Growing a Healthier Future

Empowering people to improve their own health through gardening and public health education projects.

Laura Chiuppi
2012

Table of Contents

About

Growing a Healthier Future

The purpose of this paper is to share my ideas; how I believe it is possible to reduce obesity and promote a healthier future through the use of a community garden. This paper is addressed to fellow educators, journalists, public heath professionals, politicians and community members. My hope is that others may see a future in my project and may be willing to share their expertise, knowledge or relevant experiences. In order to make this project a possibility, I need their support and partnership.

Over the past 20 years, obesity rates in America have dramatically increased. Obesity is responsible for approximately 300,000 deaths per year in the United State (Dixit, 2009). This a concern of mine, not only because obesity is associated with higher mortality rates, but also because I believe it diminishes the quality of life. My philosophy is to only eat wholesome foods that fulfill and sustain our bodies, minds and spirits. A healthy diet, filled with lots of vegetables and fruits, can promote health and prevent obesity and your risk of disease (Raine, 2010). Community gardens are a strategy for improved fruit and vegetable (FV) consumption. It has been shown that increases in the availability of healthier foods in the community has an association with increased FV consumption and improve nutrition (State Indicator Report, 2009).

I believe that not enough Americans know what role fruits and vegetables have in their lives and how they can help you to manage your weight and reduce your risk of disease. I have an idea of how to educate people about the benefits of a healthy diet and how to encourage others to alter their diets and eat pure, unprocessed delicious foods. I strongly believe that community gardens paired with public health program could boost food literacy and reduce obesity.

The mission of “Growing a Healthier Future” is to empower people to improve their own health through sharing health information and conducting community outreach and education projects.

My Journey to Health and Wellness

Three years ago I altered a single aspect of my behavior, and found that one tweak changed my entire life. Ever since I was a child I have had terrible environmental allergies that aren’t seasonal, but year round. I visited an allergy specialist and got immunotherapy or “allergy shots” every week. I eventually was able to stop getting the shots, but had to continue taking a prescribed allergy medicine everyday. After years of being dependent on allergy medication, I decided that I was tired of it and that I wanted to discover an alternative solution.

I am a bit of a traditionalist, meaning sometimes I am reluctant to try new things, but since I was looking to make a lifestyle change, I decided to visit a holistic healing center. I’ll admit it was a bit quirky and certainly a creative solution, but I was intrigued by what I learned and decided to give it a chance. I received acupuncture and took herbal medicines. I also learned that the underlying causes of (some) allergies might be linked to the foods we eat - something I had never considered and neither had my doctors. The most common allergens include wheat, soybeans, corn, sugar,

food additives and refined foods, particularly partially hydrogenated fats. I learned that fresh fruit, vegetables, beans, nuts, seeds and grains are your best medicine. Since then, I have drastically changed my diet and the way I looked at food, and I became very focused on my health. It has been almost three years since I've taken any allergy medication and my diet alone has proven to reduce my allergy and sinus symptoms. In addition, eating a fruit and vegetable based diet has helped me to lose weight and feel more energized.

Education

In 2010, I began a Masters program in Education at UMass Boston. At the time, I was unsure of what exactly wanted to be when I grew up, but I did know that I have passion for helping others. My learning experiences have taught me that a teacher helps others develop love and respect for themselves and in a classroom or unique environment, such as a garden, invites a sharing of ideas.

Unexpectedly, my program required me to take a few creativity courses. Early on I thought that creativity and using your imagination was associated with make-believe. Quickly, I learned, however, that creativity is the ability to produce work that is original and useful, and that it can be expressed in a number of ways. Most importantly, I learned that creativity could be a useful tool to find answers to the questions we want to answer. My coursework led me to allow myself to engage my thoughts and explore new ideas and become a more creative problem solver.

A large percentage of Americans are overweight and I'm guessing unlike myself, many don't think twice about what they are eating and what it is doing for (or against) their bodies. While, I have a clear passion for all things healthy, not everyone else does. I can't understand why people don't care about their health, an absolute essential part of their life. This is a general public health concern. I believe my coursework at UMass Boston has provided me with the opportunity to apply my creativity, knowledge and problem-solving skills to help others improve their health and address the recent obesity epidemic.

I took several administrative courses, in addition to my education and creativity courses, such as leadership and supervision and organizational management. These courses prepared me to be a responsive and transformational leader who promotes and embraces education. A successful public health promotion plan takes strong leadership. I think one of my greatest strengths is my ability to be both a leader and a participant. I have learned that participation in a program, from organizing a community dinner to pull weeds and planting seeds, is necessary. Good leaders lead by setting an example (see Appendix 1).

The Art of Community Gardens

During this time I was also working at an after-school program that recently began to build its own small garden, as an extra-curricular for the students. The kids and I visited the market and bought several packages of seeds. We planted vegetables, fruits, herbs and flowers. We enjoyed being outside, getting a little dirty, but most of all watching our tiny seeds grow into actual food. Our small garden produced things like squash, peas, lettuces, berries, and even onions! The purpose of our gardens was for leisure and fun, but I began to think about how it could serve as more. I began

to think too, that it was possible for me to combine my career goals and my personal love for food and all things healthy.

I believe that Americans do not know what role fruits and vegetables have in their lives and how they can help you to manage your weight and reduce your risk of disease. I have an idea of how to educate people about the benefits of a healthy diet and how to encourage others to alter their diets and eat pure, unprocessed delicious foods. I strongly believe that community gardens paired with public health program could boost food literacy and reduce obesity. The purpose of my project is to design public health and wellness program that can be used in a non-traditional classroom setting, such as a community garden. I want to use what I have learned about critical and creative thinking and education to think about, how I can effectively educate children and parents about the benefits of eating healthy foods.

As an educator, I know that children and adults learn and respond differently to content and knowledge. We interpret things differently and we infer meaning based on our culture, race, sex, socialization and experiences. Equity pedagogy exists when educators customize their teaching methods to their students. With this mind, I know I could easily write a health and wellness program for someone like myself, but in order to write and design a successful one for others, I have to consider my audience. I have to identify with the community; what are their learning strengths, values and needs?

In heath education, I believe you have to illustrate and convey the importance of health and how it relevant to each individual. My program will include a variety of teaching techniques, including, direct instruction, group activities, hands on projects and discussion that will support the community in adopting a healthy lifestyle. My hope too is to stimulate the creativity of the garden members and get them to think about how can they enjoy eating fresh fruits and vegetables.

Contents

The first four chapters provide the background that has informed my instructional approach. Chapter 1 defines the Obesity Epidemic, the causes and effects of the disease and the relationship of fruits and vegetables to obesity and improved health. Chapter 2 reviews nutrition and health literacy, exploring what people know about nutrition and how attitude influences their decisions to choose healthy foods. Chapter 3 outlines some of the strategies and principles that underlie effective public health programs aimed at reducing the incidence of obesity and disease. A variety of strategies are used to create an effective program and currently there are many obesity prevention plans that are engaging in promoting a healthy diet. Chapter 4 outlines the many potential benefits of community gardens. Community gardens are a non-profit organization that has the potential to fill the gaps in health education. In the final chapter, Chapter 5, I will share my own project, Growing a Healthier Future, and how it can be coordinated with a community garden to implement social change and reduce obesity. I believe there is a creative art in fruits and vegetables; I will share my notes, education projects and workshops, lessons and delicious recipes.

Chapter 1

Obesity & Nutrition

Obesity is a growing concern in America; there are several health risks with being overweight and it is currently a primary public health concern. I strongly believe that as a community we can learn how to maintain a healthy weight through health education and eating a diet rich in fresh fruits and vegetables. I have chosen to focus my attention on fruit and vegetable consumption, because I am particularly interested in foods that can be grown in a community garden. I was curious to learn about the relationships of fruit and vegetable intake and obesity and how much what we eat really affects our bodies and risks of obesity and disease. In this chapter, I share what I have learned about the obesity epidemic, its causes, and the role of a diet rich in fruits and vegetables in helping to reduce obesity.

The Obesity Epidemic

Obesity is defined as being significantly above your normal and healthy weight (Raine, 2010). Healthy weight is determined by calculated body mass index (BMI), weight divided by height (Center for Disease Control and Prevention, 2012). BMI strongly correlates with total body fat. Obese (BMI 30+) and overweight (BMI 25.9-30) describe ranges of weight that are greater than what is considered healthy for a given height (Center for Disease Control and Prevention, 2012). This is the most widely used tool to access overweight-related diseases. It is important to acknowledge, however, that there are variations in gender, race, and age. To manage your weight you must balance the number of calories you consume with the number of calories your body uses (Center for Disease Control and Prevention, 2012). It is okay to love to eat, but in order to maintain your weight you have to think about food as fuel. If you hate to exercise and lead a fairly inactive lifestyle, your body does not need nearly as many calories as a physically active person. Obesity typically results from people consuming more calories than their bodies burn ("The Obesity Epidemic," 2011).

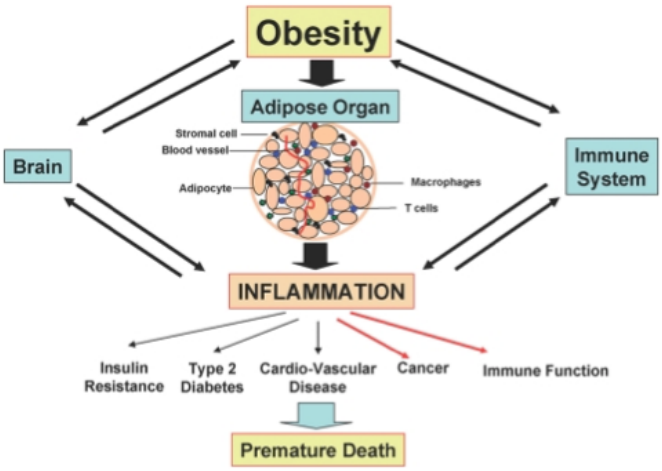


Figure 1: Obesity disturbs the function of organ systems and can lead chronic disease and premature death (Dixit, 2009).

Over the past 20 years obesity rates in America have dramatically increased. In 1990, less than 15% of U.S. adults were obese. In 2012, 35.7% of adults were documented as obese (Center for Disease Control and Prevention, 2012). The United States Centers for Disease Control and Prevention ranked obesity as the number one health risk facing America. The reason for this is because obesity increases an individual's risk of developing serious illnesses such as Type 2 diabetes, cardiovascular disease, and several cancers (Raine, 2009). Obesity disturbs the function

of organ systems and cellular interactions throughout the body and further leads to complications that increase the risk of premature death (Dixit, 2009). Insulin is a major hormone that affects the entire body; high-insulin levels are the underlying culprit of a lot of diseases (Cordain, 2002) (see Figure 1).

Why is America overweight?

There are several factors, including societal, economical, and educational conditions that have contributed to the rise in obesity ("The Obesity Epidemic," 2011).

Economical Reasons

Rising food costs and the availability of healthy foods challenge many communities to eat a healthy diet. Food affordability refers to the idea that low-income people must chose foods based on their price. Food availability refers to what healthful foods are sold in local grocery stores and markets (Azuma, 2010). Due to the inaccessibility of vegetables and fruits, many communities have developed a dependency on processed foods; they are cheap and easily accessible. Today, kids snack on Doritos and eat chocolate frosted pop-tarts every morning for breakfast. Society has made it easier and cheaper for people to purchase less healthy foods and beverages. Years ago fast food and pre-packaged meals were rare ("Let's Move," 2009).

