



**The Arizona Department of Education  
Health and Nutrition Services**

**2004 Team Nutrition Grant Results**

**Arizona Healthy School Environment Model Policy  
Implementation Study  
Secondary Schools**

**September 2006**

## Table of Contents

	<b><u>Page</u></b>
Introduction.....	1
Purpose.....	1
Methods.....	2
Study Design.....	2
Participant Selection.....	3
Data Collection.....	3
Results.....	4
Participant Summaries.....	4
Nutritional Analysis.....	9
Financial Analysis.....	33
Discussion.....	40
Nutrition.....	40
Financial.....	40
Summary and Conclusion.....	46

## **INTRODUCTION**

In the past twenty years the number of overweight children has more than doubled in the United States and tripled among adolescents. Over thirty percent of American children and adolescents aged six to nineteen are overweight or at risk of becoming overweight. Obesity can have a serious impact on a child's health. Chronic diseases, once considered adult problems, are now evident in children; diseases such as Type II Diabetes, hypertension, and cardiovascular disease are now diagnosed in children with increased prevalence. The causes of obesity are multi-faceted and include genetic factors, poor eating habits, inactivity, and environmental factors.

In recent years, more attention has been given to the nutritional quality of foods and beverages being sold in schools through vending, snack bars, school stores, and a la carte offerings. Foods and beverages sold outside of the federally regulated National School Lunch Program (NSLP) and School Breakfast Program (SBP) are known as competitive foods. Competitive foods are sold in competition with program meals and are generally of poor nutritional value. Such foods and beverages are often energy dense providing high amounts calories, fat, and sodium while providing little other nutrition. A recent report found that in both middle schools and high schools, seventy-five percent of beverage options and eighty-five percent of snack foods were of poor nutritional value. This is alarming since a national survey conducted by the Centers for Disease Control and Prevention (CDC) found that forty-three percent of elementary schools, seventy-four percent of middle schools and ninety-eight percent of high schools offer foods and beverages through vending machines, snack bars, or school stores.

Schools alone cannot solve the nutritional problems of children. However, children spend many hours of each day in a school setting learning and socializing. Schools have a responsibility to help keep their students safe and healthy. Unfortunately, due to budget concerns many schools have elected to sell foods and beverages of little nutritional value to help offset costs. School environments that offer such foods and beverages on campus often send mixed messages when students are taught about good nutrition in the classroom but are then enticed by an array of less nutritious foods and beverages offered in vending machines, school stores, snack bars, and a la carte lines.

## **PURPOSE**

In view of the increased prevalence of overweight and obesity in American youths, the Arizona Department of Education's Health and Nutrition Services has taken the initiative to evaluate the nutritional content of competitive foods and beverages sold on school campuses in Arizona. This study also intends to evaluate the financial implications to schools when replacing foods and beverages found to be less nutritious with healthier choices.

In 2003, the Arizona Department of Education (ADE) was granted a competitive United States Department of Agriculture (USDA) Team Nutrition Training Grant. The goal was to guide and assist schools to create and maintain a coordinated, comprehensive school health program. Such a program integrates a school's child nutrition programs, with the classroom, the community, and the entire school environment.

A total of thirty schools applied for mini-grants ranging from \$5,000 to \$10,000 to assist with the implementation of the Arizona Healthy School Environment Model Policy developed by the Arizona Action for Healthy Kids team. Eight schools were selected based on specific scoring criteria. Nutrition and financial information was collected from the participating schools to evaluate the nutritional and fiscal impact of implementing the model policy.

Results were encouraging; schools were able to improve the nutritional content of foods and beverages offered through vending, school stores, and a la carte lines without suffering a financial hardship. To view the 2003 Team Nutrition Grant Report in its entirety please visit: <http://www.ade.az.gov/health-safety/cnp/teamnutrition/2003-2004/>.

Positive food practices and attitudes established during a child's early years affects food choices and ultimately nutritional status throughout life. Developing good habits in the early years is less challenging to most individuals than altering existing poor behaviors' during the secondary school age.

To address concerns regarding the feasibility of implementing the model policy in secondary schools, specifically at the junior high and high school level where the majority of competitive food sales occur, the ADE applied for and received a competitive 2004 Team Nutrition Training Grant. The 2004 Team Nutrition Training Grant provided the resources needed to further pilot the Healthy School Environment Model Policy in secondary schools.

## **METHODS**

The Arizona State Board of Education approved the 2004 Team Nutrition Grant Study on January 24, 2005.

### **Study Design**

Secondary schools voluntarily applied for one of four 2004 Team Nutrition mini-grants. Selected schools implemented the Arizona Healthy School Environment Model Policy during the 2005 fall semester.

The model policy contains four areas of emphasis:

- Food Service Operation
- Nutrition Education
- Food Choices at School and a Healthy School Environment
- Physical Activity and a Healthy School Environment

Participating schools were required to implement the Food Service Operation and the Food Choices at School components of the model policy. The schools were not required to implement the Nutrition Education and Physical Activity components of the model policy however, each school was strongly encouraged to implement all four areas of emphasis.

The Arizona Department of Education developed the Team Nutrition Grant Nutrition Standards for foods and beverages sold in vending machines, snack bars, school stores and a la carte lines. The standards were based on the Dietary Guidelines for Americans. Participating schools were required to ensure each item sold met the nutrition standards.

The Team Nutrition Grant Nutrition Standards for food items being offered in vending, school store, a la carte, and snack bars are as followed:

- 30% or less of total calories from fat (excludes seeds and nuts)
- 10% or less of total calories from saturated and trans fatty acids (combined)
- No more than 35% total sugar by weight (excludes dairy products and fruits and vegetables)
- Must contain at least 1 gram of fiber (excludes dairy products)
- Maximum 300 calories per serving

The Team Nutrition Grant Beverage Guidelines are as followed:

- Water – Pure water, nothing added
- Flavored Water – Non-carbonated unless exempted by the USDA
- Juice – 100% fruit or vegetable juice, non-carbonated unless exempted by the USDA, limited to 12 oz. or less
- Juice Based Smoothie – Juice must be 100%, limited to 12 oz. or less
- Milk - 2% fat or less, limited to 12 oz. or less
- Milk Alternatives – Enriched, low fat or less, limited to 12 oz. or less
- Yogurt Based Drinks/Smoothies – Low fat or less, limited to 12 oz or less
- Sport Beverages - Limited to 12 oz. or less

### **Participant Selection**

The 2004 Team Nutrition mini-grants were marketed on the Arizona Department of Education's School Health and Nutrition Programs website. Other promotional strategies included contacting Arizona secondary schools via email and telephone. Five secondary schools voluntarily submitted applications. Originally four \$15,000 mini-grants were available. As a result of only five schools submitting applications the ADE extended the number of mini-grants to five. The five secondary schools awarded the mini-grants include:

- Cesar Chavez High School – Phoenix Union High School District
- Flagstaff High School – Flagstaff Unified School District
- Mile High Middle School – Prescott Unified School District
- Sierra Middle School – Sunnyside Unified School District
- Thunder Mountain Middle School – Apache Junction Unified School District

Flagstaff High School withdrew from the pilot study prior to the model policy implementation period and receiving grant funds leaving the remaining four secondary school to implement the model policy.

## **Data Collection**

A pre-implementation survey questionnaire was developed to assess each school's understanding of the pilot study as well as to identify any challenges the schools felt they might encounter. The questionnaire also identified the school's level of commitment to the pilot study and benchmarks they would like to accomplish.

To evaluate the objectives of the 2004 Team Nutrition mini-grants the Arizona Department of Education collected financial data and nutritional information for all foods offered during the school day.

To determine if revenue would be impacted by implementing the Arizona Healthy School Environment Model Policy, key financial data was requested of each pilot school. Pre-implementation financial data was collected for the 2004 fall semester prior to implementing the model policy. Post-implementation financial data was collected for the 2005 fall semester following the implementation of the model policy. Financial forms were completed monthly by each school. Information regarding program meals, student sales, a la carte sales, vending sales and any other food sales occurring during school hours was collected.

A random sample of one weeks' lunch menus along with all other foods available for sale during school hours was analyzed by ADE staff using Nutrikids® for Windows by Lunchbyte Systems. The analysis was then shared with the pilot school food service staff. The information was incorporated into the changes planned in order to meet the required steps of implementing the model policy. The nutritional analysis was conducted again after the model policy was implemented. The pre and post-model policy implementation analysis was compared to identify pre and post compliance levels with the model policy.

## **RESULTS**

### **Participant Summaries**

Thunder Mountain Middle School- The Administration at Thunder Mountain Middle School made some positive changes on campus prior to participating in the Team Nutrition Mini-grant. Physical Education (PE) classes were available year-round to students but due to the lack of sufficient Physical Education teachers, not all students were able to participate year-round. The school had opened their sports fields to students during lunch periods and also offered intramural sports after school. The vending machines on campus only dispensed water. The Administration believes the mini-grant offered further motivation to improve the school environment. Such as further improving food and beverage choices available on campus.

The school has moved away from food incentives and discontinued selling cookie dough as a fundraiser. Fundraisers now include magazine sales, candle sales, entertainment books, and holiday wrapping paper. The Junior Honor Society replaced donut sales with food and beverage items that meet the Team Nutrition Grant Nutrition Standards and as reported by the school's Principal, suffered no financial impact.

The Food Service Department also improved the foods and beverages available in their a la carte lines. Instead of cookies, muffins, donuts, pizzas, and nachos with cheese sauce, students can choose baked chips, granola bars, chef salads, fruit trays, yogurt, and a student favorite: low fat six inch Subway subs. The department saw a noticeable increase in a la carte sales during the model policy implementation period. After the evaluation period, it was reported a la carte sales further increased with the addition of an iced base 100 percent juice beverage and non-fat frozen yogurt. Both items quickly became popular with the students. Student participation in the NSLP and SBP increased during the evaluation period. Breakfast participation increased more than fifty percent. Lunch participation increased nearly ten percent during the same time period. The Food Service Department also conducted their second annual food tasting show. Members of the Student Council and parents were invited to taste a variety of foods and beverages all of which met the nutrition standards. Items that received positive remarks will be available next school year.

Vending machines were minimal at Thunder Mountain Middle School prior to the implementation period. Only beverage machines were available to students. Three machines offered water and one machine offered electrolyte-replacement drinks. The distributor was unable to reconfigure the vending machine to dispense 12 ounce Gatorade containers. Therefore, a timer was placed on the machine restricting access during school hours. The school experienced a modest decline in vending revenue which in part may be due to machines not working properly. It was reported by the school's Principal that there were times when one or more machines were broken, or would jam, or take the students money without dispensing a beverage. After the evaluation period, the machines were vandalized on two occasions. The decision was made to remove the vending machines from campus. As a result, four groups which included the library, chorus, science, and Junior Honor Society began selling bottled water and Propel fitness water to the student body. The Principal reports the groups are now bringing in three to four times more revenue than the vending machine provided.

Both the school's administration and food service department reported being pleased with the results of the Team Nutrition Mini-Grant, but Thunder Mountain Middle School is not done yet; students can expect more changes next school year. The school is adding an additional PE teacher which will allow all students the opportunity to participate in PE all school year. Other planned programs include an incentive program for students who provide evidence of leading a healthier lifestyle.

Mile High Middle School- The staff at Mile High Middle School developed a committee to help identify positive changes in the areas of nutrition and physical activity. Mile High Middle School used Team Nutrition Mini-grant funds to purchase a software system and supporting equipment to help enhance the efficiency of their school lunch and breakfast programs. The goal was to reduce the time students spend in line waiting for program meals. The school hoped shorter lines would increase participation in the NSLP and SBP. Included in the software was a nutritional analysis program which assisted them in improving food choices available on campus.

The Food Service Department made improvements in their offerings in the snack bar. They already had a policy prohibiting food items with a first ingredient of sugar or fat. The department removed items such as Twinkies, donuts, honey buns, and fruit pies. Other items eliminated included nachos with cheese, several pizzas, and other pastries. Items offered during the model policy implementation period included baked chips, cereal and granola bars, non fat frozen yogurt, fruit and yogurt platter, Chef Salad, and turkey and veggie wraps.

The Food Service Department experienced a decline of about twenty percent in snack bar sales. A concern of the Food Service Director was the availability of snack items that met the nutrition standards. The school experienced some difficulty finding or keeping items in stock. This was in part due to the availability of items through the districts cooperative purchase agreement. In order to find additional items the Food Service Director had to purchase items at a local wholesale store. The Director believes if they would have had a larger variety of items available during the time of evaluation the school would not have experienced a decline in snack bar revenue. However, participation in program meals increased significantly. The total number of lunches served increased twenty percent and profits from breakfast and lunch program meals increased forty-five percent during the evaluation period. The removal of low-nutrient dense foods seems to have motivated students to participate in program meals.

The vending machines on campus only offered beverages. Prior to the model policy implementation period vending machines offered a variety of twelve and twenty ounce sodas, twenty ounce electrolyte-replacement drinks, as well as fruit drinks, and water. The soda vending machines were removed from campus. The machines now only offer water and twelve ounce electrolyte-replacement drinks which are not available to students during lunch periods. Mile High Middle School's Principal stated he did not want the vending machines to compete with the Food Service Department. There was no loss in vending machine revenue; in fact, revenue increased \$175 during the implementation period. This prompted the school's Principal to state, "if kids have two dollars in their pocket they will find someplace to spend it."

Both the Principal and Food Service Director of Mile High Middle School believe participating in the mini-grant was a positive experience and look forward to continuing their efforts.

Sierra Middle School- Big changes occurred at Sierra Middle School during the model policy implementation period. Sierra used Team Nutrition Mini-grant funds to purchase a new health curriculum to help teach students the importance of good nutrition and physical activity. They then gave students plenty of opportunities to practice what they learned.

Health and nutrition is no longer just a subject covered in health class at Sierra Middle School. An Art teacher began a nutrition unit to teach students about the different ingredients in processed foods. Their assignment was to "catch" and photograph family and friends being physically active or eating healthy foods. Utilizing information from



MyPyramid.gov, Team Nutrition, University of Arizona, and the National Dairy Council nutritional studies were also intergraded into Science and Physical Education classes.

The school participated in the International Walk to School Day. The theme was about making healthy choices and becoming more active. Students were encouraged to walk to school and were joined by National Guardsmen, the University of Arizona mascot, and their teachers. During the first hour of school students participated in a school-wide field day. Fun activities and healthy snacks were available and each student received a bag with VERB literature, frisbees and balls, information about MyPyramid.gov, "Got Milk?" stickers, and walking and biking safety literature.

In the past Sierra was very fond of their parties. Their celebrations often centered on foods such as candy, pizza, and cake. This school year physical activity parties often replaced food parties. Field days included pool parties, rock climbing, inflatable jumpers, and other activities.

Sierra Middle School is also excited about their purchase of physical fitness equipment this past spring which included two Elliptical machines, a treadmill, a Smith Machine, a Universal Weight Machine, and an Inner or Outer Thigh Machine.

The Food Service Department made positive changes as well. Recipes were adjusted to reduce calorie and fat content. A free salad bar containing a wide variety of fruits and vegetables was added for all students to enjoy. It was reported students often take whole fresh fruits with them to eat later in the day. During an eighth grade graduation party this spring, a large fruit salad was provided as part of the celebration. According to the Physical Education teacher the fruit salad was gone in no time, she stated "never before had that happened."

The Food Service Department also improved the food and beverage choices available at the snack bar. The department eliminated many of the offerings from the previous year and made the decision to offer only a minimal number of items in the hope of increasing the student participation in the NSLP meals. Items such as cheeseburgers, pizza, corn dogs, donuts, and chips were replaced with cereal and granola bars, baked chips, graham crackers, and peanuts. The department did see a significant decline in a la carte sales during the model policy implementation period.

Vending machines were minimal at Sierra Middle School prior to the implementation period. Only beverage machines were available to students. The distributor was unable to reconfigure the vending machine to dispense 12 ounce Gatorade containers. Therefore, a timer was placed on the machine restricting access during school hours. Two machines offered water and the remaining machine offered juice. The school wanted to add a healthy snack machine but was unable to find a distributor in the area able to comply with the nutrition standards. Vending sales more than doubled during the model policy implementation period.

