Introduction

In February 2010, First Lady Michelle Obama launched the Let’s Move! campaign to solve the childhood obesity epidemic within a generation and President Barack Obama established a national Task Force on Childhood Obesity to coordinate strategies leading to action plans to meet key benchmarks for reducing childhood obesity. There are two major strategies to reduce childhood obesity: (1) Reducing the calories and fat consumed by children by improving the quality of their nutrition and (2) increasing the physical activity of children through active living and exercise. The choices made by students during elementary school lunch service are a critical issue cited in the White House Task Force on Childhood Obesity Report to the President. While 90% of elementary schools provide a low-fat lunch option, the average lunch selected by students in 80% of schools exceeds the nutritional standards for fat. In almost all elementary school cafeterias, 6- to 10-year-old students must make daily decisions about which entrees, side items, and beverages to consume for lunch, and they are not selecting the healthiest options available. In many cases, students are not even aware of which food items may be the healthiest choices.

We recognize that the epidemic of childhood obesity facing the U.S. nation is not primarily the result or responsibility of our elementary school food service system. Elementary school–aged children are consuming most of their excess calories and fat outside of the school environment; however, the elementary school system is an institution through which we can reach out and positively impact the health of a majority of American children through education and reinforcement of proper nutrition and adequate levels of physical activity. In 2011, a daily average of over 31 million American children received an elementary school lunch, and research estimates that these children consume approximately 47% of their daily calories within the school environment. Further research highlights the importance of continued improvements in school lunch environments and practices as being essential in reducing childhood obesity. Our program seeks to transform elementary school cafeterias into environments that identify and praise healthy eating decisions on a daily basis through a cost-free model with a minimal investment of time or impact on normal school routines.

How the Program Works

The Healthy Eating Decisions program was designed to be cost-free, sustainable, and minimally intrusive, yet also effective in shifting elementary students’ eating habits in a healthier direction. The Healthy Eating Decisions program provides guidance by identifying the healthiest combination of entrée and side items offered each day and provides positive reinforcement for students who choose these items through public recognition of their healthy eating decision. Each component is further described below.

First, the program identifies the healthiest combination of entrée, side items, and beverage from the available menu options each day. In consultation with a licensed and registered dietitian with over 20 years of experience specializing in pediatric nutrition, we created a set of criteria for specific nutrients and vitamins to determine the “healthiest” combination of entrée and side items on a given daily menu. These criteria are based on guidelines from the DASH eating plan (National Institutes of Health) using a daily target of 1800 calories. Once the nutritional information for each entrée, side item, and beverage is entered into our online menu calculator application, the computer algorithm generates all possible combinations of entrée and side items. Any combinations that do not meet our nutritional criteria or do not contain at least one fruit and one vegetable are discarded. Finally, from the remaining combinations meeting our nutritional criteria, the entrée and side items with the fewest percent of calories from fat are chosen as the “healthiest” combination and identified with bulleted markers on the school’s custom-generated menu. This

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menu is printable and linked on our website for the public to access. Once the Healthy Eating Decisions menu is generated, it is important that students know which items are the healthiest choices on any given day. The Healthy Eating Decisions menu can be posted in the cafeteria and the identified Healthy Eating Decision menu items can be highlighted in school-wide morning announcements or announced by teachers when recording student menu choices prior to the lunch period.

The second component of the program is positive reinforcement for students making healthy eating decisions through public recognition. In designing our program, we wanted to identify a means to provide positive reinforcement of the healthy eating decisions behavior without incurring cost, imposing additional duties on teachers, or interfering with normal school operations. We were also interested in finding a positive reinforcer that would produce an intrinsic emotional response to help instill a sense of accomplishment in the students for having made the daily healthy eating decision. Intrinsic rewards have been shown to better sustain behavioral change than external rewards, which tend to only affect behavior as long as the reward is maintained. The reward that we found to be an effective motivator sustaining positive reinforcement of the healthy eating decisions was allowing students to ring a call bell in the cafeteria. The single bell ring creates a brief moment of public attention for the student. We believe this public recognition instills an intrinsic sense of pride and accomplishment for having chosen the healthy eating decision items for lunch. The bell ringing is also a public reminder to everyone in the cafeteria that students have the opportunity to make healthy eating decisions each day during lunch.