Societal Reasons

I believe advanced technology has led to less exercise and physical activity is important for maintaining a healthy weight ("Food pyramids and," 2011). After school my sister and I rode our bikes, made forts in the woods and played kick-the-can with our neighbors. We didn't watch television, play video games or surf the Internet, in fact. At six o'clock, we washed up and sat down at the table for dinner. While I know that maybe not every kid had this same experience, I can say, that a lot of my friends grew up in a similar upbringing. Today, I see a difference, even within my own family. My niece and nephews are mesmerized by technology, you have to literally kick them out of the house and lock the door, forcing them to play outside and use their imaginations.

As I mentioned before, society has made it easier than ever to prepare frozen lasagna. When I was a child meals were home-cooked and dinners were valued as family time. There was always a vegetable on my dinner plate; I think most kids weren't allowed to leave the table until their plates were cleared. I can remember suffering through eating my peas. Portions were also reasonable. I use to go to my older sister's high school basketball games every Friday nights with my dad. As a special treat, he'd give me a dollar to pick out any snack I wanted from the concession stand. I can remember getting Reese's Peanut Butter Cups every time. They came in a package of two and I would make them last as long as possible. Ten years later, they sell Reese's Peanut Butter Cups in a package of four, doubling the amount of sugar and fat in a single package. The average American eats fifteen more pounds of sugar a year than in 1970 ("Let' Move," 2009).

Once upon a time, the term "diet," meant the kinds of foods that humans, animals or even communities habitually eat and what kinds of food sustain our bodies (Cordain, 2002). But

increasingly these days, the term “diet” has developed a negative connotation, word associations may include: small amounts, weight loss solution, and restricted foods. 38 percent of consumers believe that to improve their diets they would have to give up their favorite foods (Guthrie, Derby, Levy, 2000).

Speaking generally, as a society we have developed poor relationships with food. Our appetites can cast some light on food addiction and eating disorders, such as obesity. For example, skipping meals is often seen as an attractive way to lose weight. The side affects of skipping meals, however, have more consequences than benefits. To start your body needs nourishment to function, without nourishment you feel tired and lethargic. Without food your metabolism slows down to reserve energy. The metabolism burns calories and fat and is more effective in maintaining body weight when it is active (Cordain, 2002). Additionally and most commonly, those who skip meals just end up increasing their appetite and end up eating a lot more later on in the day (Choi, 2010).

Meal skipping can influence the prevalence of obesity. A national survey was performed in 2010 to investigate the relationship between fruit and vegetable intake and meal skipping with body mass index in Korean elementary school children. Students who consumed three meals per day included a higher percentage of fruits and vegetables in their diets than those who did not consume three meals per day (Choi, 2012). Meal skippers consumed more soft drinks and pre-packaged, fast foods. The distribution of obesity was significantly different between the two groups; 8.97% of meal skippers were obese compared to 5.38% of regular meal eating students (Choi, 2012).

Educational Reasons

I am most interested in understanding how much the typical American knows about nutrition and diet-disease relationships. What implications does this have for people to change their diets? I believe if people are educated about what makes a good diet, the role of food in their body, and diet-disease relationships it may stimulate an interest in learning about healthy eating habits. I will further discuss nutrition and health literacy in the next chapter.

Nutritional Guidelines

There are many different and controversial dietary guide lines, but years of evidence have led to the agreement of what foods are protective and what foods are harmful to the body and our health. It is agreed that foods found closest to the earth, such as vegetables, fruits, whole grains, and monounsaturated fats promote health and reduce risk of disease (CDC, 2009).

The U.S. Department of Agriculture (USDA) released the Food Guide Pyramid graphic in 1992 (see Figure 2). It was designed to help and guide people in making better food choices and give people a sense of the five food groups. The five food groups are grains, vegetables, fruits, meat and fish, and dairy ("Food pyramids and," 2011). The Food Pyramid recommends 2-4 servings of fruits, and 3-5 servings per day of vegetables ("Food pyramids and," 2011).

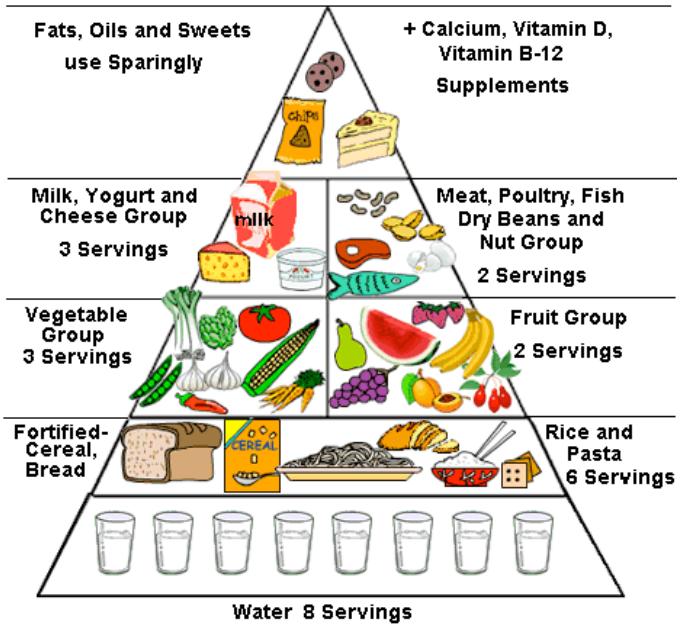


Figure 2: The 1992 USDA Food Guide Pyramid ("Food Pyramids and," 2011).

In 2011 the USDA replaced the Food Guide Pyramid with a new simpler food icon, MyPlate (see Figure 3). It is a revised, improved, and similar version of the USDA's food pyramid ("Food pyramids and," 2011). The Healthy Eating Plate was designed to accurate show people what makes up a healthy diet. "When people eat dinner, most of us eat off a plate;" it is a blueprint for a typical meal ("Food pyramids and," 2011). It clearly illustrates what makes up a healthy diet, making it easy for people to understand and be influenced by. It is based on the best available science and is continuously updated; currently it is the best guide to a healthy diet ("Food pyramids and," 2011).

Figure 3: The 2011 USDA MyPlate ("Food Pyramids and, " 2011).

MyPlate places a greater emphasis on fruits and vegetables; it recommends filling your half of your plate with vegetables and fruits, a quarter of your plate with whole grains, such as potatoes or brown rice, and the other quarter with protein, such as chicken or fish ("Food pyramids and," 2011). In addition, the Healthy Eating Plate advises consumers to avoid sugar beverage, refined grains, such as white bread, and pre-packaged foods.

Of course, there are several different healthy eating guidelines and personal beliefs and styles. Just within my own family, my sister and I believe in different nutritional claims; she is a strict vegetarian and I believe that eating meat, including chicken, beef and fish along with fruits and vegetables are the most necessary part of a diet. It is agreed and recommended, however, by most everyone, that to support health and maintain body weight you should reduce sodium and simple sugars, and increase consumption of vegetables and fruits (Raine, 2010).

What is the relationship of fruit vegetable intake with obesity and chronic disease?

Most people who develop obesity and related diseases have high-insulin levels, caused by high saturated fat and carbohydrate diets. Overweight and obese individuals have a higher fat and a lower fruit and vegetable consumption than individuals who are a normal weight (Boeing et al., 2012). Eating a diet rich in fruits and vegetables can slow blood sugar rises and ultimately improves insulin sensitivity (Cordain, 2000). I believe that particular foods, fruits and vegetables, or the lack of them, in our diets is a factor that is responsible for particular diseases.

In this section, I explore what the scientific research literature says about two important questions: (a) What is the relationship between fruit and vegetable intake and obesity and (b) What is the relationship between fruit and vegetable intake and the development of various chronic diseases, such as coronary heart disease. I base my conclusions on two comprehensive reviews done by Boeing et al, 2012 and Ledoux, Hingle, & Baraowski, et al, 2010.

The first review Boening et al, 2012 was a collective analysis of many published studies that evaluated chronic disease and fruit and vegetable consumption. In addition, they judged the strength of the evidence as convincing, probable, possible, or insufficient. The authors concluded that there is possible evidence that an increase in fruits and vegetables consumption can promote weight stability (Boening et al., 2012). They concluded it was “possible” rather than insufficient, because most of the research they analyzed showed consistent results, rather than inconsistent results. A majority of the studies show a positive relationship between increased fruit and vegetable consumption and weight loss. They did not, however, define the relationship, as convincing, because while there is ample data on the subject, the question has not been extensively investigated and there is not an abundance of comprehensive data. Some studies show positive correlations, but others show the relationship to be nonlinear (Boening et al, 2012).

I think there is a need for improved strategies for monitoring nutrition intake. It’s a complicated relationship to define, because there are so many variables, such as socioeconomic status, demographics, and because a long-term dietary change may be necessary to actually make appropriate conclusions. In addition, there is probable evidence that an increase in fruit and vegetable consumption leads to weight reduction, if fruits and vegetables replaced with foods high in calories and fat.

As previously discussed, being overweight and obese occurs when energy consumption is higher than energy expenditure. Weight control is linked to the simple rule of energy balance, calories in minus calories out ("Food pyramids and," 2011). Therefore, you have to reduce your calorie intake and substitute fruits and vegetables with foods high in calories and fat. Fruits and vegetables are rich in water and fiber (Ledoux, Hingle & Baraowski, 2010). Vegetables are low in calories, especially compared to our packaged foods. For example, you could practically eat 30 baby carrots or five Melba toast crackers for an equivalent of 100 calories. High-blood pressure is connected to salt and lack of fresh fruits and vegetables (Cordain, 2000). Today, much of our food is processed, not natural (Cordain, 2000). For example, think of a glazed donut. Delicious? Perhaps, but think about what it really is. It is a mixture of ingredients, vegetable oil, and sugar and then it is deep-fried in hydrogenated fats and finally, glazed with sugar. I can understand why it is easy to overeat processed foods, like a glazed donut, they taste amazing. However, people need to recognize that

they are also fatty, starchy, and sugary. Processed foods distort our appetites, spike our insulin levels and increase our appetites. Fruits and vegetables are rich in water and fiber and therefore conserve our insulin levels, make us feel full, and as a result we don't overeat.

In a second review Ledoux, Hingle, & Baraowski, 2010 supports similar conclusions. The review assessed twenty-three publications that included, longitudinal or experimental designs, and fruit vegetable intake in relation to adiposity or obesity. In longitudinal studies, fruit and vegetable consumption was associated with less or slower weight gain. In experimental studies, they found increase fruit and and vegetable consumption contributed to reduced adiposity among overweight or obese adults. In 11 experimental studies with adults, 8 showed higher fruit and vegetable intake contributed to weight loss, while 3 did not. However, some of the studies not showing effects were weaker studies (e.g., in one the participants didn't successfully increase their fruit and vegetable intake, therefore, no effect could be assessed.) In 7 of these 8 studies mentioned above, multiple behaviors were targeted in the interventions besides increasing FV, such as decreasing energy-dense food consumption, modifying carbohydrate consumption and overall calorie intake (Ledoux, Hingle & Baraowski, 2010).