Sierra Middle School is very happy they participated in the Team Nutrition Mini-grant. They feel the opportunity gave them a great starting point when developing their

district's Local Wellness Policy. A common response to concerns brought up in wellness policy meetings was "we are already doing it at Sierra." The school is planning more changes for next school year. They are expanding the lunch period to three forty-five minute periods. This will allow more time for school physical education teachers to offer open gymnasium activities and to begin intramural sport activities during lunch periods. Sierra also plans to add outdoor obstacle course equipment next school year. Working in collaboration with the YMCA, after school hours Sierra Middle School will become a Community Fitness Center. The school will open its doors to allow the community to utilize the school's physical activity facilities.

Cesar Chavez High School- The motivated administration at Cesar Chavez High School set out to improve the food choices for the students at their school. Prior to implementing the model policy, carbonated beverages and foods of minimal nutritional value were available throughout the school day through many different venues such as vending machines, DECA school store, and the JROTC store. The administration removed the option of carbonated beverages and foods of low nutritional value from campus vending machines, a la carte lines, and school stores for the entire day. When students returned to school after the summer break, gone were the sodas, candy bars, large packets of cookies, and what seemed to be an endless supply of Flamin Hot Cheetos. In their place were baked chips, cereal and granola bars, pretzels, jerky, and nuts and seeds.

The Food Service Department made positive changes as well. Recipes were adjusted to reduce calorie and fat content. Sides of baked beans and pasta salad replaced French fries. Fried French fries were replaced with baked fries and the department limited the number of days French fries were offered as part of their NSLP meal. A la carte lines used to offer students a variety of candy bars, chips, large portions of French fries, and a 625 calorie, 27 grams of fat personal pan pizza. The a la carte lines inside the cafeteria were changed to only offering NSLP meals, leaving only the outside a la carte line available. The personal pan pizzas were replaced with sub sandwiches and homemade burritos. To the Food Service Manager's surprise and delight, the sub sandwiches and homemade burritos were more profitable than the personal pan pizzas.

The Food Service Department also implemented a Universal Free Breakfast Program at Cesar Chavez High School. The program offers a free breakfast to all enrolled students which resulted in a significant increase in breakfast meals served. Due to the success of the Universal Free Breakfast Program, the school district implemented the program in all of their schools. In addition to the breakfast program the Phoenix Union High School, the District Superintendent implemented the Team Nutrition Grant Nutrition Standards throughout the district.

Cesar Chavez High School did experience a decrease in vending machine revenue during the implementation period. Generally, student clubs were the beneficiary of funds generated from vending machines. With the removal of soda and electrolyte beverage machines, school administration was limited in their ability to distribute funds to some of the smaller student clubs on campus. The school administration is looking at other possibilities to help fund student clubs. The Administration believes by offering a greater

variety of items that meet the nutrition standards vending revenue will increase. This may prove easier in the near future as food manufacturers are developing healthier food and beverage products to be offered in schools. They are also researching the possibility of purchasing or leasing their own vending machine. An Assistant Principal is hoping to see student clubs become more creative in their fundraising ability by offering non-food items as seen in other student groups who purchased a helium tank and sold birthday balloons. Another club sold t-shirts customized at the student's request. There were some growing pains during the model policy implementation period but the school is determined to continue with their efforts.

Both the Food Service Department and the School Administration were pleased to participate in the Team Nutrition Mini-grant. The Food Service Department experienced an increase in NSLP and SBP meal participation and was able to stay in the black with their food service budget while offering healthier foods and beverages through a la carte lines. The School Administration was happy to see more students eating meals. An Assistant Principal at the high school stated "it was nice to see that the longest lunch line is no longer the line in front of the chip machine." He believes good changes have occurred on campus. Students are eating more fresh fruit and some are beginning to ask questions about the foods and beverages they are consuming. The school had to add an additional Lifetime Sports class session during the spring semester due to an increase in popularity. Even the staff/faculty is getting involved. After some initial complaints, the staff/faculty requested healthier selections to be available in the faculty cafeteria and about thirty teachers participated in a weight loss contest.

### **Nutritional Analysis**

The ADE grant coordinator visited and met with officials of each mini-grant recipient school during the spring of 2005. During the meetings the grant coordinator discussed the Team Nutrition Grant Nutrition Standards in detail. School officials had the opportunity to have any questions answered and to present any additional plans for the model policy implementation period. During the school visits the ADE grant coordinator collected information on all foods and beverages sold during the school day at the time of the visit. This included items sold in vending machines, a la carte lines, snack bars, and school stores.

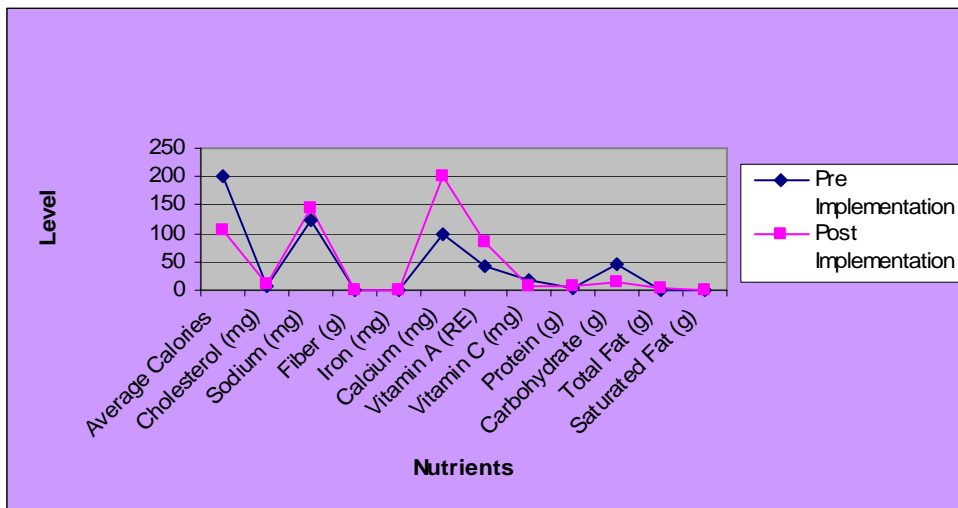
The ADE grant coordinator provided each school with a detailed nutritional analysis of the school's lunch program meals and all other foods and beverages sold on campus (vending, a la carte, snack bar, school stores). A summary was provided outlining the foods and beverages that did not meet the nutrition standards. Although improving program meals was not a requirement of the mini-grant, recommendations on how to improve the lunch program meals were provided. To help the schools find foods and beverages that met the nutrition standards the grant coordinator provided extensive but not all-inclusive lists of food and beverage items which met the nutrition standards for consideration.

Thunder Mountain Middle School (TMMS)

**Table 1. TMMS beverage analysis pre and post implementation**

	Pre Implementation	Post Implementation
Average Calories	201	104
Cholesterol (mg)	6	11
Sodium (mg)	124	144
Fiber (g)	0	0
Iron (mg)	0	0
Calcium (mg)	100	200
Vitamin A (RE)	42	84
Vitamin C (mg)	17.17	5.85
Protein (g)	2.87	5.75
Carbohydrate (g)	45.92	14.75
Total Fat (g)	1.25	2.5
Saturated Fat (g)	0.75	1.5

**Chart 1. TMMS beverage analysis pre and post implementation**

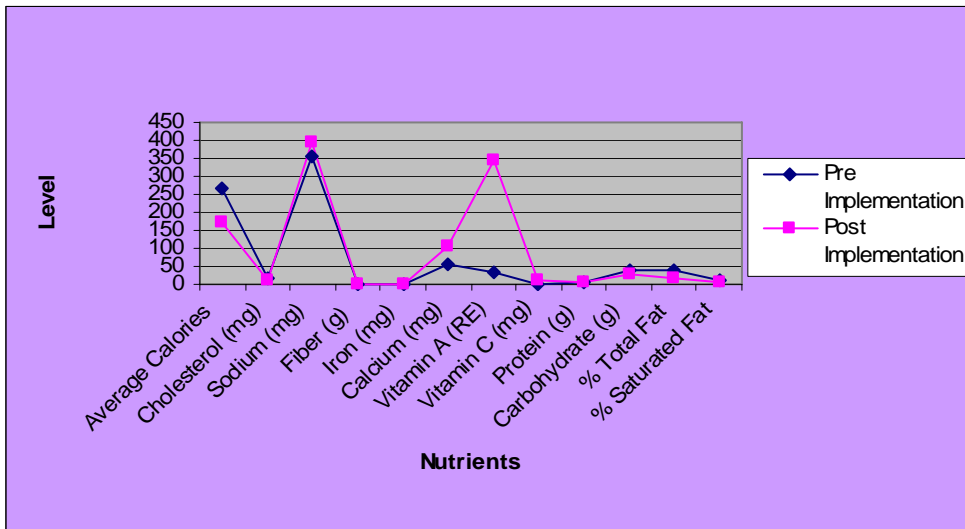


Thunder Mountain Middle School continued

**Table 2. TMMS A la carte analysis pre and post implementation**

	Pre Implementation	Post Implementation
Average Calories	268	170
Cholesterol (mg)	16	12
Sodium (mg)	353	394
Fiber (g)	1.56	1.98
Iron (mg)	1.04	1.57
Calcium (mg)	57.9	107.28
Vitamin A (RE)	35	345
Vitamin C (mg)	0.4	12.35
Protein (g)	5.97	6.49
Carbohydrate (g)	36.7	29.17
% Total Fat	36.95	18.9
% Saturated Fat	12.86	5.75

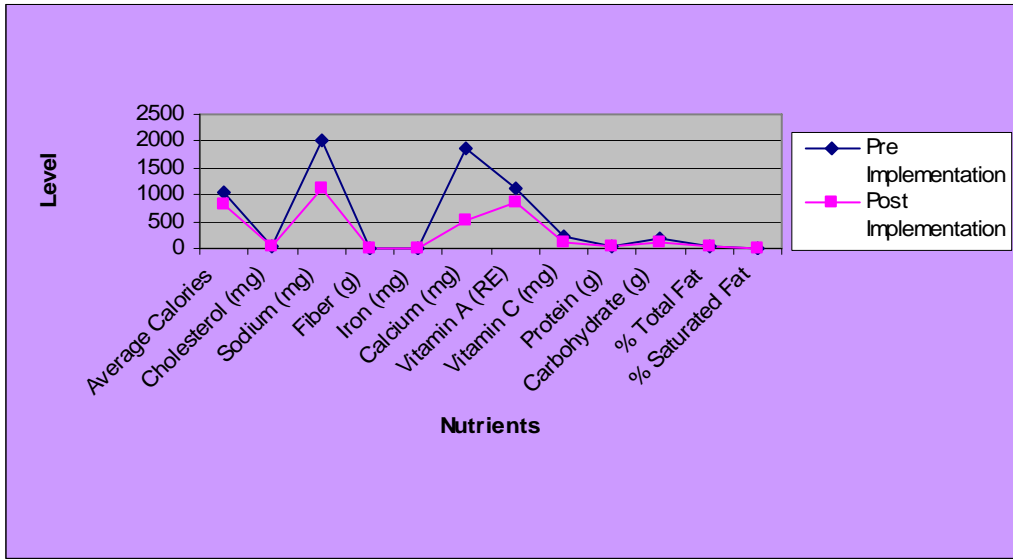
**Chart 2. TMMS a la carte analysis pre and post implementation**



Thunder Mountain Middle School continued

<b>Table 3. TMMS lunch program meals analysis pre and post implementation</b>		
	Pre Implementation	Post Implementation
Average Calories	1040	812
Cholesterol (mg)	39	53
Sodium (mg)	2026	1111
Fiber (g)	10.66	10.27
Iron (mg)	6.48	4.83
Calcium (mg)	1847.89	505.83
Vitamin A (RE)	1113	854
Vitamin C (mg)	213.2	119.76
Protein (g)	35.64	32.07
Carbohydrate (g)	168.72	119.26
% Total Fat	22.94	27.88
% Saturated Fat	5.55	8.43

**Chart 3. TMMS lunch program meals analysis pre and post implementation**

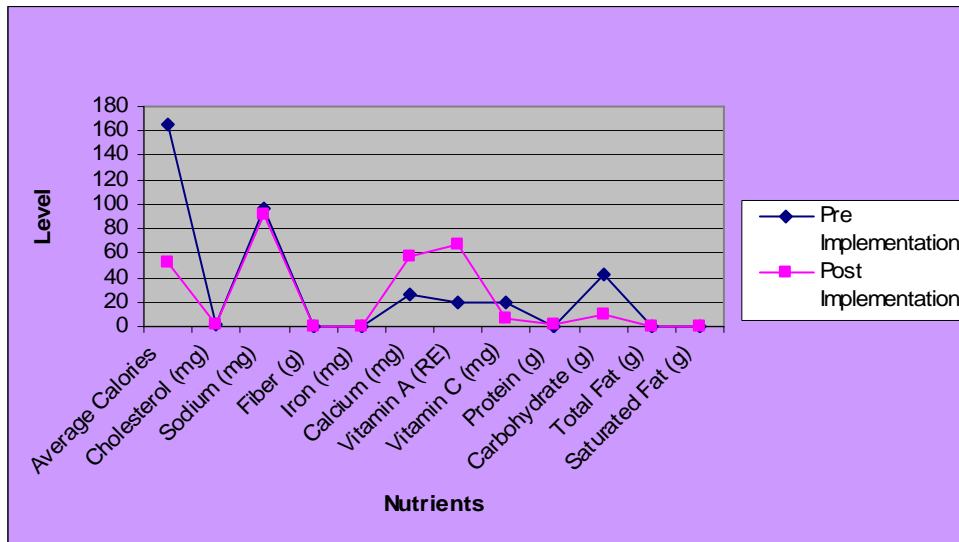


Mile High Middle School (MHMS)

**Table 4.** MHMS beverage analysis pre and post implementation

	Pre Implementation	Post Implementation
Average Calories	165	52
Cholesterol (mg)	2	2
Sodium (mg)	96	92
Fiber (g)	0.03	0.11
Iron (mg)	0.03	0.06
Calcium (mg)	26.65	57.08
Vitamin A (RE)	19	67
Vitamin C (mg)	19.3	6.75
Protein (g)	0.62	1.48
Carbohydrate (g)	42.52	10.53
Total Fat (g)	0.48	0.44
Saturated Fat (g)	0.03	0.28

**Chart 4.** MHMS beverage analysis pre and post implementation

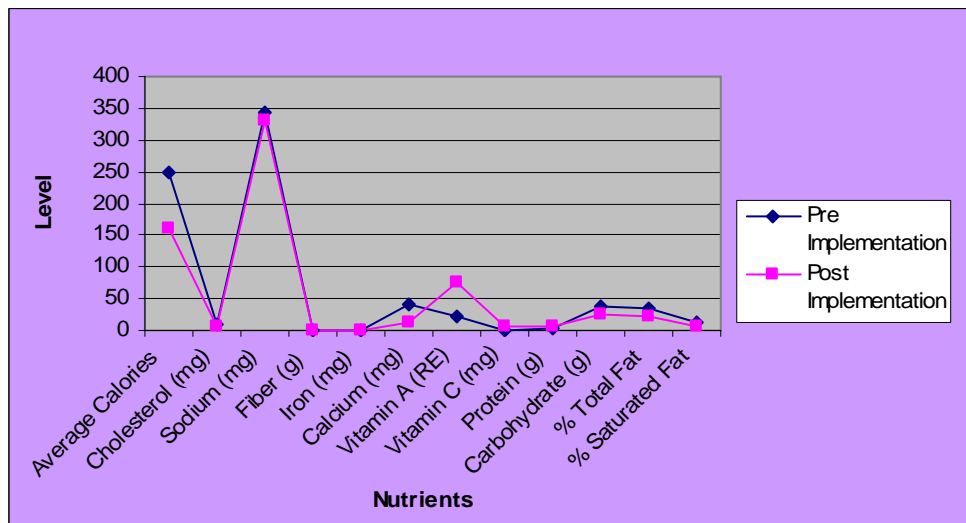


Mile High Middle School continued

**Table 5.** MHMS a la carte analysis pre and post implementation

	Pre Implementation	Post Implementation
Average Calories	250	160
Cholesterol (mg)	10	6
Sodium (mg)	344	330
Fiber (g)	1.15	1.21
Iron (mg)	1.57	1.56
Calcium (mg)	42.19	12.6
Vitamin A (RE)	23	76
Vitamin C (mg)	0.96	7.07
Protein (g)	4.47	6.31
Carbohydrate (g)	36.64	24.62
% Total Fat	34.53	23.01
% Saturated Fat	12.3	6.73