What Have We Learned?

The first implementation of the Healthy Eating Decisions program was in the fall of 2009. Over the last 3 years, the effectiveness of the program has been assessed in four research studies. Overall, the program has been found to effectively increase the percent of healthy lunches served both immediately after implementation of the program and over the long term. In the first 9 days following implementation of the program, the selection of the identified healthiest lunch items increased from 3% to 50% of the lunch items served. The shift in eating behavior was evident across kindergarten through 6th grade, with the greatest effect on the youngest students; 65% of K to 2nd grade students selected the healthiest lunch items compared to 37% of 3rd to 6th grade students. Student demographics did not influence the effectiveness of the program. We tested the program in both a suburban school with a 37% minority population and 41% of the students receiving free or reduced lunch and an urban school with a 98% minority population and 96% of the students receiving free and reduced lunch. The effectiveness of the program was not statistically different between the schools (45% ± 4% compared to 54% ± 4%). Although only students choosing all of the healthiest food items plus nonflavored milk were reinforced with the bell ringing (on average 50% of the students), the selection of nonflavored milk went from 20% before the program to 70% of the student population after implementing our program. This unexpected additional 20% of the students changing their milk selection from flavored to nonflavored milk occurred with no reinforcement for these students (because they did not choose the healthiest food items), but we believe was the result of increased attention on the healthiness of nonflavored milk compared to the higher-calorie flavored milk. All of these positive changes in the students’ selection of food and milk options in the cafeteria were coupled with either no change or slight increases in the overall numbers of lunches and milks sold each day.

In the same study, we also reassessed the effectiveness of the program after 30 days of implementation. There was a slight drop off in the percent of healthy eating decisions after 1 month (20%) compared to the first 9 days following implementation (50%), but there were still significantly large increases in the selection of healthy lunch items compared to the baseline measurements before the program (3%). Perhaps an even greater testament to the effectiveness of the program is that 10 of the 12 elementary schools implementing the program in our initial rollout in 2010 have continued to use the program. At our initial test school, the program was implemented in October of 2009 and continues to be maintained today. School administrators and staff have reported to us that they believe the program is maintaining its effectiveness, and they value keeping the Healthy Eating Decisions program running in their schools. Currently, we are reassessing the effectiveness of the program in schools that have implemented Healthy Eating Decisions for periods of 1, 2, and 3 years.

We have also encountered unanticipated results during the implementation of the Healthy Eating Decisions program. One such unexpected finding was that the healthiest combination of entrée and side items according to our objective nutritional criteria is not always the combination of foods one might intuitively expect to be the healthiest. For example, on February 6, 2012, there was a school menu with entrée choices of chicken nuggets, BBQ pork sandwich, chef salad (with crackers and dressing), or an American sub sandwich. The chicken nuggets were selected as the healthiest entrée based on the nutritional analysis. Without listing all of the nutrient information, the chicken nuggets scored the lowest on calories (nuggets 230, BBQ 344, salad 358, and sub 331) and sodium (nuggets 520 mg, BBQ 1215 mg, salad 1242 mg, and sub 806 mg), and contained an equivalent amount of fat (nuggets 11 g, BBQ 6.7 g, salad 23.23 g, and sub 7.6 g) compared to the other entrees. One would likely expect the chef salad to be the healthiest choice on face value without knowing the nutritional analysis
for each item, when in fact the salad is the unhealthiest choice for the day. This incongruity between what seems like the healthiest choice and the actual healthiest choice represents both a challenge to address and an educational opportunity. When an unlikely food appears as the healthiest choice, there is an opportunity for parents and teachers to have a conversation with the students about why chicken nuggets may actually be healthier than a chef salad. Discussion about the calories, sodium, and fat content in the foods we eat will lead to greater insight and understanding to guide elementary students as they face food choices outside of the school environment.