Overall both reviews conclude that changes in diet can counteract chronic inflammatory processes involved in obesity and therefore reduce the risk of diseases associated with obesity. Both reviews, however, attest that increased fruit and vegetable consumption alone with not directly lead to weight loss because to achieve good health a combination of healthy behaviors, such as exercise, decreasing alcohol consumption, etc. is necessary.

Coronary heart disease (CHD) is the single largest cause of premature death in the world (Boening et al., 2012). The relationship between fruit and vegetable consumption and CDH has been extensively investigated and due to the strong correlation amongst many invention studies, there is convincing evidence that increasing the consumption of fruits and vegetables reduces the risk of disease (Boening et al., 2012). Adding fruits and vegetables to your diet can help your body protect itself against disease and promote good health.

Conclusion

There is obvious need to educate and motivate individuals and communities to improve their health. If we don't start solving this problem now, one third of all children born in 2000 or later will suffer from obesity-related health problems like heart disease and diabetes ("Let's Move," 2012). Obesity occurs disproportionately for a number of reasons, but in reviewing the literature, I think it is agreed that a healthy diet rich in fruits and vegetable is optimal for good health. And while the evidence is not as strong as I had hoped and thought relating fruit and vegetable consumption to obesity itself (multiple factors are involved), I think there is enough evidence that an increase in fruit and vegetables consumption can contribute to a reduction in obesity. I think, however, it is important to recognize that it has to be done in conjunction with over behaviors, such as exercise and a positive attitude -eating healthy is a lifestyle, not a "diet."

Chapter 2

Nutrition and Health Literacy

I often wonder what people know about healthy eating, especially early in the morning when I get coffee and the parent in front of me orders their child a hot chocolate with whipped cream and that glazed donut to go with it. Donuts were a rare treat for me when I was a kid and I knew they were a sugary treat, not a breakfast food. Health professionals often make assumptions about the level of skills and knowledge, health literacy, that individuals have, therefore it is necessary to understand what individuals know and where they got that information from. Do people know what a healthy balanced diet looks like? Do they know how to read labels and do the ingredients affect their decision whether to eat it or not? Do they know about diet disease relationships? In this chapter I explore what is known about people's nutrition and health literacy, as knowing the strengths and limits of that knowledge will inform my health education program.

Health Literacy

The Department of Health and Human Services' Healthy People 2010 report defined health literacy as "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions." Literacy is a set of comprehension skills, such as reading; when we apply these skills to a health context, such as reading a nutrition label, it is called health literacy ("Health Literacy," 2009). It is important to have these skills in order understand the risks of disease and obesity and to act on health information. In a national assessment of adult literacy skills, studies show that nearly 9 out of 10 adults may lack the skills needed to manage their health and prevent disease, including obesity ("Health Literacy," 2009).

Nutrition-related Knowledge: What do people know about healthy eating?

Nutrition-related knowledge can include understanding the chemical structures of nutrients, and how they sustain your body, to knowledge of healthy cooking methods (Guthrie, Derby & Levy, 2000). It is easier to educate people about concrete, specific dietary guidelines than the science of nutrition (Guthrie, Derby & Levy, 2000). Even so, nutrition education is difficult to teach. Once you have taught an individual a set of nutrition guidelines, you also have to discover a way to help them apply that knowledge. Giving individuals the tools they need to adopt a healthy diet is a primary focus of mine. In order to successfully educate, I think it is necessary to first understand the level of high literacy an individual or group has. For example, are people familiar with published dietary recommendations?

In 1994/1995 the Food and Drug Administration conducted a national health and diet survey. When asked, "Have you ever heard anything about the Dietary Guidelines for Americans," 30 percent responded yes (Lando & Choinière, 2008). When asked, "Have you ever heard anything about the Food Guide Pyramid," 43 percent responded yes. To me this measures the success of the marking campaign for the Food Guide Pyramid; there is a significant increase in positive responses. Also in 1994/1995, the USDA conducted a health knowledge survey. The survey asked,

"How many servings from the food group would you say a person of your age and sex should eat each day?" 74 percent of people responded correctly to the fruit recommendation (2-4 servings per day). 55 percent of people responded correctly to the vegetable recommendation (3-5 servings per day) (Guthrie, Derby & Levy, 2000). The difference in knowledge regarding each food group raises some questions. Are they interpreting the Food Guide Pyramid correctly? Do people have more of a positive attitude towards fruit than vegetables?

In 2009, the State Indicator Report on Fruits and Vegetables was published by the U.S. Department of Health and Human Services, Center for Disease Control and Prevention. Each state surveyed their population's overall consumption of fruits and vegetables. Together, each state is working towards the National People 2020 fruit and vegetable objectives. The Healthy People 2020 mission is to improve and promote good health for all and increase fruit and vegetable consumption. The Healthy People fruit and vegetable objects are - 75% of the people consuming greater than 2 servings a fruit per day and 50% of people consuming greater than 3 servings of vegetables. In 2009, the report indicated that only 14.0 percent of adults and 9.5 percent of children were meeting the objective (see Figure 4) (State Indicator Report, 2009). In general consumption of fruits was higher than vegetables; this disparity was especially large for children.

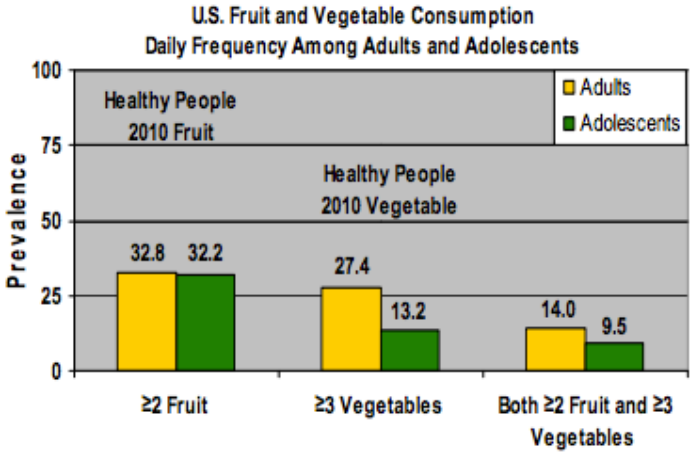


Figure 4: US Department of Health and Human Services 2009 state survey (State indicator report, 2009).

Granted that these two studies are not aligned, but I believe that a large percentage of individuals are familiar with the dietary guidelines and know the correct serving size recommendations of each food group, but choose not to follow them, for several different reasons. One reason might be cost and ease of access; another might be reliance of eating out or packaged foods. Fruits and vegetables have been identified as an under-consumed food group (State Indicator Report, 2009). Subsequently, I wanted to find out what people knew and *understood* about the benefits of eating healthy foods and what risks are associated with diet and obesity. In the Food and Drug Administration 2008 diet-disease survey, they asked, "What things could people eat or drink that might help prevent heart disease or heart attacks?" 32 percent (1,008 participants) answered fruits and vegetables (Lando & Choinière, 2008).

In 2000, Guthrie, a nutritionist, and Derby and Levy, both social psychologists studied a variety of public and private sources to examine what people know and do not know about nutrition. They discovered that Americans are generally aware that saturated fats, cholesterol and sodium relate to diseases associated with obesity (Guthrie, Derby & Levy, 2000). The Food and Drug Administration conducted a random telephone survey in 2008. When asked, "Have you heard anything about heart disease or heart attacks being related to things people eat or drink?" 91%

answered yes (1,307 participants). Surprisingly, only about 6% of participants believed that being overweight, consuming too much, might be related to heart disease (Lando & Choinière, 2008).

Strategies for improving fruit and vegetable consumption are certainly evolving, and public health programs are trying to design systemic program that people will be responsive to. How-to knowledge is the first step in planning nutrition education and promotion campaigns (Guthrie, Derby & Levy, 2000). I am highly interested in reviewing a second state indicator report, following the introduction of the USDA MyPlate, published in 2011. I believe I would see a large improvement in nutrition-related knowledge. As discussed in the previous chapter, the design of MyPlate, is made realistic and easy to use for people.

How-to Knowledge: Do people know how to read food labels?

Label-reading skills is one type of how-to knowledge. In recent years, detailed nutritional profiles can be requested at supermarkets, restaurants or can be found online. Making healthful choices is becoming easier, but still consumers must rely on their own knowledge. Research done by the American Dietetic Association has demonstrated that most people do not know how to accurately read and interpret nutritional labels. I believe these individuals have limited health literacy and therefore, less knowledge, which can directly affect their eating behaviors and food choices

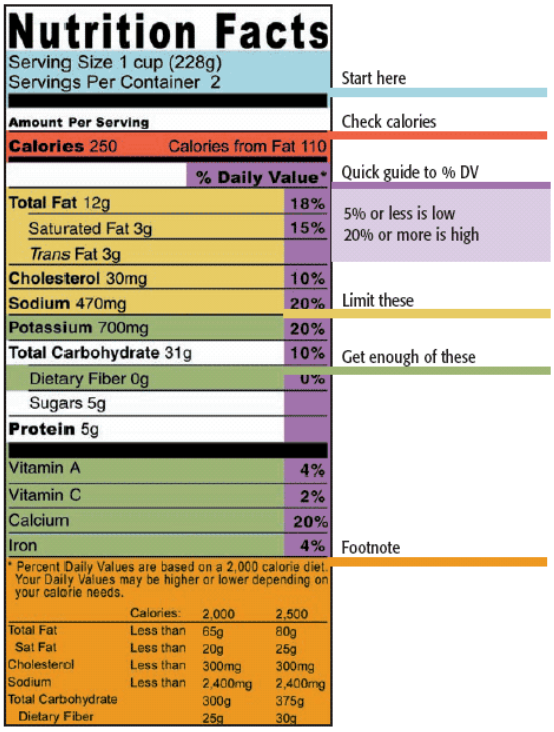


Figure 5: A sample nutrition facts label, with instructions from the U.S. Food and Drug Administration (Dietary Guidelines for Americans, 2008).

Only about half of Americans can correctly identify the recommended food intake levels or serving size (Guthrie, Derby & Levy, 2000). 50 percent of individuals could correctly identify the serving size guidelines for calories, calcium, and cholesterol and less than 10 percent answered correctly for fat (Guthrie, Derby & Levy, 2000). The ability to interpret quantitative information (e.g., milligrams vs. grams) is difficult for consumers. I'm not even positive that I could correctly distinguish if 100 milligrams of sodium is low or high. I rely on percent daily values. Percent daily value can help consumers make better decisions; they indicate the recommended amount of nutrition a person should consume each day (see Figure 5). If foods have greater than 20 percent daily value, it is considered to be high in nutrient, such as calcium, or chemical, such as sodium (Guthrie, Derby & Levy, 2000). It is so important to present information in a way that people can relate to. I think portion sizes can best be illustrated through comparisons. For example, one serving, or one cup, of raw broccoli is equivalent to the size of a baseball.