**Chart 5.** MHMS a la carte analysis pre and post implementation

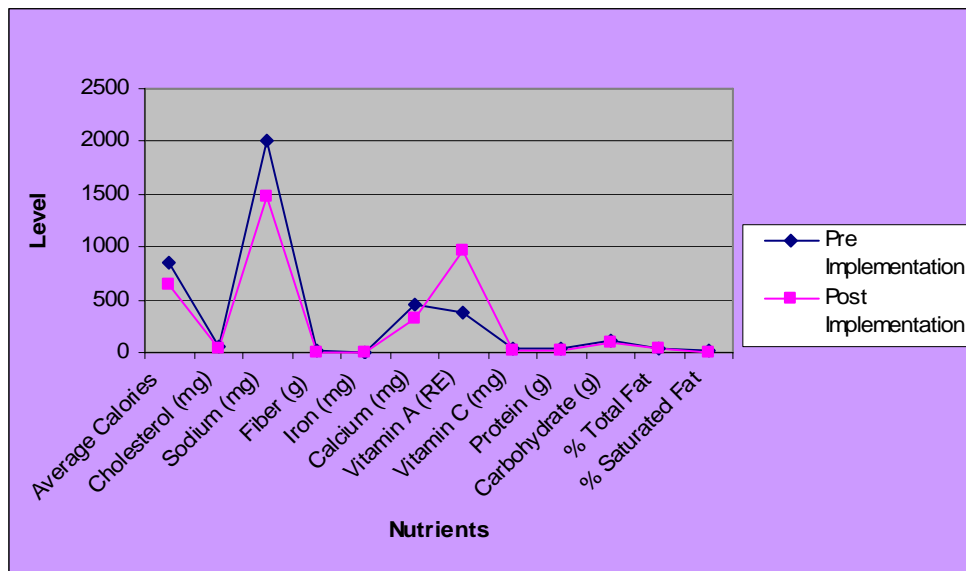




Mile High Middle School continued

<b>Table 6. MHMS lunch program meals analysis pre and post implementation</b>		
	Pre Implementation	Post Implementation
Average Calories	848	643
Cholesterol (mg)	48	31
Sodium (mg)	2011	1483
Fiber (g)	9.93	8.52
Iron (mg)	5.21	4.25
Calcium (mg)	459.35	319.15
Vitamin A (RE)	379	967
Vitamin C (mg)	32.86	26.42
Protein (g)	29.52	24.55
Carbohydrate (g)	115.01	90.41
% Total Fat	32.37	28.47
% Saturated Fat	10.13	8.11

**Chart 6. MHMS lunch program meals analysis pre and post implementation**

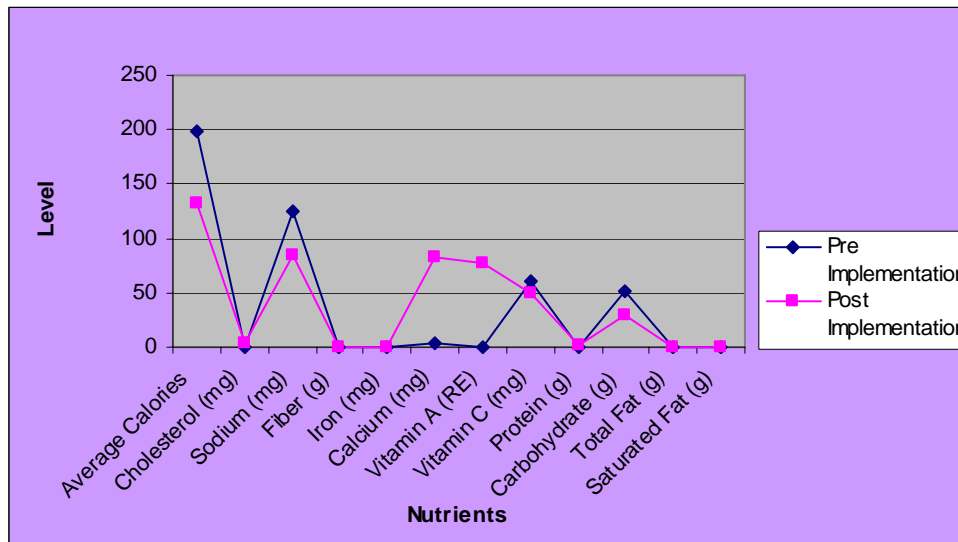


Sierra Middle School (SMS)

**Table 7. SMS beverage analysis pre and post implementation**

	Pre Implementation	Post Implementation
Average Calories	198	133
Cholesterol (mg)	0	3
Sodium (mg)	125	85
Fiber (g)	0	0
Iron (mg)	0	0.08
Calcium (mg)	4.22	81.85
Vitamin A (RE)	0	78
Vitamin C (mg)	60.5	49.94
Protein (g)	0.11	2.22
Carbohydrate (g)	51.24	30.08
Total Fat (g)	0	0.58
Saturated Fat (g)	0	0.35

**Chart 7. SMS beverage analysis pre and post implementation**

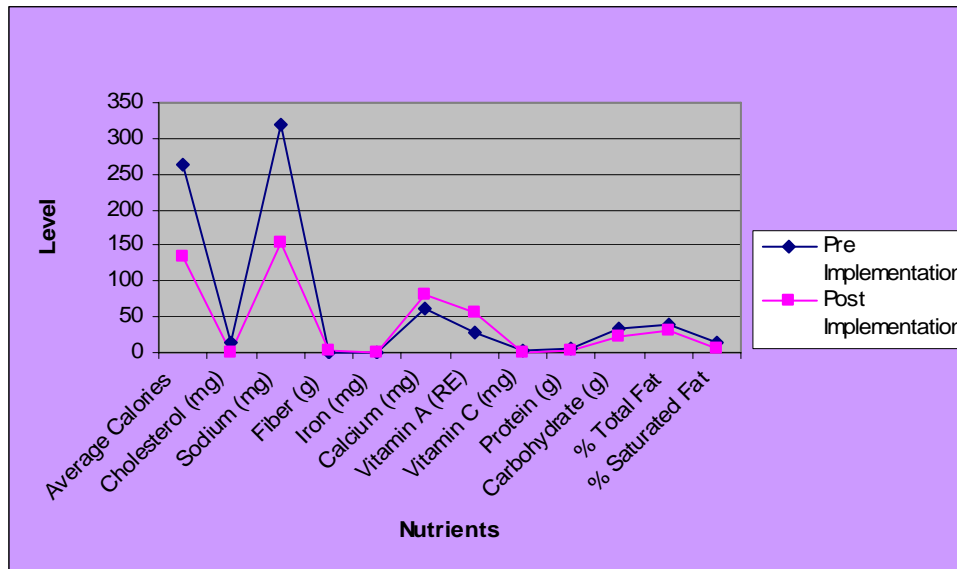


Sierra Middle School continued

**Table 8. SMS a la carte analysis pre and post implementation**

	Pre Implementation	Post Implementation
Average Calories	262	135
Cholesterol (mg)	15	0
Sodium (mg)	319	154
Fiber (g)	1.39	1.44
Iron (mg)	1.09	0.8
Calcium (mg)	60.23	81.94
Vitamin A (RE)	29	55
Vitamin C (mg)	1.81	0.6
Protein (g)	6.34	2.41
Carbohydrate (g)	33.35	21.82
% Total Fat	39.2	30.61
% Saturated Fat	12.84	5.51

**Chart 8. SMS a la carte analysis pre and post implementation**

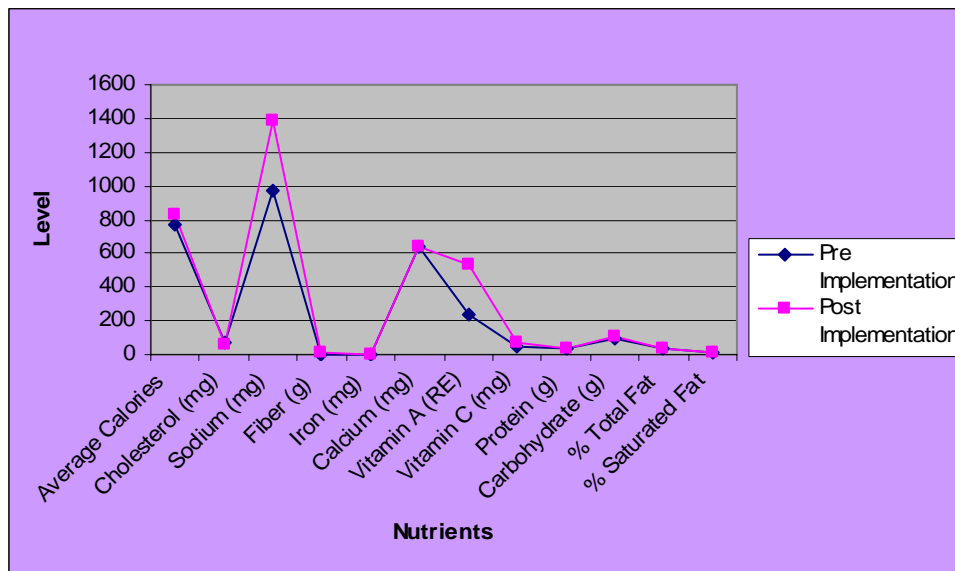


Sierra Middle School continued

**Table 9.** SMS lunch program meals analysis pre and post implementation

	Pre Implementation	Post Implementation
Average Calories	769	826
Cholesterol (mg)	68	63
Sodium (mg)	969	1387
Fiber (g)	5.83	7.84
Iron (mg)	4.4	5.48
Calcium (mg)	638.2	635.98
Vitamin A (RE)	234	528
Vitamin C (mg)	41.94	73.48
Protein (g)	29.63	34.59
Carbohydrate (g)	93.55	112.01
% Total Fat	35.13	29.97
% Saturated Fat	11.92	9.7

**Chart 9.** SMS lunch program meals analysis pre and post implementation

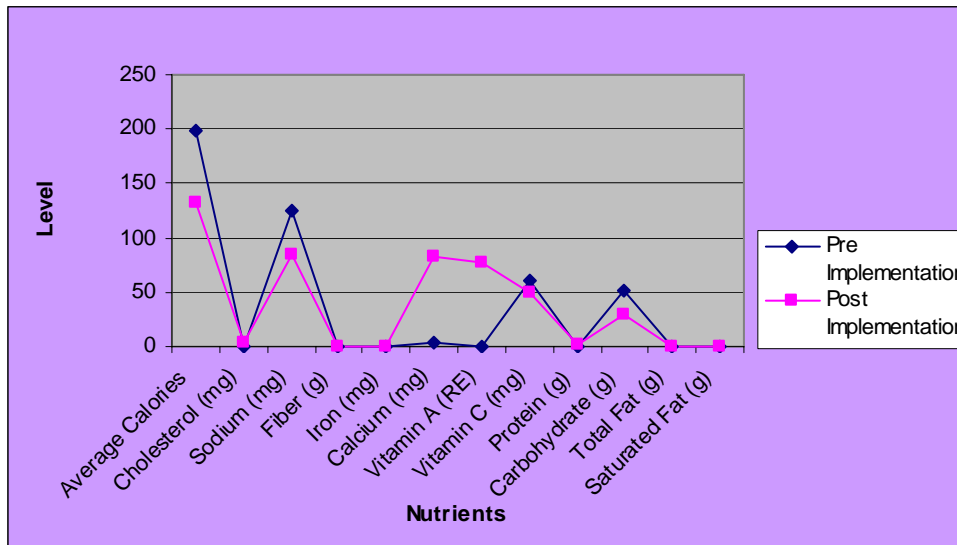


Cesar Chavez High School (CCHS)

**Table 10.** CCHS beverage analysis pre and post implementation

	Pre Implementation	Post Implementation
Average Calories	198	133
Cholesterol (mg)	0	3
Sodium (mg)	125	85
Fiber (g)	0	0
Iron (mg)	0	0.08
Calcium (mg)	4.22	81.85
Vitamin A (RE)	0	78
Vitamin C (mg)	60.5	49.94
Protein (g)	0.11	2.22
Carbohydrate (g)	51.24	30.08
% Total Fat	0	0.58
% Saturated Fat	0	0.35

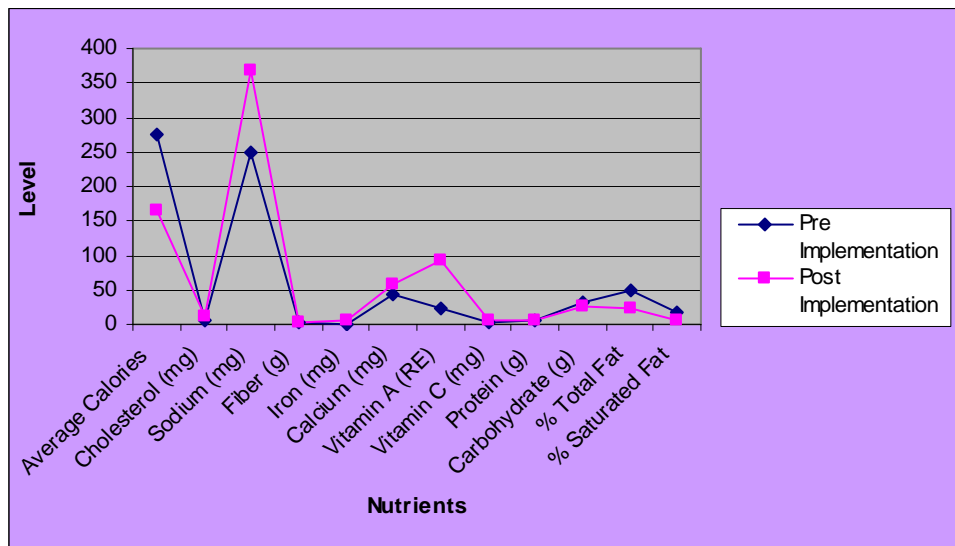
**Chart 10.** CCHS beverage analysis pre and post implementation



Cesar Chavez High School continued

	Pre Implementation	Post Implementation
Average Calories	274	166
Cholesterol (mg)	5	13
Sodium (mg)	249	367
Fiber (g)	1.57	1.99
Iron (mg)	0.5	4.94
Calcium (mg)	44.62	56.73
Vitamin A (RE)	23	92
Vitamin C (mg)	2.26	5.87
Protein (g)	4.43	6.33
Carbohydrate (g)	31.15	26.01
% Total Fat	48.49	24
% Saturated Fat	17.69	6.14

**Chart 11.** CCHS a la carte analysis pre and post implementation

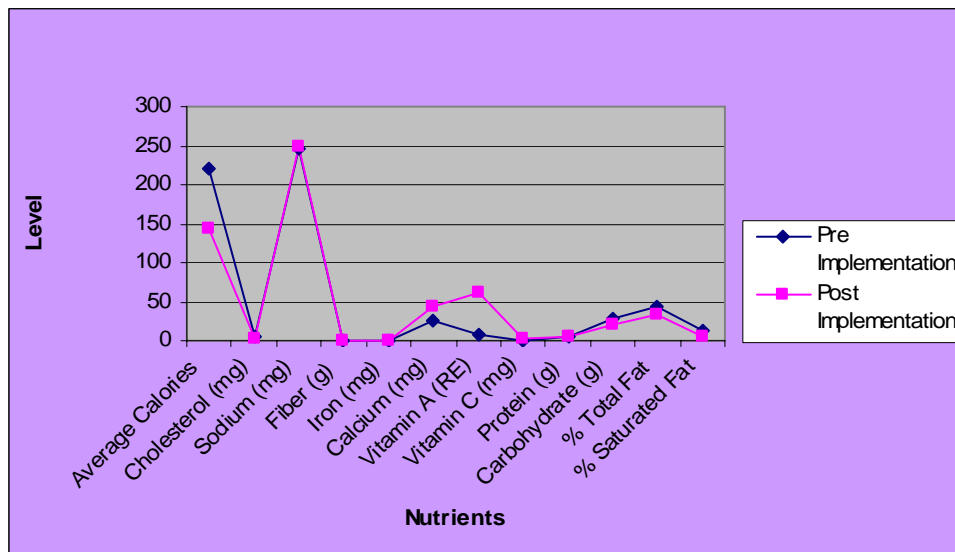


Cesar Chavez High School continued

**Table 12. CCHS vending snacks analysis pre and post implementation**

	Pre Implementation	Post Implementation
Average Calories	220	144
Cholesterol (mg)	5	3
Sodium (mg)	246	249
Fiber (g)	1.18	1.2
Iron (mg)	0.63	0.82
Calcium (mg)	26.5	42.95
Vitamin A (RE)	7	62
Vitamin C (mg)	0.3	1.85
Protein (g)	3.98	4.44
Carbohydrate (g)	27.64	21.09
% Total Fat	43.3	32.12
% Saturated Fat	13.07	5.73