Another challenge for the success of the program can be the timely receipt of the nutritional information needed to generate the Healthy Eating Decision menus. Our program relies on cooperative planning with the school food service provider in order to receive the nutritional analysis of the next month’s menu with sufficient time to enter the information into our menu calculator application and generate the Healthy Eating Decisions menu. While we have found the food service providers to be supportive of our program and willing partners in sharing the nutritional information, there can be situations beyond our control that delay the receipt of the nutritional information and thus affect the generation of Healthy Eating Decisions menus in a timely manner.

We recognize that our program has limitations. While the automated use of our nutritional criteria to identify the healthy combination of entrée and side items is objectively applied to each daily menu, the nutritional criteria themselves were subjectively chosen. The DASH diet, upon which we primarily based our nutritional criteria, has been shown to be beneficial in reducing weight, waist circumference, and risk factors associated with metabolic disorders when implemented over a 6-month period. However, there is no evidence of health benefits when the DASH diet is applied only to a given meal such as lunch. Some of our subjective nutritional criteria, such as limiting the total fat of the foods and excess calories in beverages, were based on the program’s goal to minimize factors likely to contribute to weight gain. Another limitation is our inability to causally link any reductions in childhood obesity at schools implementing the Healthy Eating Decisions program. At best, we have measured and can continue to measure the effectiveness of our program to influence healthy eating decisions during the elementary school lunch and hope that consistent promotion of healthy eating during lunch will have a positive effect on eating decisions outside of the school environment.

In addition to the challenges and program limitations, we also have encountered multiple unintended positive benefits of the Healthy Eating Decisions program. In one school, the consumption of flavored milk dropped so substantially that the food service provider ceased offering two flavors of milk. In another school, our program raised the public awareness of food being served in the cafeteria, which led to parent involvement with the district administration to lobby the food service provider to improve the food quality. In January, 2012, a new, made-on-site approach to breakfast and lunch food service began in this school as a pilot program to test the cost-effectiveness of providing healthier food offerings. One principal noted that the Healthy Eating Decisions program provides an opportunity for any student at the school to be recognized in a positive way for having made a good choice. Several schools have won state and national awards in part by using their implementation of the Healthy Eating Decisions program as evidence of improving and promoting a healthy school environment. We also have received anecdotal information from teachers that our program is affecting how students approach food choices when they leave the school environment. For instance, one kindergarten student reported in a reflective assignment that he asked his mother to purchase white milk at home because he had switched to drinking nonflavored, white milk at school. While hard to quantify, this transference of healthy eating decisions from the cafeteria environment to food choices outside of the school is likely the most important potential benefit of our program.

Reducing the Obstacles to Implementation

From the start, we have designed the Healthy Eating Decisions program to eliminate or reduce obstacles to implement the program. Being cognizant of the demands to maximize educational time during the school day, we designed brief videos that can be used to implement the program. Educating the students at a school about the Healthy Eating Decisions program takes less than 5 minutes of class time. Some schools with video broadcasting systems show the video throughout the school to all students at the same time, whereas other schools have opted to educate the students through a single common class by showing the video as part of guidance or physical education instruction.

We also purposefully designed a program that could work with any school food service provider. All that we require from the food service provider is the nutritional information for the menu items being served each day. The majority of school food service providers already document the nutrition of the lunch food to ensure that they are meeting the USDA school lunch nutritional guidelines. Our program does not affect any of the food being served; it simply analyzes the possible options and identifies the healthiest combination of entrée and side items offered each day. Likewise, our program does not require any major changes to the lunch service schedule or cafeteria environment. The addition of the call bell station within the cafeteria can be customized to work best within a given school’s routine and physical environment. Some schools place the call bell near the exit of the lunch line where students pay for their lunches, allowing
students to ring the bell before sitting down to eat. Other schools opt to place the call bell near the tray return area or exit of the cafeteria and allow students to ring the bell as they finish lunch or leave the cafeteria. The important factor is that students are allowed a moment of public recognition through ringing the bell within the cafeteria environment.