In the 2008 diet-disease survey done by the Food and Drug Administration, only 54 percent of participants said they often read the food label on products, 11 percent never do. Most people that do choose to look at the nutrition label only look at the calorie information only (Lando & Choinière, 2008). Calories, however, are not the end all be all, as many consumers may think. It is also important to consider fat, cholesterol, protein, and sugar. You want to select foods high in fiber (fruits and vegetables) and protein, lower in cholesterol and sugar, and moderate in carbohydrates.

Out of curiosity, I asked my co-worker whether or not she read nutrition labels and her response was this: "sometimes, and I only look at the calorie count, I don't care about the rest." I see what she eats for lunch everyday and I'm going to assume that she also is unaware of the fact that most processed and pre-packaged foods have little to no nutritional value and are packed with additives and preservatives. She also believes that Swedish Fish, source of sugar, are a healthier snack than Gold Fish, source of a whole-grain, because Swedish Fish have fewer calories. Consumers concerned with a particular nutrient, such as calories, can easily compare foods (Guthrie, Derby & Levy, 2000).

If we improve health literacy, more individuals should be able to correctly identify the value of food and interpret nutrition labels. In Choi's study, he discovered that meal skippers generally had a poor understanding of nutrition labels and high calorie, low nutritional value foods. A better understanding of nutrition labels may help students who skip meals and eat pre-packaged and fast foods prevent the occurrence of obesity by being able to choose healthier foods (Choi, 2012). To begin, I think I will start my program with helping individuals to discriminate between foods with little to no nutritional value and desirable nutritious foods.

Attitudes

Attitudes represent an individual's feelings about an issue, regardless of what they know; they are important because individuals are going to make decisions and behave based on their opinion and what it is important to them (Guthrie, Derby & Levy, 2000). I choose the foods I eat solely based on nutrition and how they benefit my body. Studies suggest most people, however, choose the foods they eat based on price, convenience, nutrition, and of course taste (Cordain, 2008). The Food Marketing Institute conducted a survey that asked consumers to rate how important nutrition and other food attributes were to them. In 1998, nutrition was ranked as "very important" by 75 percent of individuals. Taste, however, is the most important factors in food choice; it received an 89 percent rating in 1998 (Guthrie, Derby & Levy, 2000). A further concern is that 30 percent of Americans asserted that healthy foods do not taste good (Guthrie, Derby & Levy, 2000).

So even though that glazed donut has zero nutritional value, people know how good it tastes and that may be what matters the most. I think a lot of people aren't motivated or have behavioral fallacies. I've often heard people say, "I'm already fat, so why does it matter?" Or vice-versa, I've had people ask me, "you're so skinny, why aren't you having a piece of cake?" I care and I believe in eating foods that make you feel good, physically and emotionally, but some people just don't

have that attitude. Fruits and vegetables need to be appreciated more. In order to do this, they have to be accessible and taste delicious.

Conclusion

People know more than I thought about nutrition; a large percent of people know that it is important to choose a diet with plenty of fruits and vegetables. Yet, obesity and heart disease rates are outstanding. Therefore, I think that economical and societal reasons play a significant role in the obesity epidemic. After reading literature reviews, however, I think that people do not know how much the right amount of foods is and what appropriate portion sizes are. Improved health literacy could address this problem. Public health professionals and educators could improve the way they present their information to individuals so that it is easy to understand and individuals are able to comprehend and apply the recommendations. In addition, I think that attitude can help us to further understand eating behavior and the obesity epidemic. So the challenge is to not only improve health education, but also to influence consumers to have more of a positive attitude towards healthful eating. Successful health outcomes are achieved when individuals feel empowered to improve their own health.

Chapter 3

Public Health Programs

The previous chapter documented the obesity epidemic and highlighted the contributions played by poor diet and nutrition, and diet and nutritional knowledge. New generations of nutritionists and educators have begun to actively engage in promoting a healthy diet and implementing obesity prevention strategies. Several public health professionals have studied and evaluated health promotion approaches and strategies. Improving the health of a community or organization is difficult because eating healthfully is comparable to adapting a new lifestyle. It requires more than just educating an individual or group of people in nutrition, but requires recognizing the context in which individuals make choices and are willing change. In this chapter, I consider the different kinds of approaches that can be taken to promoting public health and health literacy, as well as what are considered "best design" practices. A comprehensive health promotion plan includes multiple components: social engagement, support, feedback and collaboration (Raine, 2010).

Public Health Approaches

Dr. Kim D. Raine published an article in 2010 that addressees three key health promotion strategies. A comprehensive approach to health promotion is necessary in order to influence change and improvement. A comprehensive plan should include downstream, midstream upstream approaches. **Downstream** is a traditional strategy that counsels individuals on nutrition education. The **midstream** approach targets larger groups of people through social marketing campaigns and using the media to change social norms. Midstream interventions include programs aimed to reduce obesity in the workplace, schools, or community organizations. This strategy includes, building support networks and improving access to healthy foods. **Upstream** is when you create a supportive environment through public policy. Upstream approaches change public policies, such as limiting access to unhealthy alternatives or changing and improving the food supply.

Dr. Raine argues that recent evidence supports more of the upstream approach because it really looks at the root cause of the problem rather than just addressing the symptoms of a disease. Upsteam works to make quality, healthy food more available. Reviews of nutrition programs, however, that have proven to be effective incorporate all three approaches. My own program would be considered a midstream approach, but in the creation of it I need to recognize the root causes and challenges of eating healthy, an upstream approach. Therefore, I think the approaches are interdependent on each other.

Given what I have learned so far and discussed in Chapter 2, I have begun to design a program to which I believe individuals will be responsive. To create a quality program, however, I think I need to gain a variety of perspectives and realities of a garden through building relationships with existing community garden members and garden coordinators. This will help me to find out how I can best design a program that supports health education and most importantly, the needs of individuals. I don't want to create a program that simply teaches people how to lose weight; the

goal of my program is to empower people to improve their own health, increase fruit and vegetable consumption, and create a supportive and healthy environment.

Health Literacy & Education

Encouraging individuals to change their eating habits is a challenge for health educators. Education is an essential component to promote health and prevent disease, but creating a successful program is difficult and education alone is insufficient (Nutbeam, 2006). We can provide health information, but what we have to do is empower people to use it effectively.

There are three levels of health literacy described by Don Nutbeam: functional, interactive and critical. In order to create a successful heath education program it is necessary to include all three levels and include a variety of strategies, skills and resources. **Functional** literacy is the communication of information; the goal is to improve knowledge of health and risks. **Interactive** health literacy is the opportunity to develop skills in a supportive environment; the goal is to improve motivation and self-confidence. **Critical** health literacy is community empowerment; the goal is to encourage individuals to act on presented opportunities (Nutbeam, 2006).

The Six Pillars of a Health Program

In 2010 a study was done by two Harvard professors and a manager of the wellness program at the MD Anderson Cancer Center to understand what works, what doesn't, and what overall impact health programs have on an organization (Berry, Mirabito & Baun, 2010). They discovered that strategically planned wellness programs have six essential pillars that support their success. The six essential pillars are leadership, communication, alignment, accessibility, partnerships, and quality.

Creating a healthy culture takes passionate, persistent, and persuasive **leadership**. Wellness managers have to coordinate the program, sell it, and continually measure its effectiveness (Berry, Mirabito & Baun, 2010). I believe the best managers are ones who not only manage and run a program, but those who participate; if community members see their city officials growing their own fruits and vegetables, or going for a run, they will be more inclined to do so themselves.

The second pillar is communication. Early **communication** and clear explanations give community members the time to ask questions and prepare for change (Berry, Mirabito & Baun, 2010). Information can be transmitted using various media sources. I believe a good manager facilities interaction, communication and feedback between the organization and health program participants.

Public health programs have to **align** with what is important to the community (Berry, Mirabito & Baun, 2010). Nobody wants to be forced to participate in a health program; people will choose what they want to participate in and what is realistic for them. You have to find out what individuals want from a health program; here is where community-based research (CBR) may be useful. Community-based research (CBR) is the use of community participation for the purpose of implementing a social change (Wakefield, Yeudall, Taron, Reynolds, & Skinner, 2007). A central

component of this method is including community members in the identification of research questions and research interpretation (Wakefield, Yeudall, Taron, Reynolds, & Skinner, 2007). CBR is an effective research method to collect information about the community; techniques include observation, focus group discussions and interviews.

You can create an excellent program, but if people cannot easily **access** it, they probably are unlikely to use is (Berry, Mirabito & Baun, 2010). Accessibility and alignment are interrelated, once the program is aligned to the community's needs, the program needs to be easily accessible to the community. The environment where you plan to implement your program must be a place that individuals are familiar with and a place where they feel comfortable. A public health program should be a natural extension of the organization. This is why I think implementing a public health program in a community could be so successful; garden participants already have a sense of belonging to the garden. Therefore, I think they may more willing to participate in the program, because it is easily accessible and won't be so detached from their lives.

A public health program takes several people including community members, decision-makers, and stakeholders (Berry, Mirabito & Baun, 2010). **Partnerships** and stakeholders are valued. Together they can build a dynamic system that gives communities what they need to reach their full potential health. I imagine that my program would require a strong partnership between the garden coordinator and myself. We would have to collaborate and invest in available resources wisely.

Finally, public health programs have a responsibility to continually measure a program's success, to ensure that the **quality** has increased desired health outcomes (Berry, Mirabito & Baun, 2010). This can be done in several different ways, including qualitative and quantitative data. To best measure the quality of my program, I would ask for feedback from the heath program participants. In addition, I would be interested in learning how their diets may or may not have changed since partaking in the program. A food diary is an excellent way to measure and recognize trends and changes in diets. A program of high quality would be able to see changes in attitude towards eating healthy and increased consumption of fruits and vegetables.

America's Move to Raise A Healthier Generation of Kids, "Let's Move!"

Even politicians, such as Michelle Obama, have begun to take an active interest in public health. "Let's Move!" is a comprehensive social campaign and public health program, launched by the First Lady, Michelle Obama. I have recognized the six pillars within "Let's Move." The programs give parents and children information that supports healthy choices. Being a mother of two children herself, she represents a **leader** who can identify with the lifestyle of raising a family and the challenge of trying to decrease the dependency on processed foods and up fresh fruits and vegetables intake. Obama's campaign is dedicated to solving the problem of childhood obesity through several comprehensive programs.

Michelle Obama has focused a lot her work on providing good nutrition in our schools. This is a long-term program that focuses on changing the atmosphere and food culture in schools (Kane & Chanoine, 2012). This would be considered a combination of the midstream and upstream

approach, because the program is aimed at reducing obesity in the schools and at changing school legislation. This program limits the access to unhealthy foods and improves the meal standards. The new meal standards ensure students are offered both fruits and vegetables every day of the week, increasing whole grain-rich foods, offering fat-free or low-fat milk, ensuring proper portion sizes and reducing the amounts of saturated fat, trans fats and sodium ("Let's Move," 2012).

At first there was resistance from children; they said the food didn't taste right and were hesitant to eat the food provided. As previously discussed, taste is very important; the food introduced has to **align** with what the student will be receptive to. Even I can't imagine being given a plate of steamed broccoli at lunch when I was in the sixth grade and wanting to eat it. Additionally, I would probably feel deprived and after school I'd sneak off to the local convenience store and buy a bag of potato chips. Since introducing the new lunch standards, "Let's Move" has developed a program titled, "Chefs Move to Schools," that encourages chefs to **partner** with school administrators, teachers and parents to educate children and show that good nutrition can be fun. It is an interactive tool that aims at motivating individuals to change their attitude towards eating healthy. The chefs teach new culinary techniques and recipes for healthy, but importantly appealing and delicious meals ("Let's Move," 2012).