**Chart 12. CCHS vending snacks analysis pre and post implementation**

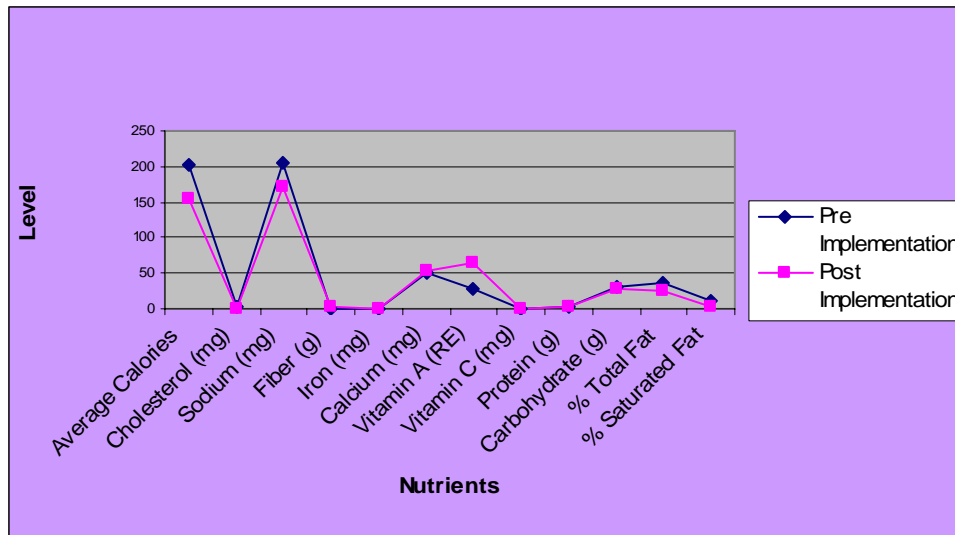


Cesar Chavez High School continued

**Table 13. CCHS JROTC snack analysis pre and post implementation**

	Pre Implementation	Post Implementation
Average Calories	201	155
Cholesterol (mg)	3	0
Sodium (mg)	205	171
Fiber (g)	1.14	1.48
Iron (mg)	0.79	0.7
Calcium (mg)	50.16	52.11
Vitamin A (RE)	29	65
Vitamin C (mg)	1.36	0.96
Protein (g)	2.79	2.6
Carbohydrate (g)	30.11	27.68
% Total Fat	35.43	24.25
% Saturated Fat	12.31	3.78

**Chart 13. CCHS JROTC snack analysis pre and post implementation**



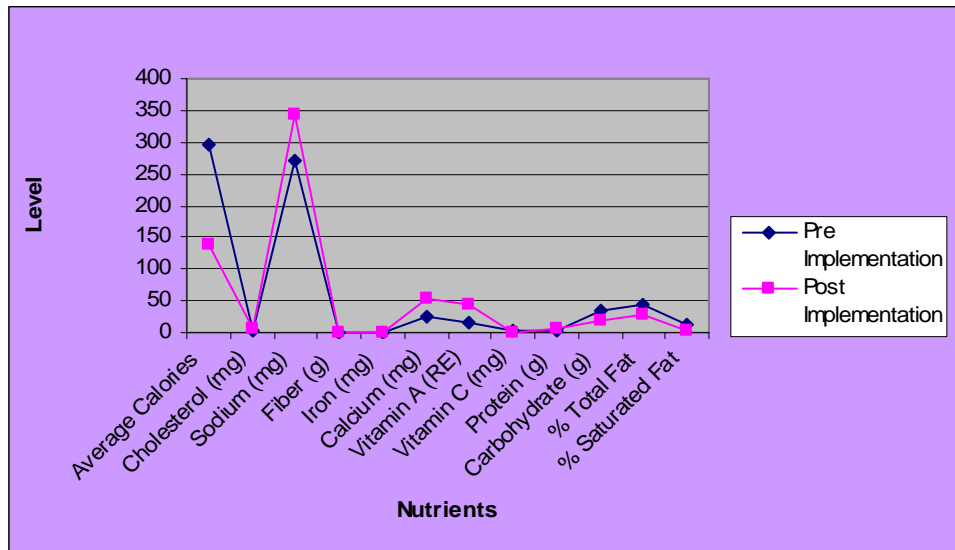


Cesar Chavez High School continued

**Table 14. CCHS DECA snack analysis pre and post implementation**

	Pre Implementation	Post Implementation
Average Calories	297	139
Cholesterol (mg)	3	7
Sodium (mg)	272	342
Fiber (g)	1.02	1.5
Iron (mg)	0.55	1.01
Calcium (mg)	23.8	53.33
Vitamin A (RE)	15	43
Vitamin C (mg)	2.22	0.23
Protein (g)	3.95	7.42
Carbohydrate (g)	34.16	17.95
% Total Fat	45.05	29.49
% Saturated Fat	13.31	3.71

**Chart 14. CCHS DECA snack analysis pre and post implementation**

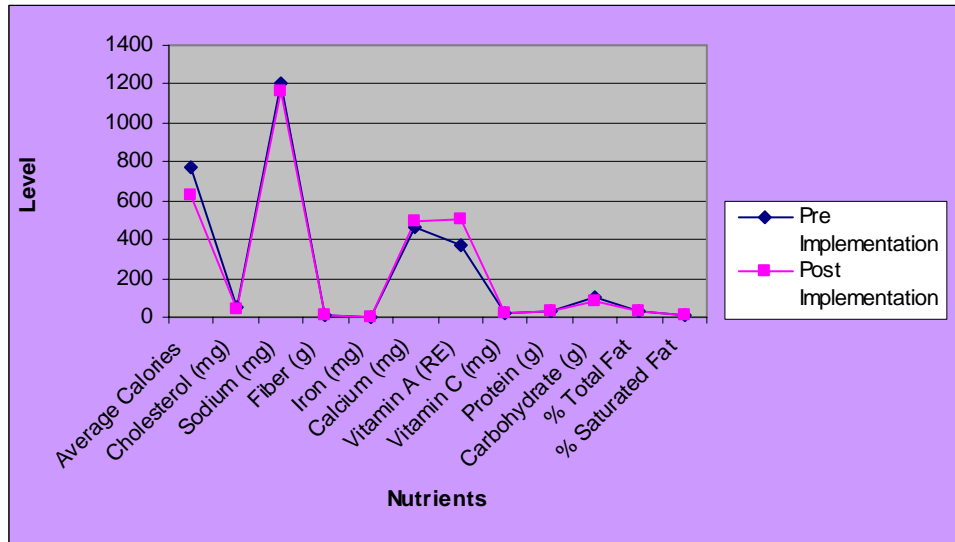


Cesar Chavez High School continued

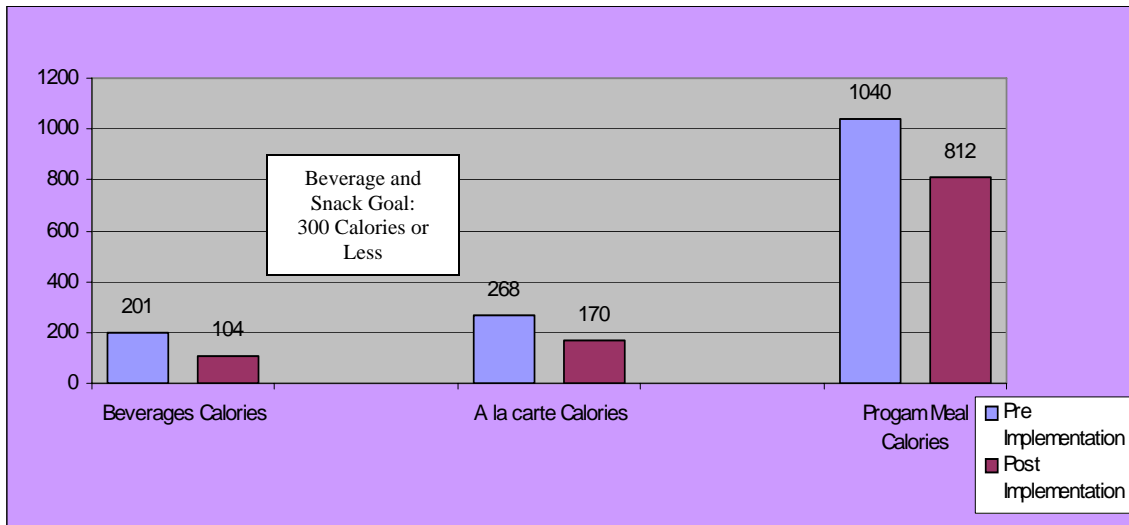
**Table 15. CCHS lunch program meal analysis pre and post implementation**

	Pre Implementation	Post Implementation
Average Calories	776	626
Cholesterol (mg)	52	45
Sodium (mg)	1205	1162
Fiber (g)	10.77	9.85
Iron (mg)	5.09	3.88
Calcium (mg)	461.17	490.8
Vitamin A (RE)	369	503
Vitamin C (mg)	22.87	23.44
Protein (g)	32.04	29.25
Carbohydrate (g)	97.81	86.45
% Total Fat	34	28.4
% Saturated Fat	13.22	11.81

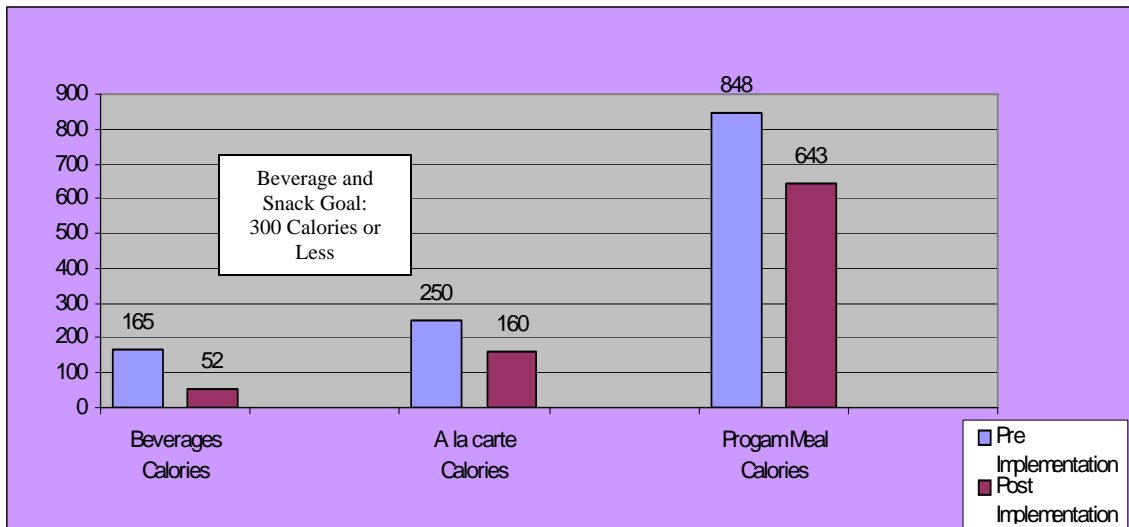
**Chart 15. CCHS lunch program meal analysis pre and post implementation**



**Chart 16a.** Average calorie content of all beverages and foods sold on campus

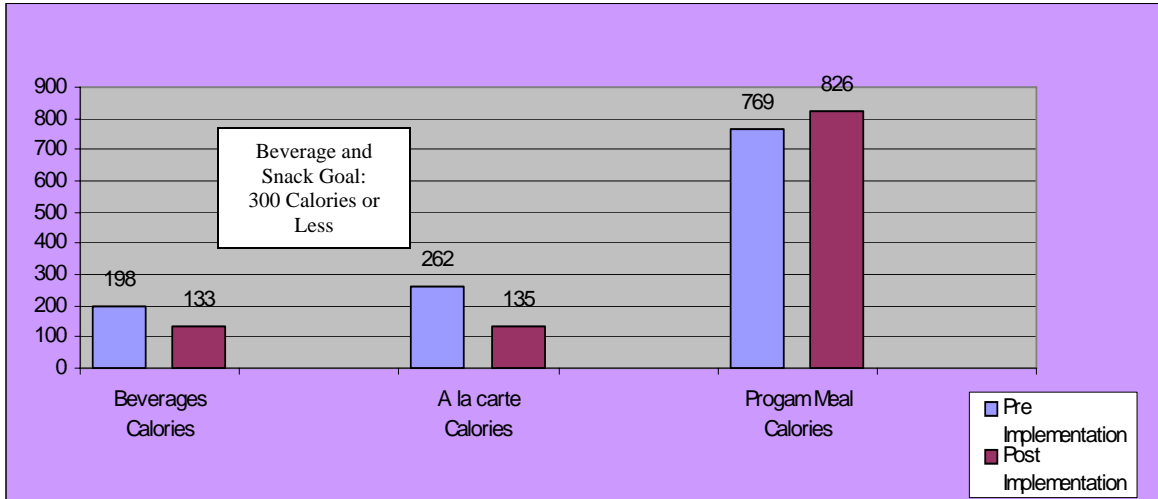


**Thunder Mountain  
Middle School**

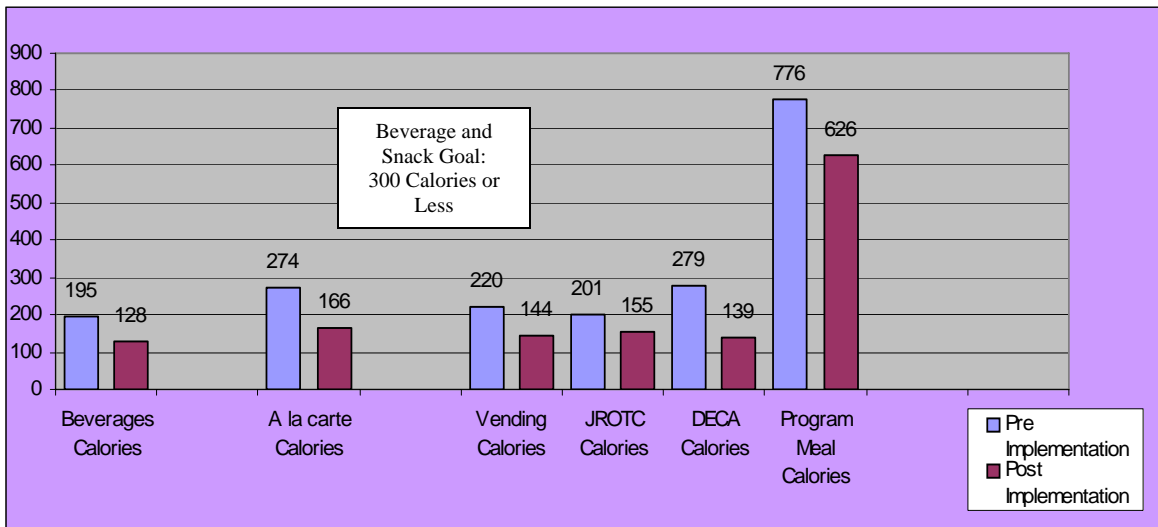


**Mile High Middle  
School**

**Chart 16b.** Average calorie content of all beverages and foods sold on campus



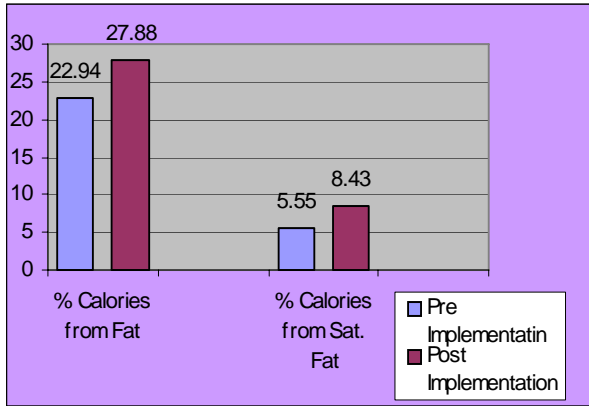
Sierra Middle School



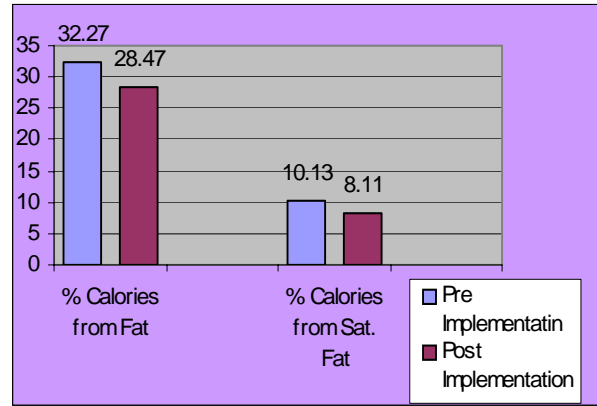
Cesar Chavez High School

**Chart 17. Percent total fat and saturated fat calories – Lunch Program Meals**

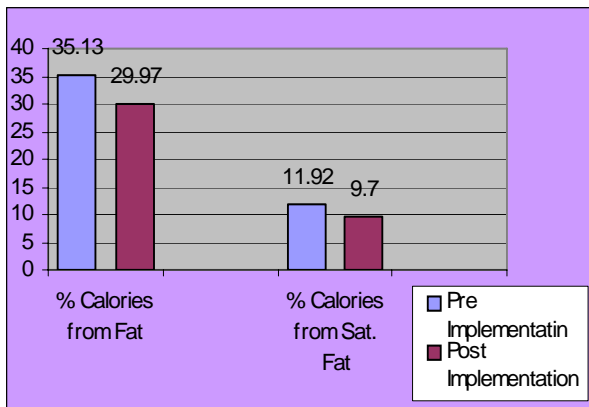
**Goal for Total Fat Calories: 30% or Less of Total Calories**  
**Goal for Saturated Fat: 10% or Less of Total Calories**



