for nutritional value of lunches for all children
- Issues with childhood obesity
- Improved attendance
- Improved student behavior
- USDA requirements/recommendations
- Other (please specify)

14. Are there additional changes your district would like to make?
CHOOSE ALL APPLICABLE:

- Farm to School (provide some products to school)
- Community or School Garden (provide some produce for school)
- Provide one vegetarian options
- Provide Low fat/no fat options
- Make more items from scratch
- Remove high sugar drinks from vending machines
- Provide salad bar as an option
- Provide low or no fat salad dressings
- Reduce or eliminate flavored dairy milks
- Only serve low fat dairy products (skim or 1%)
- Provide whole grain breads, pastas
- Reduce or eliminate red meat options
- Other (please specify)

15. Please provide any other information you think would be pertinent to this study.

Appendix D

Interview Questions

1. What was the state of the school lunches in your district before changes were made?
 - a. On a scale of 1 – 10, 10 being the best, how would you rank the nutrition quality of the meals in your school before changes were made? Why?

2. What changes were made to your school meal programs?
 - a. If not addressed, did they consider any of these programs, why/why not?
 - i. Farm-to-School (providing some products to school)

 - ii. Community Garden (providing some produce for school)

 - iii. Provide Vegetarian options

 - iv. Low fat/low fat options

 - v. Making more items from scratch

 - vi. Removed high sugar drinks from vending machines

 - vii. Salad bar as an option

 - viii. Provide low or no fat salad dressings

 - ix. Eliminating dairy products with added sugars

 - x. Only serving low fat dairy products (skim or 1%)

 - xi. Provide whole grain breads, pastas

 - xii. Reducing or eliminating red meat options

3. Why did the school choose the changes that they did?
 - a. If not addressed:
 - i. What order were changes made and why?

- ii. Were statistics on childhood obesity considered?
- 4. What steps did you take to make these changes?
- 5. Who initiated these changes and what kind of community support did you have?
 - a. If not addressed:
 - i. Initiated by PTO, School leadership, students, outside groups, etc.
 - ii. Were there PTO discussions on what to change
- 6. How did cost of changes weigh in to your decisions?
 - a. Were you able to secure outside funding to implement changes?
 - i. What type; grants, prizes, etc.
- 7. Of the changes made, which had the greatest impact and why?
 - a. If not addressed:
 - i. Impact on students
 - ii. Impact on costs
 - iii. Impact on school
- 8. What is the current state of lunches in your district?
 - a. On a scale of 1 – 10, 10 being the best, how would you rank the nutrition quality of the meals in your school before changes were made? Why?
- 9. Are there additional changes your district would like to make?
 - a. If so, what are they and how much would they cost to implement?
 - b. Did cost weigh into your decisions to delay implementation of these changes?