In relation to my own research, the "Chefs Move to Schools" has also helped students and teachers across the country start school gardens. Student's have the opportunity and **access** to plant and care for vegetables in their classrooms. The children then want to eat the vegetables that they planted and watched grow. There is a lot of empowerment, pride and fun in it. With the smart use of media, "Let's Move" has an encompassing and informative (**communication**) website. The website includes a section on all of its multiple programs and layers, including School Gardens. The School Garden webpage gives a step-by-step guide, which offers instructions and information about how to grow fruits and vegetables with students ("Let's Move," 2012).

Michelle Obama has worked hard to provide healthier foods in our schools and ensuring that every family has access to healthy, affordable food ("Let's Move," 2012). "Let's Move" empowers parents and local elected officials to commit to educating children about nutrition. So far the **quality** of program has proven to be successful; it has increased public awareness of the relationship between food and health (Kane & Chanoine, 2012).

The city of Boston, Mayor Menino's Recovery Plan

Over the past 20 years obesity rates in America have dramatically increased; in Boston, Massachusetts, 63% of black adults, 51% of Latino adults, and 45% of white adults are overweight ("Mayor Menino and," 2011). Over the past two years the city of Boston has taken steps to assist in creating a new social norm, in which healthier foods are the preferred option. Progress is dependent on high-level leadership and Mayor Menino has taken the initiative to put Boston at the national forefront of healthy, livable cities.

In 2011, the City departments began a campaign to phase out the sale and advertising of sugary drink sales on city property ("Mayor Menino and," 2011). They are using a traffic light symbol to educate the community about the sugar content in drinks. Their campaign is advertised with

posters that say, “Stop. Rethink Your Drink. Go on Green” (“Mayor Menino and,” 2011). Red beverages indicate high sugar. This is a highly function literacy tool, because the information is illustrated in a way that is easy for people to understand.

In 2010 Boston was awarded two-year stimulus grants for “Communities Putting Prevention to Work” (“Mayor Menino and,” 2011). The city received 6.4 million dollars of obesity prevention and 6.1 million dollars to reduce tobacco use. 1 million of the grant for obesity prevention is being used to improve access to healthy produce at an affordable cost. Urban, low-income neighborhoods within the city are more vulnerable to obesity due to unemployment and affordability. Therefore, a large part of the project includes building and increasing urban gardening opportunities. In Roxbury, a 10,000 square foot greenhouse is being transformed into a community greenhouse (“Mayor Menino and,” 2011).

Other obesity prevention strategies in Boston include neighborhood walking groups, subsidizing gym memberships, bike share program, Bounty Bucks, and integrating physical activity into the school. These programs are steps to reducing obesity within in our communities and throughout the state and country. These midstream approaches will assist in creating a new social norm, in which healthier food, including fresh produce, is the preferred choice (“Mayor Menino and,” 2011).

Conclusion

Successful public health programs include multiple elements and strategies. Generally, they all include an educational module along with interactive activities and the use of social media. To design an effective program you also have to consider the individuals or community you are addressing. It is crucial to access their needs and acknowledge their attitudes towards healthy eating. Community-based research enables you to identify with the culture of the environment and design a program that people are likely to be receptive to. The goal of empowering members of a community to act on the opportunities presented to them is dependent on the quality of the program and the critical health literacy component.

Chapter 4

Community Gardens

A community garden is a shared, public space where residents of the community come together and plant vegetables, fruits, herbs, and flowers. Community gardens can serve and meet multiple needs of the community. Community gardens can be divided into eight categories according to their purpose: education, community development, leisure, skills or training, job opportunities, food provision, protection of an area, job opportunities, and health issues (Villas-Boas, 2006). I believe that a community garden is an innovative way to promote health and well being, prevent disease, and change the culture of health.

I am mostly interested in the way gardens can educate people about the benefits of eating healthy foods and can be used to teach individuals about eating a balanced diet. A primary role of a community garden is filling in the gaps in poor diets. Can gardens actually improve access to healthy, organic foods and produce quality fruits and vegetables? We know that a higher consumption of vegetables and fruits promote health and prevent disease. Can gardens re-shape an individual's lifestyle and ultimately reduce obesity and other preventable diseases? I suspect that they are an untapped midstream venue for public health education programs.

What are the benefits of Community Gardens?

Community gardens are seen as having a number of positive health benefits, including improved and better nutrition (Wakefield, Yeudall, Taron, Reynolds, & Skinner, 2007). Community gardens increase access to healthy foods at a lower cost. Many urban families are highly dependent on processed foods, because they are easily accessible and cost less. Studies have shown that those members and their families involved in a community garden eat more vegetables and overall a more nutrient-rich diets than non-gardening families ("Gardening Matters," 2004).

Community gardens not only improve nutrition but they also promote social health and community cohesion. Gardens can enrich a community and help to develop positive relationships in the community. They can play a major role in the development of healthy attitudes in a community. Together people can learn about nutritious foods and support one another is adopting a healthier lifestyle. Community gardens offer a focal point for community organizing, and can lead to community-based efforts to deal with social concerns, such as obesity ("Gardening Matters," 2004).

Community gardens can also be used to beautify a neighborhood, increase property values, improve the infrastructure of a city and most importantly enhance the well being of the city's residents. They provide an environment to retreat to, a place to escape the city and enjoy nature; they create an opportunity for therapy. In addition, a community garden can be a place for families and children to play and work in.

Community gardens restore oxygen to the air and help to reduce air pollution ("Gardening Matters," 2004). Global warming is a growing concern; we have increasingly become more

dependent on fossil fuels to transport food from rural to urban areas. Community gardens can reduce our carbon footprint. I find it aesthetically pleasing to pick and grow my own food and enjoy knowing where it comes from. I like the idea of my produce growing close by and not having been packed, shipped, and unloaded onto shelves.

Community gardens produce an abundance of produce. I have seen my own grandfather's garden produce more tomatoes that he knew what to do with. A New York garden organization, City Farms, grew close to 11,000 pounds of fresh vegetables and fruits in 1999. 50% was donated to nearby soup kitchens and food pantries. Another community gardening association, The Fancy Flowers, in South Bronx, produced 200 pounds of tomatoes and about 75 pounds of green and red pepper in one year ("Gardening Matters," 2004). Milwaukee community gardens produced $8.9 million dollars worth of produce from 1978-1989 ("Gardening Matters," 2004).

Garden participants and visitors are often invited to share their talents and imaginations to the organization. It is easy for several different community members to contribute, including carpenters, biologists, cooks, and educators. I want to share my cooking talents and love for all things healthy with community garden participants. Once their seeds and hard work produce foods, someone with experience, needs to teach them the skills to transform their fruits and vegetables into delicious meals.

Boston Community Gardens

Since I plan on investing in this project, I wanted to know more about community gardens in Boston, the city I live in. How many gardens are there in the Boston area and are they active and I intend to find out if they would be receptive partnering with a public health program, such as "Growing a Healthier Future."

There are over 150 community gardens in the Boston area ("BostonNatural," 2012). The gardens are the result of many individuals working together. Over 10,000 children, adults, and families participate and several government agencies and non-profit organizations, such as the Boston Natural Areas Network, help to support, protect, and coordinate activities and events in all of the community and school gardens. Boston Natural Area Network assists community gardens in Boston with their maintenance and management; BNAN represents all of the community gardens in Boston ("BostonNatural," 2012).

Boston is Growing Gardens (BIGG) is an organization in Dorchester, MA that has been working hard for the past three years to double the community garden food production in Dorchester. The goal of the BIGG is to improve heath and welfare of many Dorchester residents. Dorchester is Boston's largest neighborhood and is in need of opportunities to improve public health. BIGG works to connect Dorchester residents to existing community gardens. The organization aims to give residents the skills and education they need to learn how to grow nutrition foods, supplement food budgets, and maybe most importantly gain interest in growing their own food ("BostonNatural," 2012).

Gaining Support

After studying some of Boston's community gardens, I have learned that a community garden involves the effort of several community members. Attracting professional leaders, city council members, garden creators, members and potential new members is especially important. When public health administrators or educators decide to create and devise a community-wide health initiative, they have to recognize that there is an equal and necessary partnership between "professionals" and community members. The key to writing a successful public health program is to build and manage relationships.

Many community gardens are at first dependent on grants, funding, and sponsorship; later the garden should be able to be sustained primarily by individuals and garden coordinators, rather than outside agencies. Therefore, it is necessary to involve key stakeholders, such as Mayor Menino or the first lady, in your garden or program, and ask for their support. In addition, there are several opportunities to apply for grants and funding through non-profit organizations that support community gardens and hopefully for me, their health initiatives.

There are several organizations and foundations that are dedicated to supporting environmental education and public health programs. Some well-known gardening organizations include, Project Orange Thumb, Small Grants Programme, Captain Planet Foundation, and Common Ground Garden Program. Grant recipients recognize projects that will have a difference in their community through unique community garden initiatives, such as incorporating a health education plan, or activities that will make a significant difference in their lives and the environment ("Gardening Matters," 2004). In order to be considered for a grant you have to apply and submit specific requirements. Applicants are evaluated based on some of the following criteria: adhere to all application and eligibility requirements, initial impression, community involvement plan, and overall project execution plan ("Gardening Matters," 2004).

"Growing a Healthier Future" involves several people from the community, including city officials, department heads, garden creators and garden participants. Once my project becomes more established, I think it would be appropriate to ask for help in financing my health education program. I would even consider applying for a grant.

Conclusion

Data suggest that community gardens can provide numerous health benefits, including improved access to food, improved nutrition, increased physical activity, improved mental and social health (Wakefield, Yeudall, Taron, Reynolds, & Skinner, 2007). There are very few published studies, however, that address community gardens and their potential to improve health. No quantitative assessments that evaluate the health benefits of community members are currently being researched. In what ways do community gardens directly improve health? We know there are several benefits, but it would be nice to research and analyze evidence and testimonials that verify improved health.

Nevertheless, I strongly believe they are untapped resource for improving health and nutrition education, if paired with a public health education program. The health benefits of a community

garden really have to be communicated to the participants. I want to engage them in my research and engage the garden member's in a common purpose and interest. People are not going to change their attitudes, but they may be willing to make a change that fits into their lifestyle.

Chapter 5

Growing a Healthier Future

I want to partner with existing community gardens, incorporating a public health program in the garden. As I've argued in the preceding chapters, a community garden is the perfect environment to effectively and practically educate individuals and families about the benefits of eating healthy, fresh, local, and organic foods, and maintaining a healthy body weight.

Obesity is a primary health concern, in that leads to chronic health problems and diminishes the quality of life. Obesity is attributed in part to the food we eat. As a community we need to change our habits, look at food differently, and improve the quality of food we eat. The program will allow me to use the resources of the garden to educate its participants about nutritional health and engage them in improving their own health. By eating a healthy diet you can mitigate malnutrition and reduce your risk of obesity and developing heart disease.