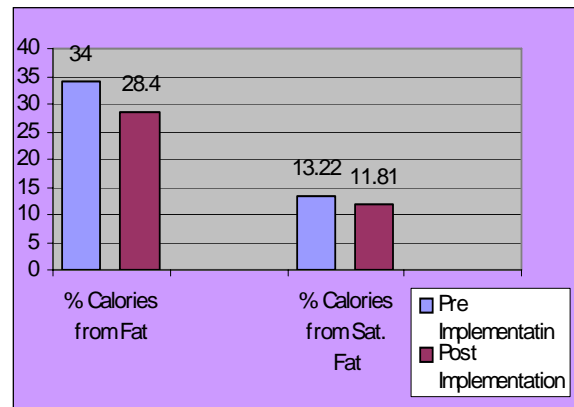
Thunder Mountain Middle School



Mile High Middle School



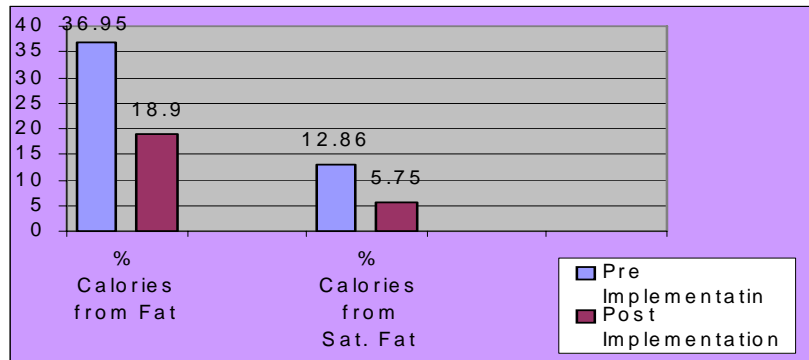
Sierra Middle School



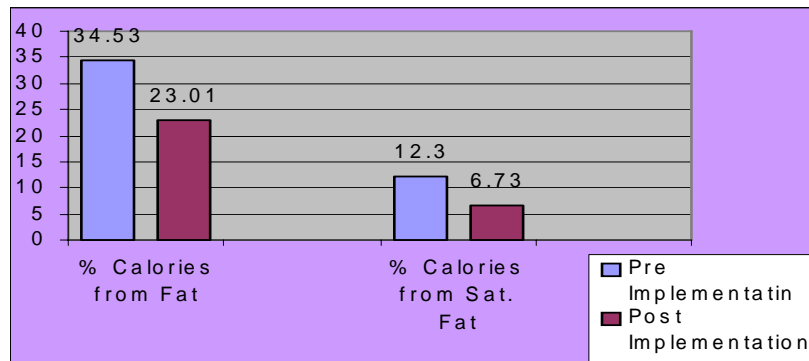
Cesar Chavez High School

**Chart 18.** Percent total fat and saturated fat calories – Middle Schools A La Carte Snacks

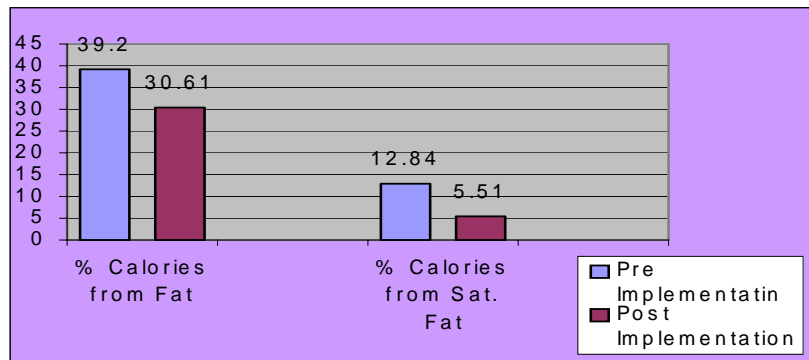
**Goal for Total Fat Calories: 30% or Less of Total Calories**  
**Goal for Saturated Fat: 10% or Less of Total Calories**



**Thunder Mountain Middle School**



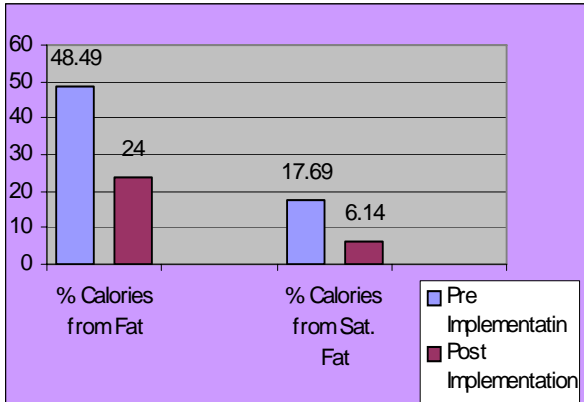
**Mile High Middle School**



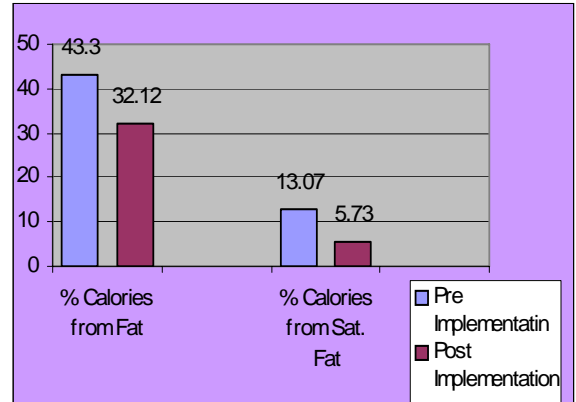
**Sierra Middle School**

**Chart 19.** Percent total fat and saturated fat calories – High School A La Carte, Vending, and School Store Snacks

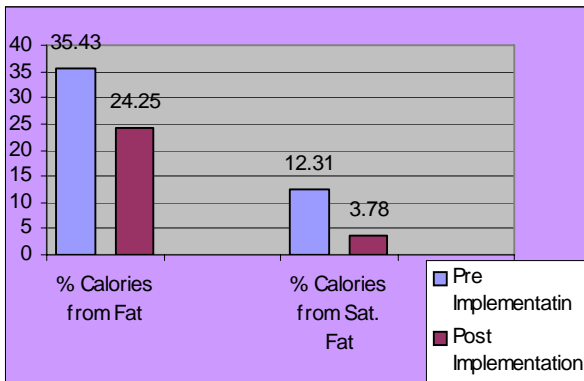
**Goal for Total Fat Calories: 30% or Less of Total Calories**  
**Goal for Saturated Fat: 10% or Less of Total Calories**