Finally, our program has always championed the school system as a means to not only educate our children in academic areas but also to prepare them to live healthy lives through education about proper nutrition and physical exercise. Our program seeks partnerships with school systems rather than mandating for change within the school lunch service; recognizing that schools want to implement programs to improve the health and well-being of their students but that schools are often restricted by financial, resource, and time constraints. Our program seeks to reduce these obstacles to implementation by providing a cost-free model to school administrators and food service providers that has the power to transform their cafeterias into environments that value and promote healthy eating decisions each and every day.

Using Healthy Eating Decisions To Prevent Childhood Obesity

The Healthy Eating Decisions program can be implemented using the resources available on our internet website (http://HealthyEatingDecisions.com). In the multimedia toolkit section of the website, there is a video explaining and demonstrating how the program works for anyone who is interested in bringing the program to their elementary school. The commitment from the school to implement the program involves entering the nutritional information for each menu item into our online menu calculator program, announcing the daily combination of healthiest items, and providing public recognition of students who choose the identified healthy combination of foods.

The first step in implementing the Healthy Eating Decisions program is to identify the person that will serve as the local program director at the school. This person’s primary responsibility is to enter the nutritional information for menu items into our online menu calculator application to generate the Healthy Eating Decisions menus. The local school director can be a member of the office or cafeteria staff, a school nurse, a teacher, or even a parent volunteer with a special interest in improving healthy eating during lunch. The initial menu is the most time consuming to construct because each school starts with an empty database and must add menu items. However, once items are entered into the database, adding these items to future menus is as easy as dropping and dragging the item onto the daily menu.

Once a school decides to implement the Healthy Eating Decisions program, there is an instructional video for the teachers and staff of the school that explains how the program works and what is required of them for the program to be successful. It may be a good idea to show this video to the teachers during a faculty and staff meeting, allowing for a discussion of their minimal responsibilities and the potential benefit of improving the healthy eating habits of the students. It is essential to get buy-in from the teachers for the program to be successful. All that we ask of teachers is that they ensure that their students know which items are identified as the healthiest choice and that they allow students to be recognized for having made the healthy choice. When schools are ready to begin the program, there is a brief video (3:35 minutes) on our website specifically designed to educate the elementary school students about healthy eating decisions and the program beginning in their school. In addition to a brief video explaining the program to parents, there also is a brochure on the multimedia toolkit website that can be printed and sent home with the students to inform parents about the program.

Finally, schools must announce which of the menu items are the healthy menu items each day and provide a means for public recognition of those choices through ringing a call bell in the cafeteria. There are many options for implementing the public recognition aspect of the program. At the start of the program, someone must be designated to identify which students made the complete healthy choice (identified entrée, side items, and non-flavored milk or alternative beverage). This person could be someone who is typically present in the cafeteria, such as the students’ teacher or a cafeteria staff member. As the program becomes a natural part of the school environment, students will not need to be told when they can ring the bell because they become very good at identifying who did and did not make the healthy choice for the day and subsequently knowing when it is and is not appropriate to ring the bell.

Our program was designed to be simple so as to reduce barriers to its implementation and use. Some schools have come up with innovative enhancements and modifications to our program, including additional incentives for healthy eating decisions such as extra recess time. Other schools have used competition between classes within a grade or between grade levels by tracking the numbers of healthy eating decisions through graphs or by adding marbles to jars in the cafeteria. Regardless of the customization of our program, we strongly believe that the experience of a 5-year-old kindergarten student entering a cafeteria that consistently identifies and values healthy eating decisions during lunch has the ability to develop a sense of pride and heightened awareness of making healthy eating decisions. Our goal is for any student, who has experienced this program, to leave the elementary school with internalized skills to recognize healthy eating decisions such that he or she has the tools to be a successful healthy consumer of foods and feel pride when making a healthy eating decision.
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Author Disclosure Statement

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