The mission of "Growing a Healthier Future" is to empower people to improve their own health through sharing health information and conducting community outreach and education projects. A successful health promotion plan includes a strong educational component, social engagement, support, feedback and collaboration. "Growing a Healthier Future" will include instructional lessons, as well as tools, workshops, and discussion groups, so that participants are engaged, making it easy for them to adopt a healthy lifestyle.

In this chapter I use my knowledge and research of health education to develop my ideas of how to educate garden participants in thoughtful and interactive ways. I first present my general educational framework, explain how I carefully designed my program to align with some key public health program strategies, discussed in Chapter 3, Pubic Health Programs. I then provide more detail about specific lessons or workshop ideas within that framework.

I am passionate about this project and I hope to take what I have learned and apply it to improving community health. I want to get involved with a local community garden and put my program into action. To further develop my program I think it important for me to do field research. Community-based research could help me to fully understand the community and garden participants and help strengthen the program, so that it meets the goal of combining knowledge with action.

Designing a Public Health Program: My General Framework

One of the most important things I have learned as an educator is that you cannot simply give information and guidelines to someone, you must identify the context in which individuals are willing to accept your ideas (Raine, 2010). Eating healthfully is not easy and addressing how to adopt a wholesome diet can be challenging. You have to discover what people are going to be receptive to and what is going to encourage them to take the information and tools you give them and put it to use (Wakefield, Yeudall, Taron, Reynolds, & Skinner, 2007). I think how-to-knowledge

and hands-on experiences have the ability to affect a change in attitude. It gives individuals the opportunity to internalize, practice and apply their knowledge.

In designing "Growing a Healthier Future," I have to consider all three of the health literacy components described by Don Nutbeam (2000) in order to meet the objectives of the program, including healthier food access and settings, education and obesity, and food and nutrition consumption.

Functional -

Educating people about the basic food groups, the nutrients contained in foods and their uses in the body, the risks associated with diet and disease, and the relationship between fruit and vegetable intake and obesity. In the first section below (Garden & Health Education), I describe how I address some of these goals.

Interactive –

I intend to teach individuals practical preparation skills, in addition to encouraging them to act independently and be creative. Using the knowledge provided, I want them to explore how eating healthy can be easy and fun. In addition, my program is intended to be paired with community gardens, where fruits and vegetables can be more easily accessible. My thought is that the combination can achieve health promotion outcomes through transmitting health information in a supportive environment. In the second section below (Garden to Table), I elaborate on how I will work to achieve these goals.

Critical –

Once the program is organized, continuous support and evaluation is necessary. I have learned that there certainly are "garden politics," which refers to the interaction between people (Villas-Boas, 2006). A community garden is dependent on a collective effort by a number of people. Progress and success is dependent on high-level leadership and community organization. Throughout my program, I will have opportunities for my continued learning and assessment (described in the sections on Program Administration and Community Based Research).

Garden & Health Education

If individuals lack critical knowledge about general nutritional principles and the importance of nutrition, then how can they care for themselves and others? Children are dependent on their parents to guide them in making healthful food decisions and lifestyles. "Growing a Healthier Future" is a garden-based general curriculum that will educate individuals about the Dietary Guidelines for Americans (DGA) and the relationships between fruits and vegetables and disease, and overall good health. In health education, I believe you have to illustrate and convey the importance of health and how it relevant to each individual. Therefore, the program will include a variety of teaching methods, including, direct instruction, group activities, hands on projects and discussion.

To begin, I want participants to begin to think about their own diet and what they already know and maybe want to know more about nutrition. I would ask children to paste pictures of different

foods from magazines or clipart, which I have provided to them, on a paper plate, illustrating their dinner. When working with older participants, I would ask them to think about and write down everything they have eaten so far that day, as well as how many times they eat each day, and what their typical meal looks like. This in itself maybe a challenge! Additional questions may include: "Think fast; how many servings of fruit have you had today? How many servings of vegetables have you had?" It is possible that they might not even know. I make sure to include at least one piece of fruit or a serving of vegetable at every meal, but for me, eating is a very personalized habit. I would ask participants if this is something that they think about when choosing the foods they eat? I'd then prompt a small creative thinking activity, "How could you add more fruits and vegetables to your diet?" I would give them an example; such as add a vegetable as a pizza topping. In addition, I would ask participants what they know about nutrition, "do you think you are healthy, why or why not?" This information will provide me with individual's prior knowledge and eating behaviors.

As a next step, I might present them with pictures of a variety of different foods (e.g., squash, tomatoes, apples, oranges, nuts, berries, chicken, beef, fish, milk, juice, water, rice, potatoes, pasta), and ask them to arrange them in different "food groups." Asking them to form food groups, and ask why they put different foods together, is a nice entry into seeing their ideas about nutrients and what different foods contain. This activity may be important, especially for children, but perhaps also adults, in that the categories of the nutrition guidelines may be somewhat different from their natural categories for grouping foods. In this context, I could also ask them the "amounts" of each group they thought they needed to eat each day and why.

Following the introduction, I would distribute an illustration of MyPlate and a common set of nutrition guidelines that are important for good health. I think MyPlate is the most useful and practical nutritional guideline tool, because it replicates a plate. I would then take the time to review each food group one by one and discuss what nutrients they provide. It is important to eat a balanced diet in order for the entire body to function. I then would ask participants to identify foods that they eat from each group. Working together we could then create a day's menu using foods from all the food groups.

"Where can we get these foods?" Some of the foods we must go to the grocery store and buy, but others can be found in the garden. Participants should then form small groups and make a grocery list of only things that could be found in a garden. Are their ideas similar? Did anyone have anything very different to add? I have learned and I believe that small group discussions can facilitate creative thinking and problem solving skills and higher participation. After the participants finalize their lists, I would invite each group to present their lists. As a larger group we could discuss their lists and collectively brainstorm new ideas, facilitating collaborative learning. Did they think of herbs and onions?

I may ask them to think about how these things come from the earth and further, how they are an essential component to good health. Fruits and vegetables can help you maintain a healthy heart, weight, vision health, memory function, and, lower your risk of obesity. Every vegetable provides different nutrients that benefit our bodies. For example, I'd share carrot sticks with the group and explain to them that they can eat as many as they'd like, because they are good for us. Carrots are

rich in vitamins that help our eyesight. I'd ask them to smell and taste the carrots. "Do you like them?" "Are they sweet?" I'd then give each participant a small handful of Skittles, and explain to them that they cannot have any more, because unlike carrots they don't provide us with any nutrients. Skittles may taste good, but they do not do a single good thing for our bodies. In fact, food high in sugar and low in nutrients can harm our bodies and increases are risk for disease.
I would like to invite dietitians and nutritionists to come and give a talk to garden members about the links between obesity and disease and the relationships between fruits and vegetables intake and obesity. I believe these professionals could offer us a richer understanding of how the foods we eat contribute to our health. This might be a place where participants could also ask specific questions that the dietician might respond to and be able to offer personalized advice.

Thirdly, I want to teach people, through the use of a community garden, how to look at food differently and to know difference between healthy whole foods and processed foods. To start, I could place a variety of different foods from the pantry, cupboards, refrigerator and garden on a table. I could have individuals sort the foods into two piles, Junk Foods and Healthy Foods. Next teach members what to look for on a nutrition label, as discussed in Chapter 2 and then ask them to compare labels. Many people may not know that processed foods, such as canned soup, frozen dinners, packaged baked goods, snack foods, etc. contain high amounts of sodium, trans fats, artificial sweeteners. I would especially point out the ingredients in pre-packaged foods. Can you read and pronounce every ingredient? If so, it's probably safe to eat and probably good for you, if you can't, you may want to limit these foods in your diet.

Finally, I might ask them to consider: What fruits and vegetables would they most like to grow in their garden? When? I would like to offer garden education courses throughout the year that specifically teach students and adults how to garden and how to efficiently grow an abundance of fruits and vegetables. I think it is important for gardeners to know what produce grows best at certain times of the year and how to care for your harvest. The garden will produce an abundance of foods, especially in the summer months; therefore, learning canning and freezing techniques is important so that individuals can continue to eat good foods throughout the year.

Garden to Table

Eating healthy can be easy and fun. My program will teach participants how to prepare fruits and vegetables in a way that makes them desirable and taste delicious. "Growing a Healthier Future" participants will be given the skills and opportunity to participate meaningfully in the program. You do not want the members of the garden to go home with a bag of cucumbers and say, "What the heck am I going to do with five pounds of zucchini?" My program design includes a large cooking/recipe segment. Individuals will be given nutritional and culinary information, and have the opportunity to try new foods and share their own ideas.

I am by no means a chef, but I have a love of cooking. I modify and enhance recipes, and substitute and eliminate ingredients to make wholesome, delicious meals. I don't cook fancy or complicated meals; I just cook from fresh, wholesome ingredients. Since taste is one of the most important factors when choosing the foods we eat, the key is to make eating fruits and vegetables enjoyable. I have put together an activity, titled, Garden-to-Table (see Appendix 2). As a group we would go

into the garden and identify a given vegetable, for example, collard greens. I would then ask the participants if they know what collard greens can do for our bodies. We know that vegetables are good for us, but why? The goal of the activity is to give participants useful and meaningful nutritional information, explaining in detail what different vegetables do for our bodies and why they are important. Next, I will teach participants how prepare the vegetable, because some raw greens taste bitter and flavorless. For example, salads are often perceived as boring, but they can easily be made more interesting and tasteful by adding nuts, seeds and fruits. I look forward to hosting several cooking demonstrations in the garden. This activity gives participants a chance to apply and practice the knowledge that they learned in the previous section.

Holding workshops that challenge your garden's participants can be a fun way to discover new recipes. While at first cooking from the garden may seem simplistic, with the use of a little imagination there are endless possibilities. You can turn ingredients into works of art. Ask participants to try and create a dinner using mainly ingredients that you can find in your garden (see Appendix 3). This is a creative cooks workshop that prompts participants to think creatively, maybe substituting and minimizing ingredients from a previous recipe. My favorite substitution is spaghetti squash for pasta. To enhance flavor encourage people to try a combination of herbs and spices instead of salt. Further, you can host a friendly competition, about who can create the healthiest and tastiest meal?

I would enjoy hosting monthly community garden dinners and barbeques. Sharing recipes is a great way for the community to interact and learn how to cook healthy meals from each other. In addition, outside of the garden, I would encourage participants to take turns cooking with friends. With the use of multimedia communication, such as Facebook and blogs, posting ideas and podcasting recipes and other health topics can be made easy.

Ongoing Program Assessment and Administration

At the end, all of the workshops should be evaluated. I will do a self-assessment as well as ask participants for feedback. For example, questions might include: Did you learn meaningful health information that you can use? Did you enjoy creating your recipes? Did you learn ways to modify and enhance recipes? Will you take the things you've learned and apply them to your daily life? Lastly, the inevitable question, how many fruits and vegetables do you now consume each day? These questions will help me improve the quality of the program and learn ways to improve the workshops. In addition, overtime, I would like to ask participants to record their daily food intake in a journal or food diary. Keeping a food diary can help individuals focus on their diet and think more critically about it. It can also provide information to the individual and myself on whether or not they are receptive to the program and are adopting healthy changes in their diet.