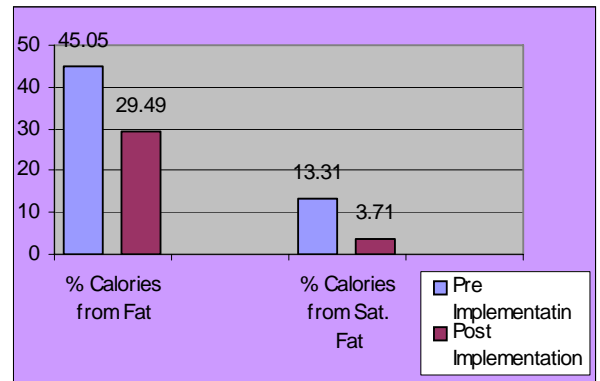
Cesar Chavez High School  
A la carte



Cesar Chavez High School  
Vending

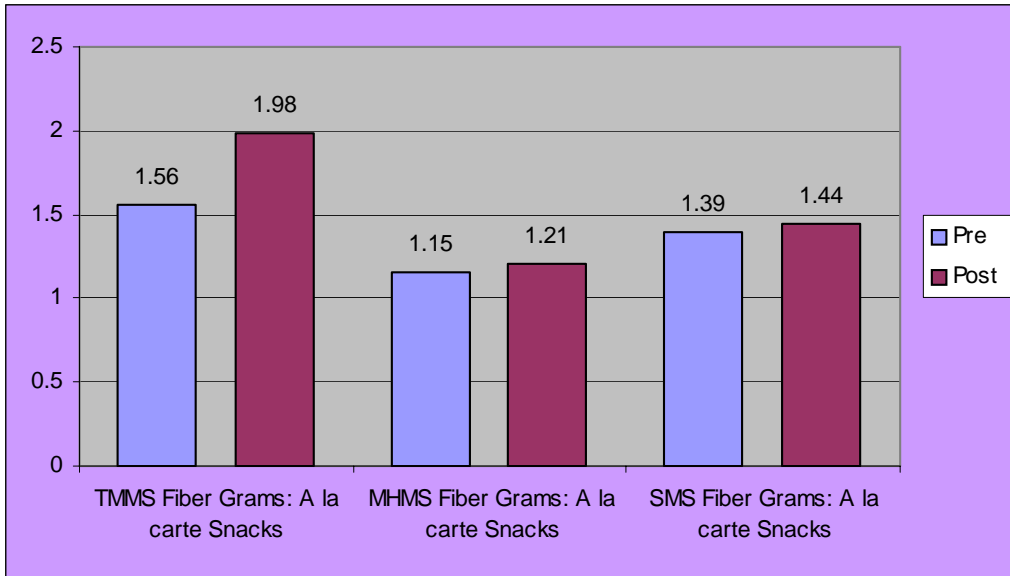


Cesar Chavez High School  
JROTC Store

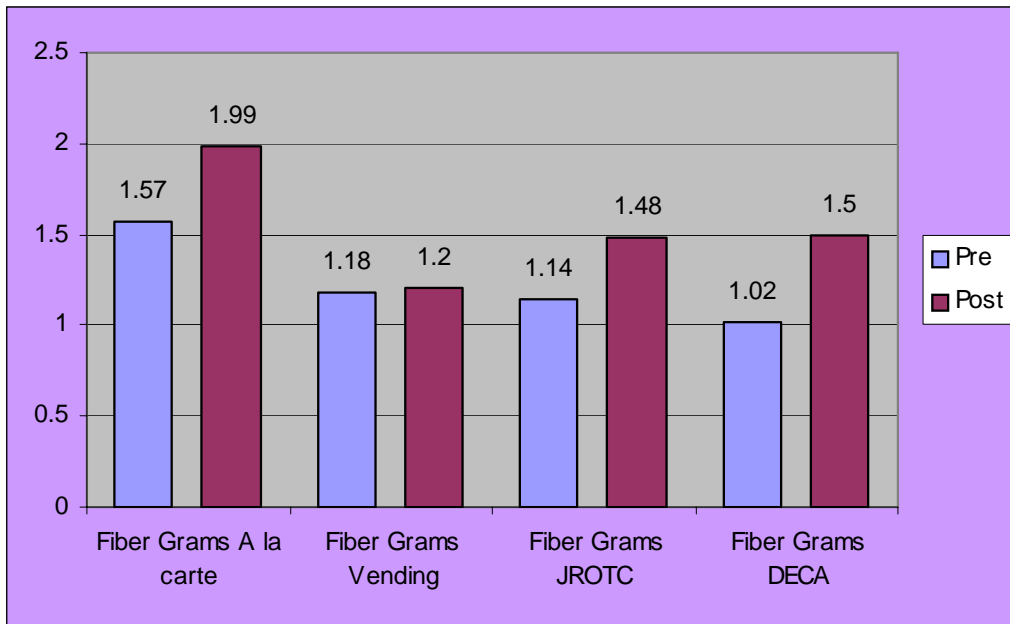


Cesar Chavez High School  
DECA Store

**Chart 20.** Average fiber content of food snack items – Middle School A La Carte

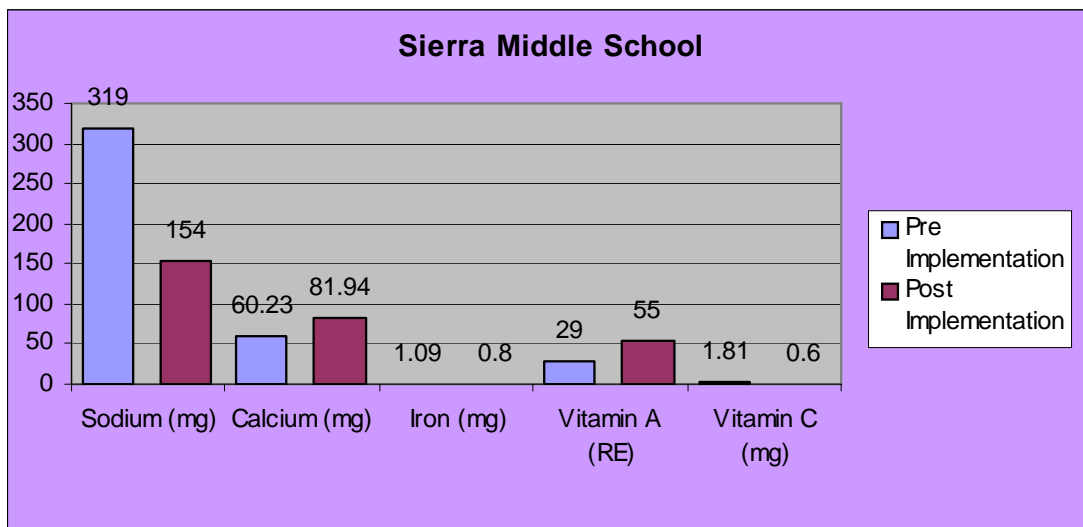
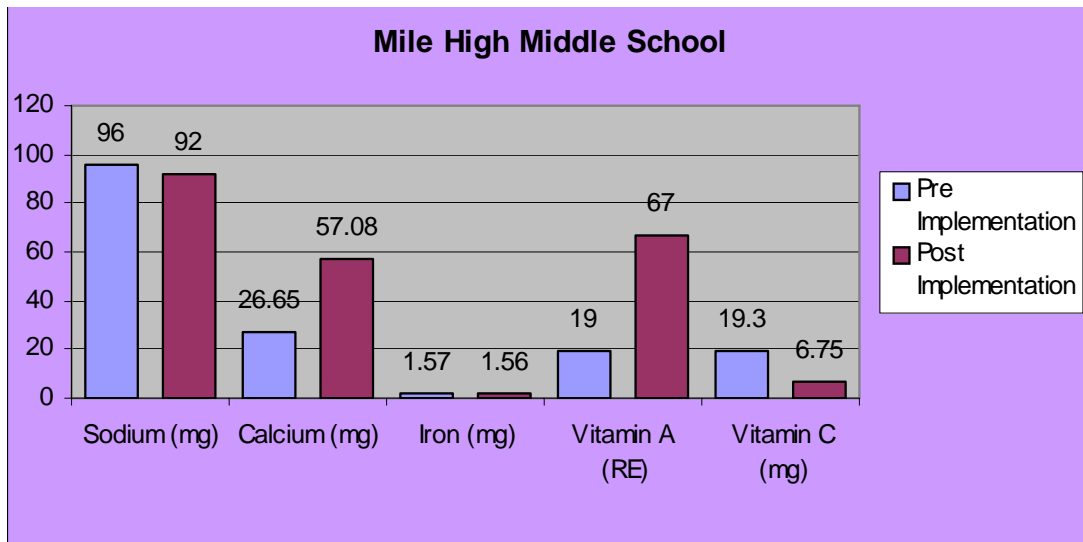
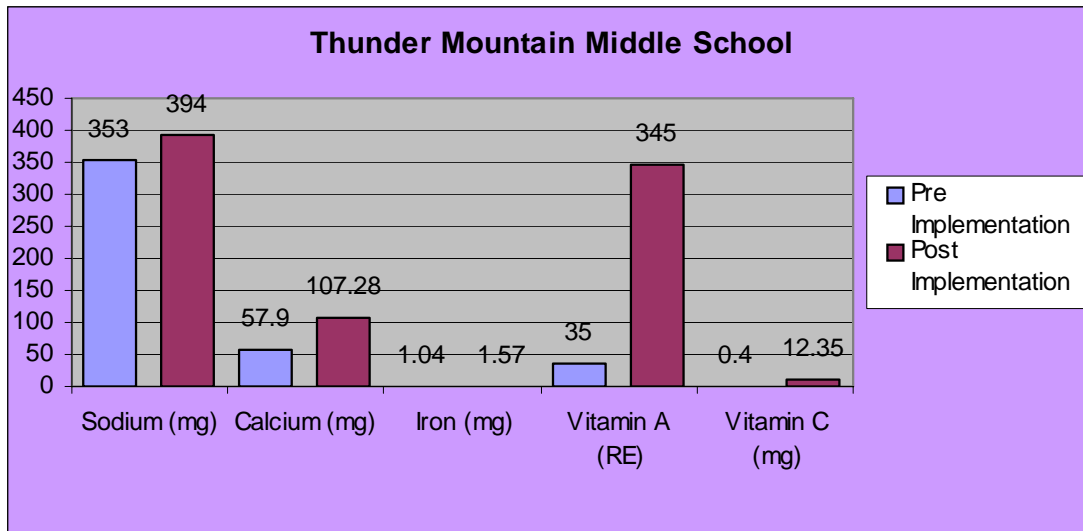


**Chart 21.** Average fiber content of food snack items – Cesar Chavez High School

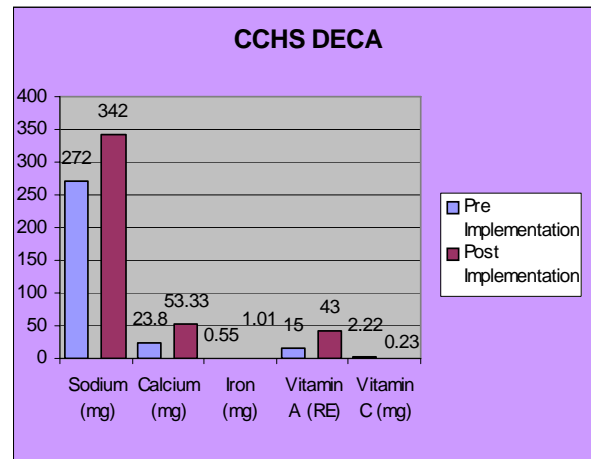
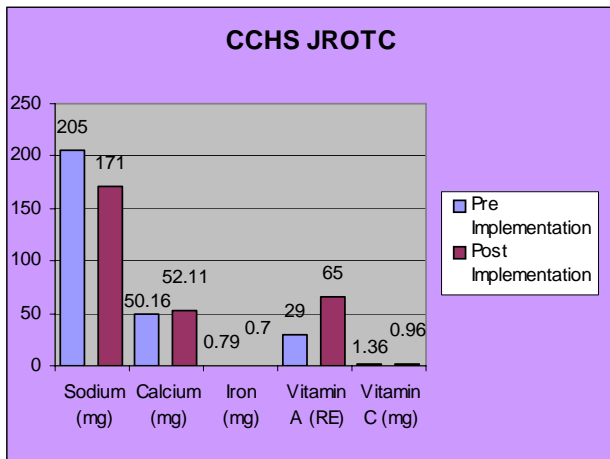
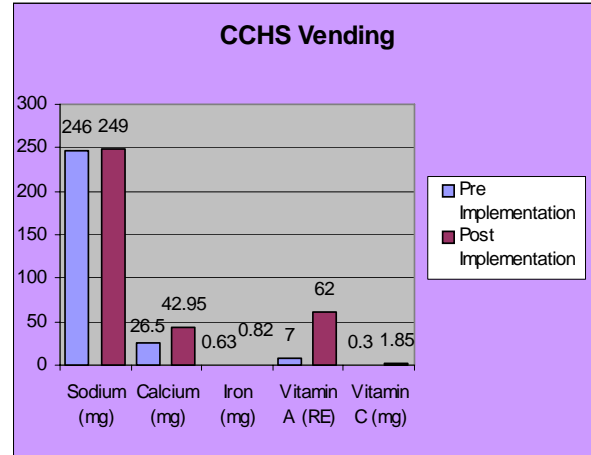
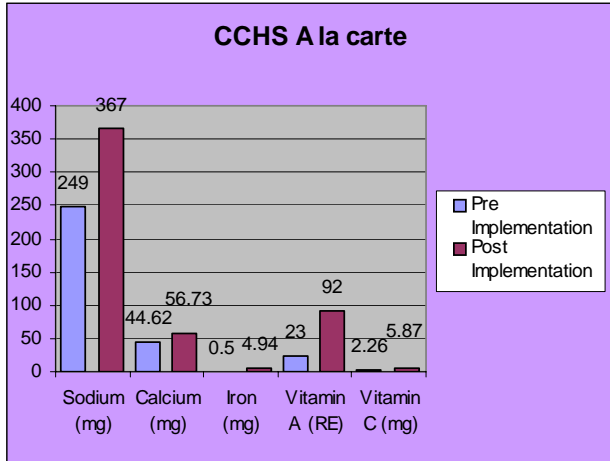




**Chart 22.** Micronutrient content averages- Middle School A La Carte Foods



**Chart 23.** Micronutrient content averages- Cesar Chavez High School



### Financial Analysis

The ADE grant coordinator collected financial data for both the pre-implementation and implementation time periods from all four participating schools. The baseline financial information collected represent the monthly financial information for the months of August through December during the fall semester of the 2004-2005 school year. Comparison data was then collected on a monthly basis for the months of August through December for the fall semester of the 2005-2006 school year.

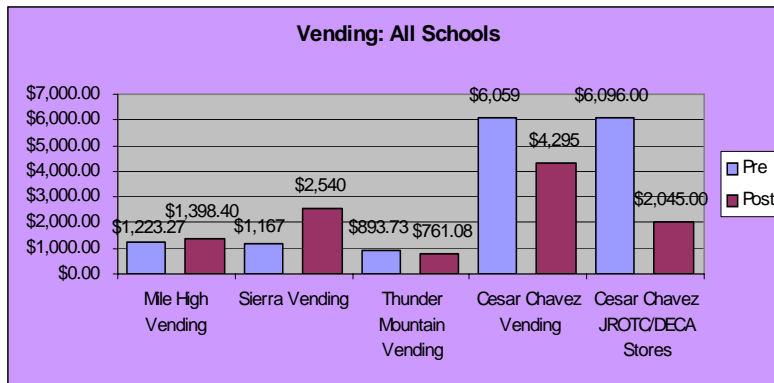
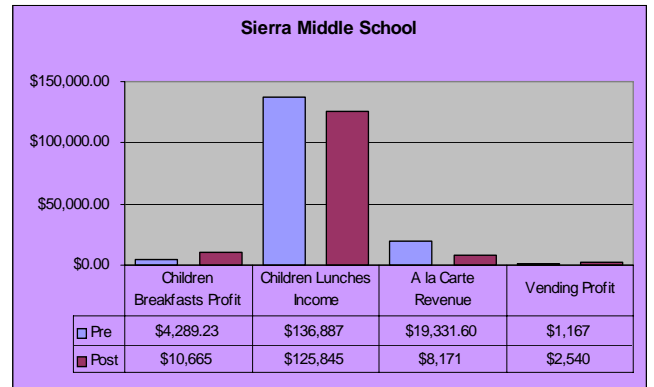
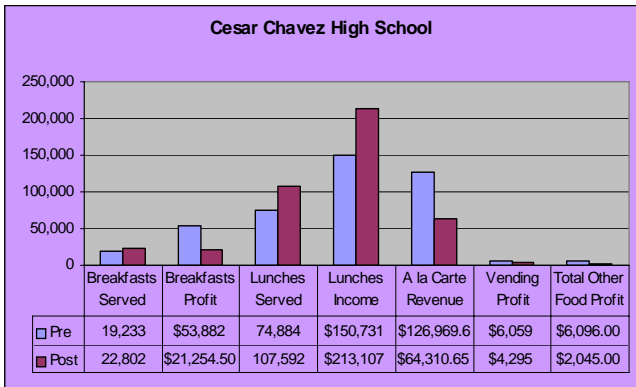
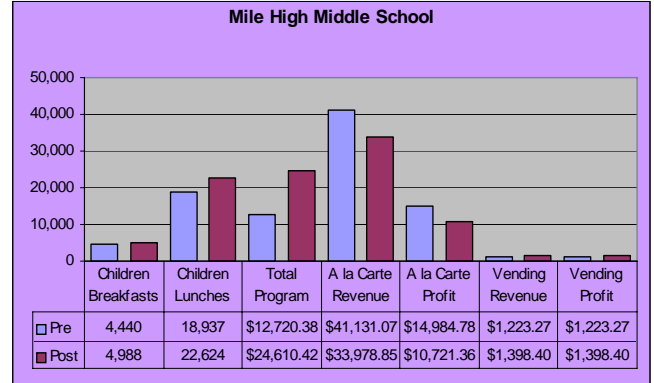
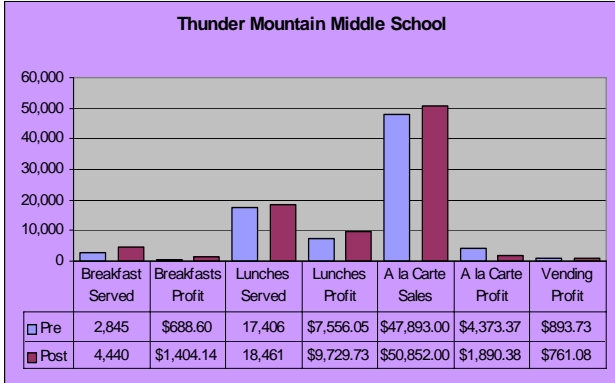
The financial analysis was conducted by Arizona State University (ASU) through an Interagency Service Agreement between Arizona State University and the Arizona Department of Education.

### Pre and Post Model Policy Implementation School Data

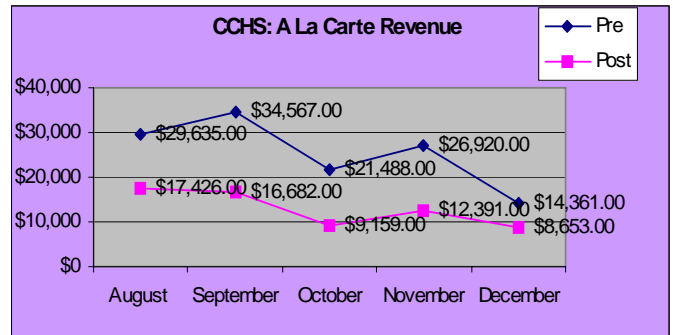
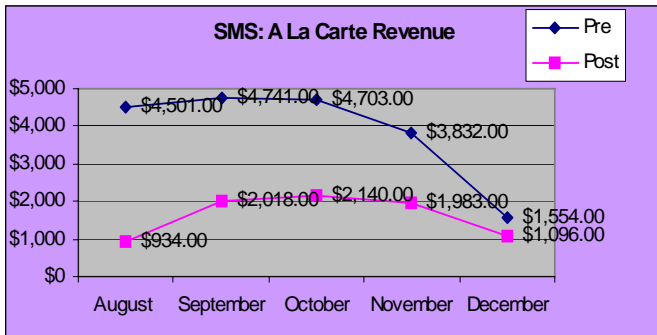
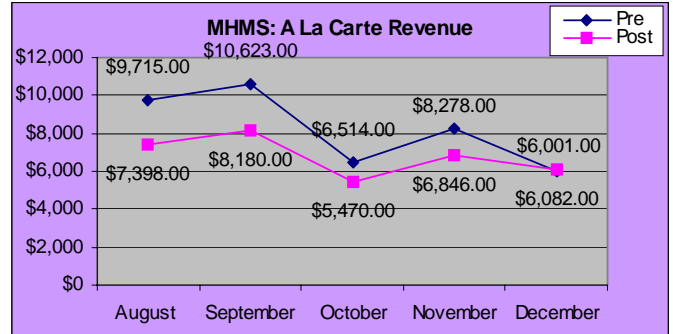
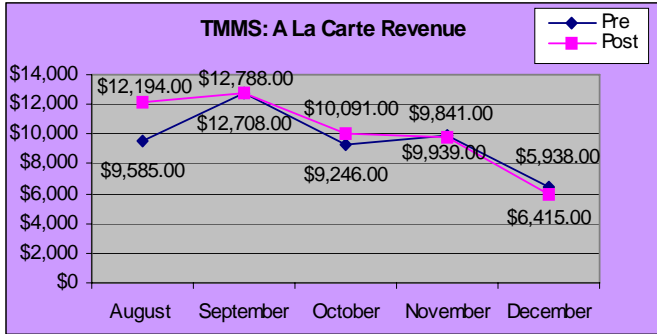
	Cesar Chavez High School		Mile High Middle School		Sierra Middle School		Thunder Mountain Middle School	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Enrollment	2669	2770	589	636	1125	1029	772	796
Average Breakfast/Day	231	312	55	62	187	175	32	59
% Participation	8.6%	11.3%	9.3%	9.7%	16.7%	17.0%	4.0%	7.4%
Average Lunch/Day	989	1417	228	268	740	668	219	191
% Participation	37.0%	51.0%	39.0%	42.0%	66.0%	65.0%	28.4%	24.0%

Enrollment reflects school's 40th day counts from the 2004-2005 and 2005-2006 school years.  
Average meals taken from the September National School Lunch Claim from 2004-2005 and 2005-2006 school years.

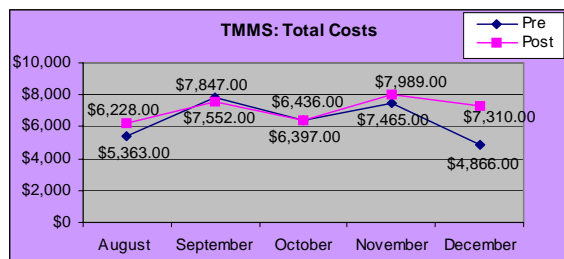
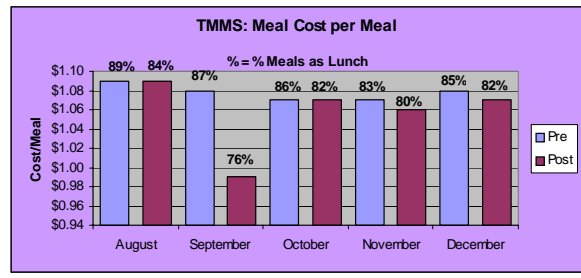
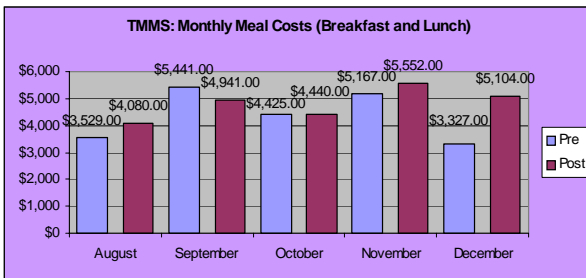
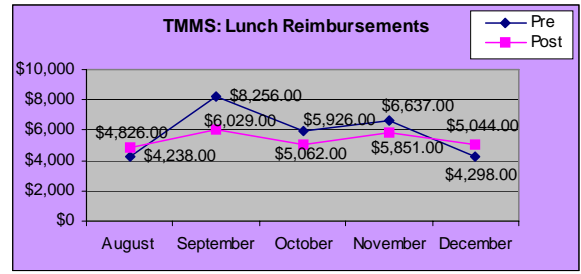
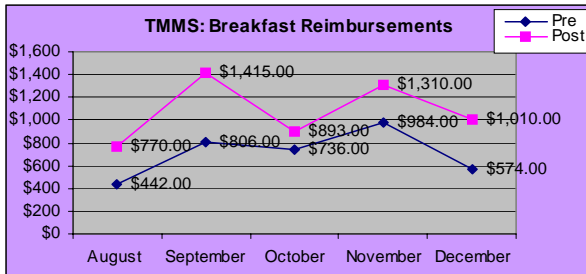
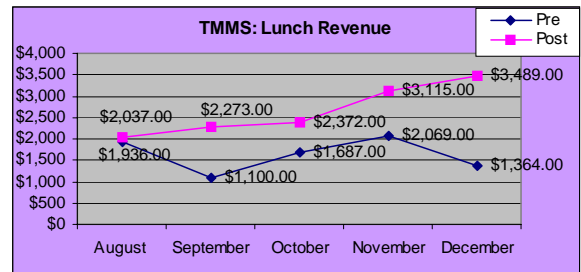
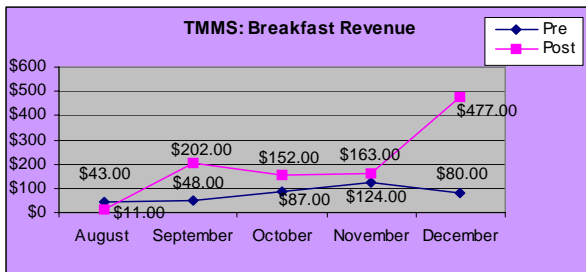
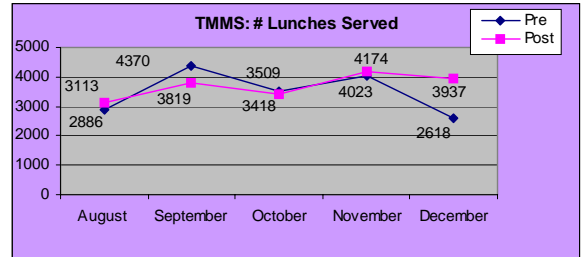
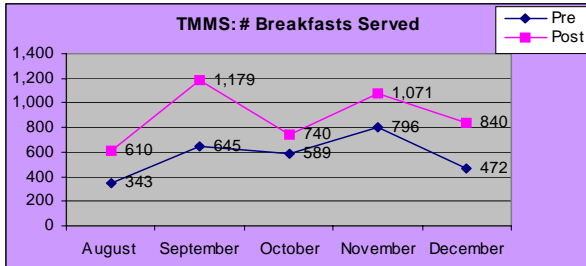
**Chart 24. Overall food sales – all mini-grant schools**



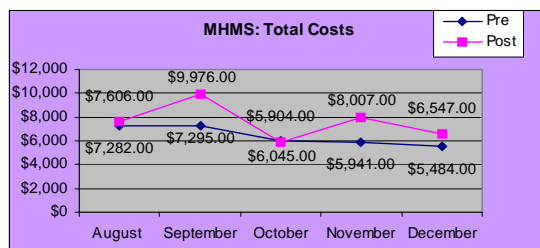
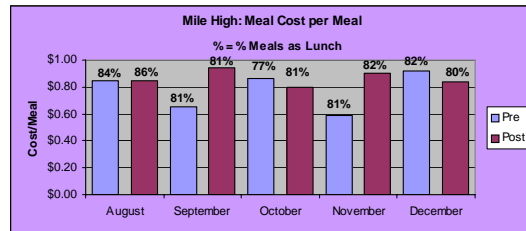
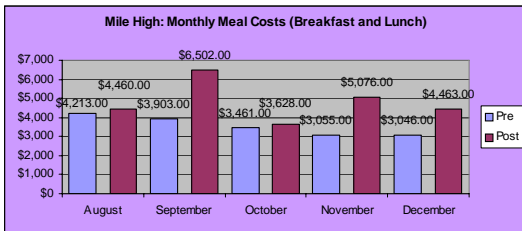
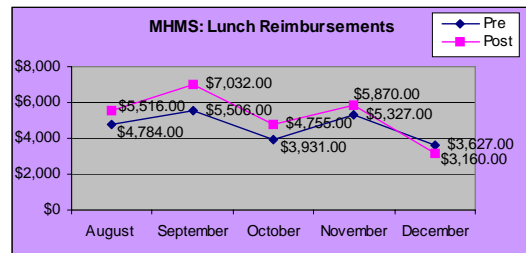
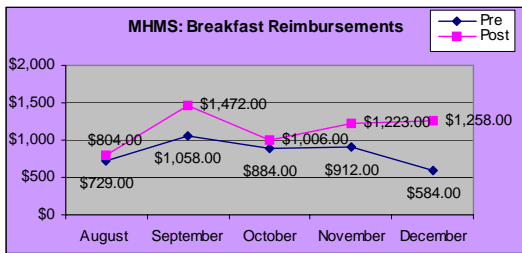
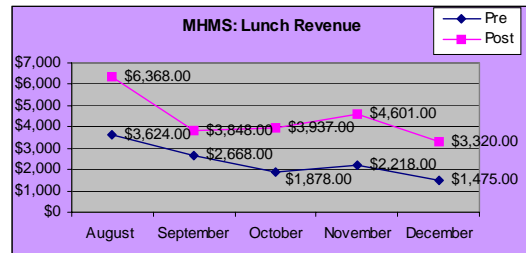
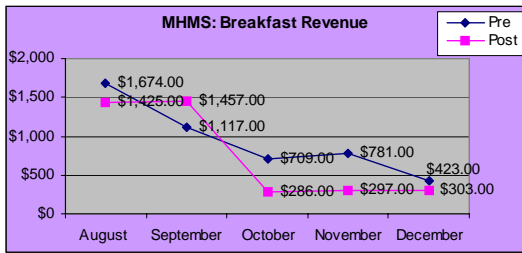
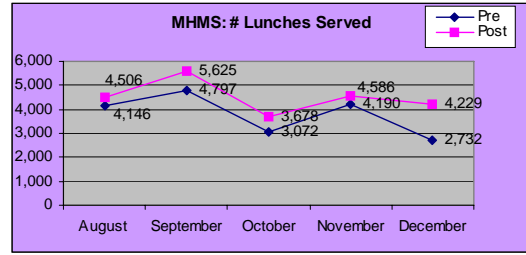
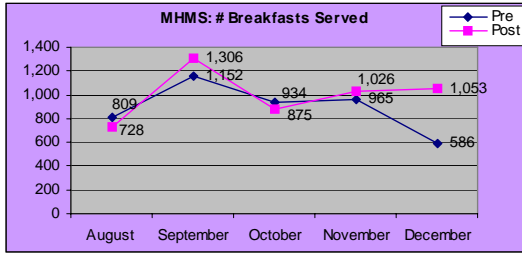
**Chart 25.** A la carte revenue month-to-month comparison- all mini-grant schools



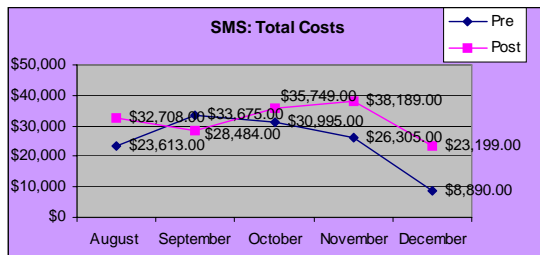
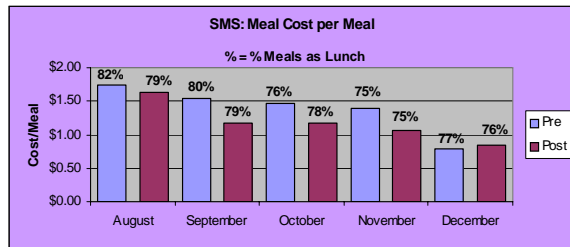
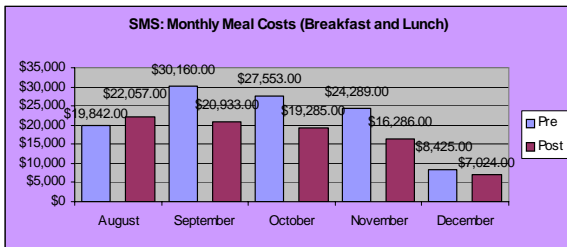
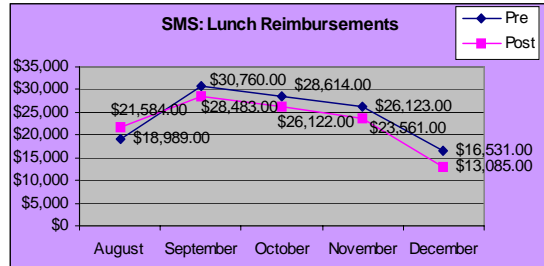
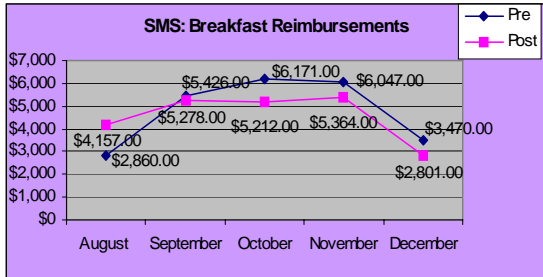
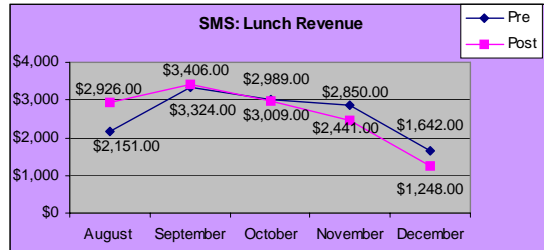
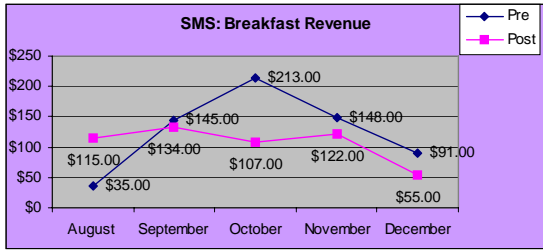
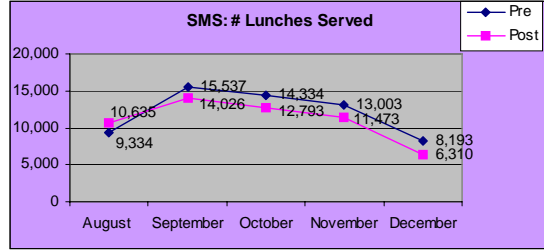
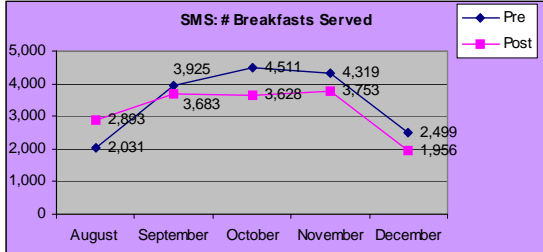
**Chart 26. Thunder Mountain Middle School financial results month-to-month comparison – program meals**



**Chart 27. Mile High Middle School financial results month-to-month comparison – program meals**

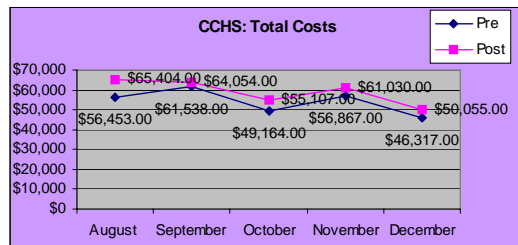
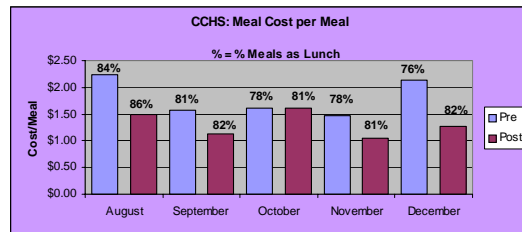
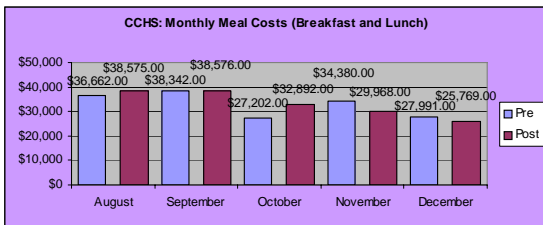
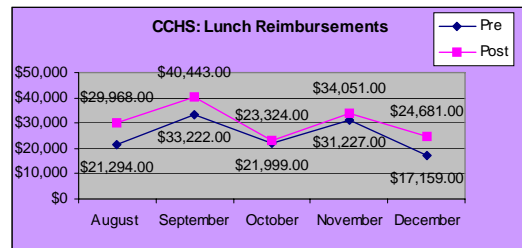
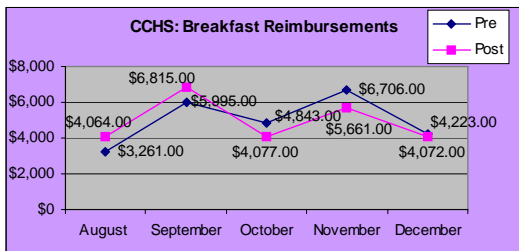
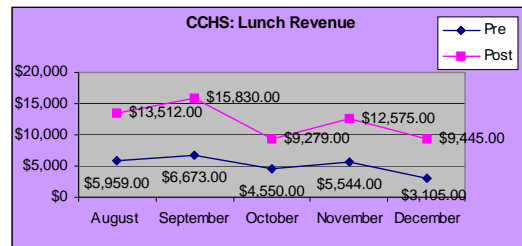
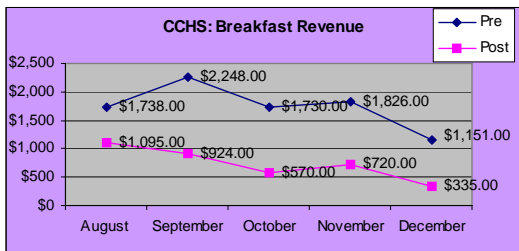
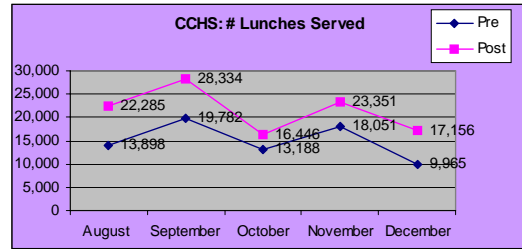
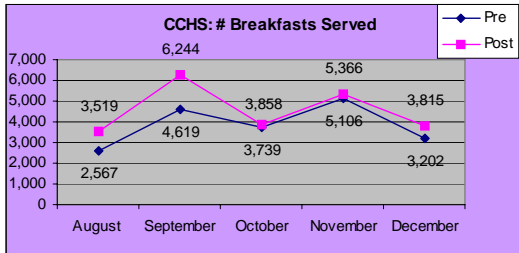


**Chart 28. Sierra Middle School financial results month-to-month comparison – program meals**





**Chart 29. Cesar Chavez High School financial results month-to-month comparison – program meals**



## **DISCUSSION**

### **Nutrition**

Although changes to program meals were not a requirement of the mini-grant, all participating schools made positive changes to their lunch menu. As a result, three of the four schools were able to decrease the total fat and saturated fat percentages of their lunch meals. One school had an increase in total fat and saturated fat during the week of analysis. However, both total fat and saturated fat remained below the School Meal Initiative (SMI) nutrition standards of 30% or less of total calories from total fat and 10% or less of total calories from saturated fat. (Refer to page 27, Chart 17)

The average calorie content of beverages sold on campus decreased significantly for all four schools. The schools also experienced a significant decrease in the average calorie content of all foods sold through a la carte, vending, and school stores. (Refer to pages 25, 26, Charts 16a & 16b)

All four schools made tremendous progress in decreasing the average percentages of total fat and saturated fat of all foods sold through a la carte, vending, and school stores. (Refer to pages 28, 29, Charts 18 & 19) The average fiber content of foods sold on campus increased as well during the model policy implementation period. (Refer to page 30, Charts 20 & 21)

Due to a limitation of the nutrient analysis software utilized when analyzing the foods sold on the campuses of the mini-grant schools, the percent weight from sugar requirement of 35% or less is not included in the nutrient analysis. However, food items were evaluated to ensure each item complied with the nutrition standard.