My administrative course work in my graduate program has given me the experience and practice in management and supervision. I am confident that I could manage a community garden project and support the relationships between all of the garden's members. I have learned that communication is a standard component of managing. Effective communication and buy-in from all levels of the community are important in order to build a strong community garden culture. It is necessary to identify with their needs, income, background and goals (Villas-Boas, 2006). In

understanding these particulars, I can begin to build meaningful relationships with these people and in order to facilitate health education opportunities.

Part of my design includes a weekly bulletin and a blog, to facilitate communication among all the members of the program. The goal of the blog would be to provide health education standards as well as provide social support for eating healthfully. This would give individuals the opportunity to post their thoughts, questions, share new recipes, challenges and success stories. I also would make myself available for members to contact, either through email, phone, or "office-hours." I really want to encourage people to share their feelings with me and feel comfortable asking for support. In order to develop a responsive and effective public health program it is necessary to involve the community in the design.

This program is not intended for my use, I have already established a healthy lifestyle. This program is for individuals, families and children to learn about nutrition and adopt healthy lifestyle behaviors. I want to give these people the best resources and tools possible and provide them with information that they need and want.

I have learned that through the use of community-based research (CBR), you are able to come up with a realistic solution to the problem you are addressing. A solution that is actually useful to the community, a solution that is effective and sustainable. CBR is an effective research method and an effective way to gain a variety or perspectives and realities (Wakefield, Yeudall, Taron, Reynolds, & Skinner, 2007). With this in mind, a large part of my efforts in making this program possible will have to include action research; CBR. I need to be able to identify with the community in order to focus on giving the garden participants the best user experience.

Community-based Research

The primary intent of CBR is to understand and gain insight into the experiences, opinions, and values of the community. With the use of CBR, I will be able to establish a greater understanding and appreciation of the community and current garden participant's attitudes towards healthy eating. I, also, intend to discover what individuals know about eating healthy, prior and throughout the design of my program. I believe I would find the answers to these questions through participant observation as well as focus group discussions and interviews.

Participant observation involves studying the subject in their environment and also engaging and participating in their activity. Field notes should be taken. These subjects would include current garden participants and community garden designers. To begin, I would like to visit a current community garden project in Boston. I want to learn through observing the demographics of the participants and how often they visit, how the organization functions, and what their garden produces look like.

Focus group discussions are discussions that are structured with a set of questions in an informal environment. Groups usually consist of three to ten participants and the discussion lasts between one and two hours (Wakefield, Yeudall, Taron, Reynolds, & Skinner, 2007). Interviews can be lead

by the same questions used in the group focus discussion, but are individualized. Interviews usually last less than one hour and are generally more personable.

I would consider hosting a discussion with current community garden participants and a separate discussion with community members that I want to recruit to participate in my program. Here, it may be relevant to begin with socio-demographic questions to help identify the group (Bogart, Goh, Sipple-Asher, Hawes-Dawson, Olarita-Dhungana, Ryan & Schuster, 2009). In addition to a prepared set of questions, I think it is also important to ask the participants if there is any additional information they want to share. An open-ended question may lead to information that you have not have originally considered (Bogart, Goh, Sipple-Asher, Hawes-Dawson, Olarita-Dhungana, Ryan & Schuster, 2009).

I believe the use CBR will help me to establish my understanding of the community and assist me in designing a successful program that is uniquely specific to the community's needs. In addition, I have decided that it would be equally beneficial for me to interview and meet with existing garden coordinators and project designers. In meeting with these people I may be able to learn from their successes and challenges, acquire valuable, and learn useful management and instructional skills. In addition, I think I would begin to gain a greater understanding of the levels of community involvement that are necessary.

I have begun to think about questions that I would like to ask existing community garden members and potential new participants. Please understand that this is a work-in-progress, and will be worked on in the next steps of my research (see Appendix 4). The purpose of the interview question so far, is to learn what people know about eating healthy, what the average diet looks like, and if people are familiar with community gardens and what would make them interested in joining a public health project. In the end I hope that the data I collect can offer a general idea of community member's knowledge and attitude towards nutrition and uncover trends in the challenges of eating healthy.

Conclusion

My program at UMass has taught me many things about myself and has helped me to develop and integrate my passions with my professional work. I have a natural hobby for nature and gardening and a love for good food and I am serious about helping others improve their health through education. A community garden is an unconventional classroom where I believe public health program facilitate learning and participation and could change the food world for the better.

For optimal health and growth, fruits and vegetables are essential (Choi, 2012). A lot of children might not know where vegetables come from, especially if they eat canned vegetables and pre-packed fruit cups. I want to teach adults, but children especially that they grow from the ground and that it is possible for them produce their own food. Children and adults can get pure joy and satisfaction in harvesting their own food. It can really be exciting and a great venue for interactive health education.

In reviewing literature on diet and health knowledge, I think that nutrition-related knowledge has improved, but still a majority of individuals are not being giving enough education services about health and nutrition and most importantly, enough how-to knowledge. In addition to giving consumers nutrition information, people need to be given how-to information about food selection, preparation and menu planning (Guthrie, Derby & Levy, 2000). I have learned how to write and plan engaging lessons and I have learned how to successfully organize and manage people.

I strongly believe the individuals could benefit my health program because its goal is to empower individuals to improve their health in providing them with realistic tips and guidelines of how to incorporate fruits and vegetables into their lives. In addition, my coursework has taught me how to be a perceptive and active leader; I believe I can bring about change and reduce the incident of obesity. After completing my program at UMass, I hope to bring my ideas to life and further get involved with other healthy living and gardening organizations. I truly believe that if fruits and vegetables are prepared the right way, their flavor is enhanced. I love expressing my creativity in the kitchen and someday, I would love to open my own garden-to-table restaurant or café.

References

Berry, L., Mirabito, A., and Baun, W., (2010). Harvard Business Review. What's the Hard Return on Employee Wellness Programs? 1-9. Retrieved March 29, 2012 from www.hbr.org.

Boeing, H., Bechtold, A., Ellinger, S., Haller, D., Kroke, A., Leschik-Bonnet, E., Muller, M., Oberritter, H., Schulze, M., Stehle, P. &Watz, B. (2012). Critical review: vegetables and fruit in the prevention of chronic diseases. *European Journal of Nutriton*, *51*(6), 637-663. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3419346/

Bogart, Laura, Y. Goh, B. Sipple-Asher, K. Hawes-Dawson, J. Olarita-Dhungana, G. Ryan, and M. Schuster. (2009). Using Community-based Participatory Research to Identify Potential Interventions to Overcome Barriers to Adolescents' Healthy Eating and Physical Activity. *National Institutes of Health* 32.5: 491-502. *PubMed*. Web. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2863037/?tool=pubmed

Boston Natural Areas Network, working towards a greener city. (2012, October 27). Retrieved from www.bostonnatural.org

Center for Disease Control and Prevention, Nutrition for Everyone (2009). *Recommended community strategies and measurements to prevent obesity in the united states*. Retrieved from website: http://www.cdc.gov/nutrition/everyone/fruitsvegetables/index.html

Center for Disease Control and Prevention. (2012, November 06). *Obesity and overweight* . Retrieved from http://www.cdc.gov/obesity/

Cordain, L. (2002). *The paleo diet*. New Jersey : John Wiley & Sons, Inc.

Dixit, V. (2009). Adipose-immune interactions during obesity and caloric restriction: reciprocal mechanisms regulating immunity and health span. *Journal of Leukocyte Biology*: 84(4); 882-892. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2638733/

Food pyramids and plates: what should you really eat? (2011). *The Nutrition Source, Department of Nutrition, Harvard School of Public Health*, Retrieved from http://www.hsph.harvard.edu/nutritionsource/what-should-you-eat/pyramid-full-story/index.html

Guthrie, J. F., Derby, B. M., & Levy, A. S. (May 1999). America's eating habits: Changes and consequences. *Agricultural Information Bulletin*,*AIB750*, Chapter 13. Retrieved from http://www.ers.usda.gov/media/91066/aib750m_1_.pdf

Kane, J., Chanoine, S. (2012). As michelle obama's anti-obesity push turns 2, it's time for a check-up [Television series episode]. In*PBS NewsHour*. PBS NewsHour. Retrieved from http://www.pbs.org/newshour/rundown/2012/02/second-anniversary-of-lets-move.html

Khan, L., Sobush, K., Keener, D., Goodman, K., Lowry, A., Kakietex, J., Zaro, S. (2009). Recommended Community Strategies and Measurements to Prevent Obesity in the United States. Division of Nutrition, Physical Activity, and Obesity, National Center for Chronic Disease Prevention and Health Promotion, CDC. *Morbidity and Mortality Weekly Report* 58(RR07); 1-26. Web. Retrieved from http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5807a1.htm

Lando , A., & Choinière, C. U.S. Food and Drug Administration , (2008). *2008 health and diet survey*. Retrieved from website: http://www.fda.gov/Food/ScienceResearch/ResearchAreas/ConsumerResearch/ucm193895.htm

Ledoux, T., Hingle, M., & Baraowski, T. (2010). Relationship of fruit and vegetable intake with adiposity: a systematic review. *Obesity Prevention*, *12*(5), 143-150. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/j.1467-789X.2010.00786.x/full

"Let's Move," eat healthy. (2012). Retrieved from http://www.letsmove.gov/

Mayor Menino's Recory Plan, (2011). *Mayor menino and hhs secretary sebelius highlight new obesity and tobacco prevention projects*. Retrieved from website: http://www.cityofboston.gov/news/default.aspx?id=4685

Nutbeam, D. (2006). Health literacy as a public health goal: a challenge for contemporary health education and communication strategies into the 21st century. *Health Promotion International* ,*15*(3), 259-268. Retrieved from http://heapro.oxfordjournals.org/content/15/3/259.full.pdf html

Office of Disease Prevention and Health Promotion U.S. Department of Health and Human Services, (2005). *Dietary guidelines for americans, tips for using the food label*. Retrieved from website: http://www.health.gov/Dietaryguidelines/dga2005/toolkit/default.htm

Project Green Thumb (2011). *Friskars Brands.* Madison, WI. Web. 12 December 2011. Retrieved from http://www2.fiskars.com/Activities/Project-Orange-Thumb

Raine, Kim. (2010). Addressing poor nutrition to promote heart health: Moving upsteam. *The Canadian Journal of Cardiology* 2;Suppl C: 21C-24C. Web Retrieved from http://heapro.oxfordjournals.org/content/22/2/92.full.pdf+html

The obesity epidemic [Web series episode]. (2011). In *CDC TV*. National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition, Physical Activity and Obesity. Retrieved from http://www.cdc.gov/cdctv/ObesityEpidemic/

U.S. Department of Health and Human Services, Centers for Disease Control and Prevention (2009). *State indicator report on fruits and vegetables*. Retrieved from website: http://www.cdc.gov/nutrition/downloads/StateIndicatorReport2009.pdf

U.S. Department of Health and Human Services, Centers for Disease Control and Prevention (2009). *Health Literacy.* Retrieved from http://www.cdc.gov/healthcommunication/Audience/HealthLiteracy.pdf

Villas-Boas, Maria Lucia Soares. (2006). How community gardens function: A case study of "Complexo Aeroporto." Ohio University, International Studies, Latin America. Web. Retrieved from *http://etd.ohiolink.edu/view.cgi/VillasB244as%20Maria%20L250cia%20Soares.pdf?acc_num=ohiou1149463363*

Wakefield, S., F. Yeudall, C. Taron, J. Reynolds, and A. Skinner. (2007). Growing Urban Health: Community Gardening in South-East Toronto. *Health Promotional International* 22.2:92-101. Web. Retrieved from http://heapro.oxfordjournals.org/content/22/2/92.long#cited-b

Appendix 1

MEd Program Coursework

Creative Thinking
Skills Learned: Improved creative problem solving skills

This course challenged me to be creative and use my creativity in a variety of settings Further began to think about how a community garden could be a creative venue for teaching nutrition and how-to creative cooking skills.

Processes of Research & Engagement
Skills Learned: take myself seriously, develop writing and research skills, learning how to put ideas into action

The course asked students to define a manageable project and develop plans for future work, this when I first began to develop my project and recognize what would work and what changes needed to be made.

Synthesis Theory and Practice Seminar
Skills Learned: Writing with emotion and as a narrative, time-management skills

Throughout this course I worked on creating and enhancing my project. It gave me the opportunity to continuously review and reflect on my work. I also began to think about how my work impacting my professional and personal life.

Organizational Change
Skills Learned: leadership, putting trust in others and how to delegate responsibilities

Effective changes happen progressively, you do not have to reinvent the entire system. There are multiple active community gardens in the Boston area; these can be used as a supportive public health environment, where ideas can grow.

Research Design
Skills Learned: data collection, analysis, and assessment, interview and questionnaire design

This course taught me how to use data to identify problems and make suggestions for improvement. I used the skills I learned to develop the assessment portion of my project and write the questionnaire I plan to use in the next steps of my research.

Advanced Seminar in Supervision
Skills Learned: improved communication skills, team building, and interpersonal skills

Health programs and community gardens involve several people, in order for things to run smoothly you need to promote collaboration. You have to define common values and specific responsibilities. Identify the strengths within your community that you can utilize. There are probably many experienced members of the community that you can learn from; ask for their input and feedback. In addition, I learned that I enjoy organizing people and projects.

Human Resource Management
Skills Learned: multicultural personal management, training and planning strategies.

Culture is important aspect of an organization, this course taught me how to change and build a community's culture. I want to change the way people look at healthy foods and create an environment that influences them to change their eating behaviors.

Managing Across Cultures
Skills Learned: cultural dimensions and negotiation

Planning, organizing and coordinating are basic activities of management. To be an effective manager of a business or program, one must genuinely understand how to manage cross-cultural relationships. Boston is a growing multicultural city, and one of the benefits of a community garden is the ability to bring people together. This course has taught me how to manage the interactions between people of different cultural backgrounds.

Contemporary Perspectives on Immigration
Skills Learned: Curriculum writing, lesson planning

As the diversity in our schools and community increases, special curricula and sensitivity to culture needs to be implemented.

Sociocultural Perspectives on Education
Skills Learned: five dimensions of multicultural education, lesson planning

This course taught me how to write and plan engaging health education lesson plans. I designed an unconventional framework for my program that includes several interactive activities that teach nutrition-related and how-to knowledge.

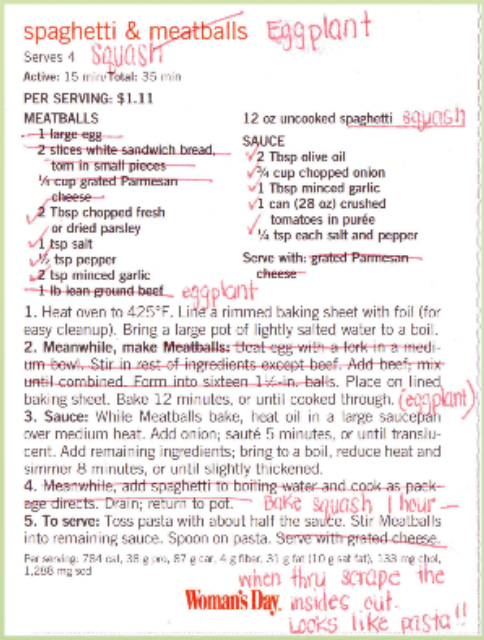
Cross-Cultural Conflict Resolution
Skills Learned: increased tolerance and sensitivity enhanced listening skills

There are multiple factors that contribute to the success of individuals' health and as a whole, the obesity epidemic. It is necessary to think about intervention techniques to get people to think differently about their health so that they can and are willing to make changes. This course led to thinking about innovative ways to teach nutrition and resolve the problem of obesity in an unconventional classroom that could be used cross-culturally.

Celebrate creating delicious foods from the garden.

Create.

While at first cooking from the garden may seem simplistic, with the use of a little imagination there are endless possibilities. You can turn ingredients into works of art.



spaghetti & meatballs Eggplant

Serves 4 squash

Active: 15 min Total: 35 min

PER SERVING: $1.11

MEATBALLS

- 1 large egg
- 2 slices white sandwich bread, torn in small pieces
- ½ cup grated Parmesan cheese
- 2 Tbsp chopped fresh or dried parsley
- 1 tsp salt
- ½ tsp pepper
- 2 tsp minced garlic
- 1 lb lean ground beef eggplant

12 oz uncooked spaghetti squash

SAUCE

- 2 Tbsp olive oil
- ¾ cup chopped onion
- 1 Tbsp minced garlic
- 1 can (28 oz) crushed tomatoes in purée
- ¼ tsp each salt and pepper

Serve with: grated Parmesan cheese

1. Heat oven to 425°F. Line a rimmed baking sheet with foil (for easy cleanup). Bring a large pot of lightly salted water to a boil.
2. **Meanwhile, make Meatballs:** Beat egg with a fork in a medium bowl. Stir in rest of ingredients except beef. Add beef; mix until combined. Form into sixteen 1½-in. balls. Place on lined baking sheet. Bake 12 minutes, or until cooked through. (eggplant)
3. **Sauce:** While Meatballs bake, heat oil in a large saucepan over medium heat. Add onion; sauté 5 minutes, or until translucent. Add remaining ingredients; bring to a boil, reduce heat and simmer 8 minutes, or until slightly thickened.
4. Meanwhile, add spaghetti to boiling water and cook as package directs. Drain; return to pot. Bake squash 1 hour
5. **To serve:** Toss pasta with about half the sauce. Stir Meatballs into remaining sauce. Spoon on pasta. Serve with grated cheese.

Per serving: 784 cal, 38 g pro, 87 g car, 4 g fiber, 31 g fat (10 g sat fat), 133 mg chol, 1,298 mg sod

when thru scrape the insides out. looks like pasta!!

Woman's Day

Challenge 1:

Give participants a recipe and ask them to develop new ideas using only the ingredients available in the garden. Substitute, combine, eliminate and magnify ingredients! Engage in your senses and in your creativity.

Challenge 2:

Using only the ingredients in the garden, create your own recipe.

Strawberry Salad

1 head of lettuce

10 Strawberries

¾ cup of sliced red onion

The Dressing

½ cup of chopped basil

2 Tbsp. of oil

1 Tbsp. of minced garlic

**Combine* the basil and oil to create pesto, drizzle over salad

Garden to Table

Healthy vegetables from your garden to add to your diet

How to enjoy eating Collard Greens

Sautéed Collard Greens with Almonds and Craisins

Ingredients:

1 bunch of collard greens

2 tablespoons of olive oil

2 tablespoons of balsamic vinegar

1 garlic clove

3 tablespoons of slivered almonds

3 tablespoons of craisins

Collard Greens

Member of the leaf and cabbage family

High in magnesium

What is magnesium and what does it do for our bodies?

Magnesium is the fourth most abundant mineral in the body. It keeps heart rhythm steady, supports your immune system and keeps bones strong.

Has as much calcium as milk

What is calcium and what does calcium do for our bodies?

Calcium is a mineral and we need it to keep our bones and teeth strong. The body also needs calcium for muscles to move and to help our blood move throughout the body. Also, calcium carries messages from the brain the brain and every body parts.

Cooking Directions:

Cut out the central stem from each collard lead. Rinse and drain. Sauté over medium heat the garlic and oil for 1 minute. Add the collards and cover the pan for 2 minute. Add the almonds, craisins and stir. Cover for 1 minute. Stir in the balsamic vinegar, cover once more, and cook for 2 minutes. ENJOY!

Appendix 4

Community-based Research (CBR)

Goal

The purpose of my research is to gain a variety of perspectives and realities of a garden through interviewing existing community garden members and garden coordinators. I want to find out how I can best design and propose a community garden as a public health program and how they can be used as an educational tool to promote health. Through the use of CBR, I believe I will be able to come up with a realistic health program that will pertain to the participants. In addition, I want to come up with a realistic solution to address the obesity epidemic.

The purpose of conducting of my research and questions I might use in my interview to discover how I can design a program that families, parents and children, are receptive to. I am concerned with growing obesity rates. I want to actively research and learn what people know about eating healthy and the relationship between fruits and vegetables and their bodies.

Sample Questions

What % of South Boston residents do you think eat the recommended number of fresh fruits and vegetables per day?
What % of South Boston residents may be at risk for obesity from poor diet.

Do you know what a community garden is? If so, how would you explain what it is? Do you belong to one?

-If not, explain.

A community garden is a public piece of land that is designating for urban agriculture. As a community, participants of a garden can produce nutritious, healthy, and local foods; this is particularly important for urban families that have limited access to fresh produce. Community gardens are a place for sharing tools, foods, receipts, ideas, culture and stories.

-If yes, continue with to the next question.

Do they know the potential health benefits of a community garden?

Are you aware of the benefits from participating in a community garden? If so, what do you think they might be?

-Yes/No, explain in detail.

Members of the community can work together to produce nutritious foods and reduce family food budgets. In advertising the benefits of a community garden to a neighborhood you can connect people to the garden and build interest. It is very important that members of a community understand the specific benefits. Community gardens educate people about the benefits of eating healthy foods and can be used to teach children and adults about good foods. The gardens provide the community with healthy food at a lower cost; a primary role in the

garden is filling gaps in poor diets. Higher consumption of vegetables and fruits promote health and prevent disease.

How would you describe your diet?

Do you eat processed foods?

How many servings of fruit do you have per day? How many servings of vegetables do you have per day?

Can you explain what the Healthy Eating Plate is and what it looks like?

-If yes, continue to next question.

-If no, explain.

What challenges do you (or those in your community) have in eating fresh vegetables and fruits ?

What has caused you (or those in your community) to develop a dependency on processed foods?

Do you think the average person knows the benefits of eating healthy foods and know the risks that are associated with obesity?

What do you think are the risks of obesity?

-If no idea/or limited idea, explain.

Heart disease is the number one cause of death in the United States, it is also the number one preventable disease simply by adopting a healthy lifestyle. Obesity is a risk factor of heart disease. Over the past 20 years obesity rates in America have dramatically increased. Eating a proper diet that includes a lot of vegetables is an effective way to reduce obesity.

Do you think that a community garden, paired with a public health program could educate individuals and families about the benefits of eating healthy foods?

Would you be interesting in joining a project? Why or why not?