Each school made positive changes in the type of foods and beverages being sold on campus and all four schools reported they will continue their effort in offering nutritious foods and beverages to their students.

### **Financial**

#### Thunder Mountain Middle School

Pre-implementation fiscal data (August-December 2004) was compared to post-implementation data (August-December 2005). (Refer to page 34, Chart 24)

#### Program Meals: Children's Breakfasts

The number of breakfast meals served to children increased more than 50% from pre- to post-implementation semesters (2,845 vs. 4,440). More importantly, profits more than doubled during this same time period: \$689 vs. \$1,404 in the post-implementation phase.

#### Program Meals: Children's Lunches

The number of children's lunches served also increased over this time period, although not to the same extent (17,406 vs. 18,461, an increase of less than 10%). Profits increased almost 30%, from \$7,556 to \$9,729. The growth of profits far exceeded the growth in number of meals served, thus the food selected and served under the Team Nutrition Grant guidelines did not prove more costly to the school.

### Meal Costs

The combined (breakfast plus lunch) food costs were generally higher in the post-implementation phase for every month of the fall semester with the exception of October, where combined food costs pre- and post-implementation were identical. (Refer to page 36, Chart 26) When adjusted for the number of meals served, however, the cost-per-meal was either lower or unchanged for every month of the post-implementation phase. Again, this is strong evidence that implementation of Team Nutrition Grant guidelines did not increase total or per-meal food costs. As noted on the “Cost per Meal” graph, these reduced food expenditures cannot (with the possible exception of September) be explained by the breakfast:lunch ratio. In other words, with the exception of September, food costs in the post-implementation phase did not go down because the number of breakfast meals increased significantly. In comparing the month-by-month pre- and post-data for each month other than September, the percent of meals served as lunches were within three to five percentage points of each other.

**Bottom Line:** Sales of breakfast and lunch meals increased and reported profits increased to an even greater extent. While the increase in the number of meals served may be due to the modest enrollment growth, the critical factor of enhanced profit margins demonstrated that Team Nutrition Grant guidelines could be put in place without sacrificing the program’s financial status. The “cost-per-meal” data confirm this conclusion: on a month-to-month basis, the cost associated with each meal served declined or remained unchanged following the implementation of the guidelines.

### A La Carte Sales

Overall, a la carte sales increased approximately 6% from \$47,893 (pre-implementation) to \$50,852 (post-implementation). Due to a \$4,000 increase in wages attributed to a la carte sales, the profit realized from a la carte sales decreased from \$4,373 to \$1,890. (Refer to page 34, Chart 24) Thus, sales remained strong after the implementation of Team Nutrition Grant guidelines; students were not discouraged by the new selection of foods. The wage increase can be attributed to the districts decision to increase the salary of the kitchen staff and the addition of insurance for positions that were previously uninsured.

### Vending Sales

Vending sales at this school were very modest: \$894 prior to implementation of Team Nutrition Grant guidelines vs. \$761 after new guidelines were in place. (Refer to page 34, Chart 24) Only water machines were available to students during the school day and as reported on page 9, there were times when one or more of the machines was not working properly.

**Bottom Line:** The increase in sales of a la carte foods more than offset the small decline in income from vending sales. While the profit realized from the a la carte sales decreased during the evaluation period, the decline was attributed to increased wages not increased food costs. The cost of the more healthful food choices after implementation of

the of Team Nutrition Grant guidelines was no greater than reported for the previous fall semester.

### Mile High Middle School

Pre-implementation fiscal data (August-December 2004) were compared to post-implementation data (August-December 2005). (Refer to page 34, Chart 24)

#### Program Meals: Children's Breakfasts

As one might anticipate, the Team Nutrition Grant Project had little impact on breakfast sales and profits. Vending and other food sales would not be expected to impact students' decision to consume breakfast. Both the number of meals served and the profit from breakfast meals increased approximately 10%.

#### Program Meals: Children's Lunches

As can be seen from the bar graphs, total profit from program meals (children's breakfasts and lunches) increased dramatically from fall semester 2004 to 2005 (\$12,720 vs. \$24,610). Profits were primarily from children's lunches, they accounted for 63% of the profit in 2004 and 81% of the profit in 2005. Total number of lunches served increased 20%, well above the growth in breakfast meals and profits from children's meals increased 45%, also well above the growth noted for breakfast meals. Changes made to lunch time offerings resulted in a dramatic increase in both sales and profits.

#### Meal Costs [Breakfast and Lunch]

It may be useful to isolate the cost of food alone [vs. previous reports of total meal costs, which included labor expenses unrelated to Team Nutrition guidelines] to answer the question "did program changes increase food costs?" While the post-implementation combined meal costs were higher for each month of data, the cost per meal, which accounts for changes in the number of meals served, shows no consistent increase in food costs. Per meal food costs were lower for post-implementation months of October and December, identical for August, and higher for the months of September and November. (Refer to page 37, Chart 27) To further explore the issue of food costs pre and post-implementation, the ratio of breakfast to lunch meals was reported since breakfast meals represent a lower food cost. As can be seen from the "Cost per Meal" graphs, lunch meals represented 80-84% of total meals across all months, both pre- and post-implementation. Thus, in this school, it is unlikely that changes in breakfast:lunch ratios accounted for differences in average cost-per-meal figures.

Bottom line: Lunch-time sales of program meals soared in the post-implementation phase and accounted for the lion's share of total program meal profits. Lunch-time offerings were popular and profitable. It is possible that the removal of low-nutrient foods motivated students to return to the lunch line! The "cost-per-meal", which excluded labor costs and accounted for breakfast:lunch ratios, did not increase following the implementation of Team Nutrition guidelines, thus there is no indication that the program imposed a financial burden in terms of the cost of food.

### A La Carte Sales

As illustrated on the bar graph, total revenue dropped about 20% and profit from a la carte sales decreased approximately 30%. (Refer to page 34 Chart 24) It is possible that school personnel need to continue experimenting with a la carte offerings, while remaining within Team Nutrition Grant guidelines, to maximize both sales and profits over the coming year.

### Vending Sales

Both revenue and profit remained unchanged with the implementation of Team Nutrition Grant guidelines; in fact, they inched up from \$1,223 (pre-implementation) to \$1,398 (post-implementation). (Refer to page 34, Chart 24)

Bottom line: While a la carte sales and profits did decline, vending sales were not negatively impacted by implementation of the Team Nutrition Grant guidelines. By reviewing the successful items on the a la carte menu, sales and profits should be easily increased to pre-implementation levels.

### Sierra Middle School

Pre-implementation fiscal data (August-December 2004) were compared to post-implementation data (August-December 2005). (Refer to page 34, Chart 24) Due to differences in fiscal reporting strategies, the data reported differ slightly from the format used with other schools.

### Program Meals: Children's Breakfasts

The number of breakfast meals served to children decreased approximately 8% while total income for these meals declined about 5%. There is no reason to believe that changes implemented by the Team Nutrition Grant contributed to this decline however the data serves as a useful point of comparison for other changes noted at Sierra Middle School.

### Program Meals: Children's Lunches

Both the number of lunches served to students and the total income generated from lunches served declined 8%. Since these data are in line with decreases noted for the breakfast program, it is unlikely that the decrease can be attributed to changes made in response to Team Nutrition Grant guidelines but rather attributed to the decrease in school enrollment. No data for wages, meal costs, or indirect costs were reported, thus no calculation of profit/loss from lunches could be made.

### Meal Costs

The combined (breakfast plus lunch) food costs were significantly lower in the post-implementation phase for every month of the fall semester. (Refer to page 38, Chart 28) When adjusted for the number of meals served, the cost-per-meal remained either lower or unchanged for every month of the post-implementation phase. Again, this is strong evidence that implementation of Team Nutrition Grant guidelines did not increase total or per-meal food costs. As noted on the "Cost per Meal" graph, these reduced food

expenditures cannot be explained by the breakfast:lunch ratio. In other words, food costs in the post-implementation phase did not go down because the number of breakfast meals increased significantly. In comparing the month-by-month pre- and post-data, the percentage of meals served as lunches were within three percentage points of each other.

Bottom Line: Both breakfast and lunch meals served declined by 8%; since changes in vending and other food sales are unlikely to impact breakfast, it is not likely that these declines were due to implementation of Team Nutrition Grant guidelines but rather a decline in enrollment. In looking at meal costs (removing the issue of labor costs, etc), the meal costs actually decreased significantly in the post-implementation phase, suggesting that less money was spent on food compared to pre-implementation. The “cost-per-meal” data confirm this trend: even though the breakfast:lunch ratio remained unchanged on a monthly basis (pre vs. post), per meal costs declined in every month except December, where the per meal costs were virtually identical from pre- to post-implementation. In this school, the food costs actually decreased following the implementation of Team Nutrition Grant guidelines.

#### A La Carte Sales

A comparison of a la carte sales revealed a sharp decline in total sales: revenue dropped from \$19,332 to \$8,171, a drop of more than 50%. (Refer to page 35, Chart 25) This was in part due to Sierra Middle School’s decision to significantly limit the products offered through a la carte lines. It would be advantageous for school personnel to review the foods offered for sale on an a la carte basis and work with students to identify new products that, while remaining true to Team Nutrition Grant guidelines, are more popular and acceptable on a day-to-day basis.

#### Vending Sales

As has been reported by other schools across the nation, the income from vending sales actually increased after the implementation of the Team Nutrition Grant; in fact, vending sales more than doubled (\$1,167 pre-implementation to \$2,540 post-implementation). (Refer to page 34, Chart 24) With appropriate food choices, students will continue to purchase beverages and foods, offering profit opportunities to various school programs.

Bottom Line: Losses in a la carte sales were dramatic and were not offset by gains in vending sales. Opportunities exist for school personnel to review products currently offered for sale and possibly identify new foods and beverages that would generate greater income.

#### Cesar Chavez High School

Pre-implementation fiscal data (August-December 2004) was compared to post-implementation data (August-December 2005). (Refer to page 34, Chart 24)

As the only high school in the 2004 Team Nutrition Grant pilot study, the information presented reflected the attitudes and actions of an entirely different group of students.

#### Program Meals: Children's Breakfasts

The number of breakfast meals served to children increased almost 20% from pre- to post-implementation semesters (19,233 vs. 22,802), in large part due to the implementation of a Universal Free Breakfast Program. Unfortunately, due to a 12% increase in wages and a doubling of indirect costs, reported profits for breakfast meals dropped by more than half from the pre- to the post-implementation phase (\$53,882 vs. \$21,254). The wage increase was due to the districts decision to increase the salary of the kitchen staff. It is important to note, however, that food costs did not increase with the implementation of the Team Nutrition Grant even as the number of meals served went up 20%.

#### Program Meals: Children's Lunches

The number of children's lunches served also increased over this time period and did so to a greater extent compared to breakfast: the number of breakfast meals served increased about 20% while the number of lunch meals served to students increased more than 40% (74,884 vs. 107,592). No data for wages, meal costs, or indirect costs were reported for the lunch program, thus profit levels could not be calculated or compared from pre- to post-implementation.

#### Meal Costs

The combined (breakfast plus lunch) post-implementation food costs were generally lower or equal to food costs in the pre-implementation phase for every month of the fall semester with the exception of October, where combined post-implementation food costs were higher vs. pre-implementation. (Refer to page 39, Chart 29) When adjusted for the number of meals served, the cost-per-meal was either lower or unchanged for every month of the post-implementation phase. As with the other schools' data, this is strong evidence that implementation of Team Nutrition Grant guidelines did not increase total or per-meal food costs. As noted on the "Cost per Meal" graph, these reduced food expenditures cannot be explained by a higher breakfast service. In fact, on a month-to-month basis, lunches typically accounted for a higher percentage of total meals served in the post-implementation phase, which one would expect to result in an increase in total and per-meal costs. In contrast, food costs actually decreased following the intervention of the Team Nutrition Grant.

**Bottom Line:** Sales of breakfast and lunch meals increased with growth in the lunch program far outpacing growth in breakfast meals. It is clear that implementation of Team Nutrition Grant guidelines had no negative impact on the sales of meals to this group of high school students. In addition, the implementation of the program was associated with lower per-meal food costs, reflecting the lack of any food related financial burden associated with Team Nutrition Grant guidelines.

#### A La Carte Sales

There was a sharp decrease in a la carte sales \$126,970 (pre-implementation) to \$64,310 (post-implementation), a decrease of approximately 50%. (Refer to page 34, Chart 24) Considering the large increase in the number of school lunches sold, this may be a reflection of students simply moving their dollars from one food option (a la carte) to another (program meals). Lunch revenues more than doubled while lunch

reimbursements increased about 20%, thus students are clearly spending more of their own money on program lunches. It remains to be seen if school personnel can modify a la carte offerings to remain within Team Nutrition Grant guidelines and regain some of the sales previously lost.

### Vending Sales

Vending sales declined approximately 30% after the implementation of the Team Nutrition Grant; reported profit declined from \$6,059 to \$4,295 while “other food sales” such as DECA and JROTC dropped from approximately \$6,000 to about \$2,000. (Refer to page 34, Chart 24) These figures were difficult to interpret, however, due to the inclusion of “expenses” in the 2004, but not 2005, data. If reported expenses were charged against other food sales income, implementation of the Team Nutrition Grant guidelines would not have resulted in a loss of income.

Bottom Line: For this school, using the data reported (which were not comparable year to year), income from both a la carte sales, vending machine sales, and other school-based food sales dropped sharply however, program meal participation increased. These data suggest that high schools may be more impacted by the restriction or elimination of low-nutrient value foods compared to middle schools. Across the country, high schools have reported successful transitions when implementing programs similar to the 2004 Team Nutrition Grant, thus school personnel may need to continue in their efforts to identify foods of higher nutrient value that are also appealing to their students and profitable to their bottom line. Cesar Chavez High School is committed to continuing their efforts.

### Summary and Conclusion

Overall, the implementation of the 2004 Team Nutrition Grant had less of an impact in the middle schools compared to the one participating high school. It will be important to evaluate additional high schools in order to determine if this pattern continues. Overall, middle schools did not appear to suffer financially from the implementation of the Team Nutrition Grant guidelines thus the often-cited concerns of fiscal losses were not frequently observed. Improving the nutrient value of foods sold to Arizona’s students did not, with the possible exception of competitive food sales at the high school, have a negative impact on the financial standing of the participating schools. Good nutrition, in fact, did not come at a price. Some programs increased both sales and profits from program meals, others saw small losses in competitive food sales, and, as previously noted, only the one participating high school experienced a noted loss in “discretionary income” from food sales. Even that one high school, however, experienced significant increases in the sales of program lunches. A comparison of both total and per-meal food costs revealed no significant financial burden; the implementation of the Team Nutrition Grant did not increase food costs on a month-to-month comparative basis. In several cases, meal (food) costs actually decreased or remained unchanged. Thus, there is no evidence that the healthy foods came at a higher price. As the Team Nutrition Program continues to expand, it can do so with the knowledge that most middle schools will experience little if any loss of income (although increased wages and indirect costs may erode profits). The consequences in high schools remain uncertain given the fact that the only high school to participate in this phase did experience a loss of non-program



income, although food costs per se, on a per-meal basis, did not increase at all. All four schools reported being satisfied with their outcomes and look forward to continuing their efforts to provide a healthier school environment.