West Virginia
Supplemental Nutrition Assistance Program Education
(SNAP-Ed)

West Virginia University Extension Service

Final Report Summary

Final Report of FFY 2012
Nutrition Education Activities

Submitted by R. Jeff Olson
WVU Extension Service
November 30, 2012
1. SNAP-Ed Program Overview:

Continuous progress was made toward program goals and objectives during FFY 2012. This year has been marked by the submission (and approval) of WV’s first SNAP-Ed amendment and the addition of a new sub-contracted award to the Mid-Ohio Valley Health Department. Having a new partner to implement SNAP-Ed projects is an exciting new initiative. Although still in its infancy, the effort to increase the number of partners to expand SNAP-Ed in WV is ongoing.

For 2012, the number of ongoing direct education projects included:

- Adult Paraprofessional
- Youth Paraprofessional
- Marshall University
- (Expected in 2013, Mid-Ohio Valley Health Department)

As you will read, each of these projects focused on outcome evaluation. Major achievements included number of participants reached and improved reported behaviors as they relate to food, nutrition, and physical activity. One exciting development has been the acquisition of a part-time evaluation specialist to help FNP develop improved formative and impact evaluation strategies. As a result, several new data collection methods have been started. Since the position was hired in June, we are not yet able to include these strategies in our end-of-year report. However, we are excited to begin applying programmatically what we learn from these improved evaluation methods.

SNAP-Ed paraprofessionals continue to show improvement in participants’ nutrition and physical activity-related behaviors. Instructors work in their own communities, creating local partnerships and developing lasting relationships with both participants and partners. To improve programming in the upcoming year, NOIs will set increasingly higher, but attainable, goals for number of graduates. They have each developed an “Action Plan” which outlines their anticipated work for the year, and will strive to exceed the expectations of years past. Within their counties, NOIs gear their activity-based programming toward not just a knowledge gain, but a behavior change. To further improve programming quality, NOIs will utilize only approved resources that are recognized to be research-based and audience-appropriate.

Overall, WV continues to do a solid job of documenting outcomes, maintaining fiscal integrity, and promoting an environment of program accountability. In addition to improving our evaluation efforts, our focus is to develop and expand the evidence-base of effective SNAP-Ed activities- from direct education to community and environmental change. Finally, we will continue efforts to partner across agencies. However, without federal directive to promote these agency collaborations, we expect limited success based on the existing structure and operational silos. Regardless, we expect cross-agency collaboration to improve and hope to institute additional sub-contracts when appropriate.
2. SNAP-Ed Administrative Expenditures:

<table>
<thead>
<tr>
<th>Type of Administrative Expense</th>
<th>% of Total Administrative Expenditures by Type of Expense</th>
<th>% values</th>
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<td>Administrative Training Functions</td>
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<td>Total Admin Costs</td>
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* Total expenditures for FY 2012 are $966,236. FY 2011 was extended through February 29, 2012 to exhaust FFY 2011 SNAP-Ed funds. The $966,236 reflects FY 2012 funds that were expended March 1 – September 30, 2012. (The State Agency plans to carry-over FFY 2012 through February 28, 2013 to fully expend FFY 2012 funds.)

3. SNAP-Ed Evaluation Reports Completed for this Reporting Year:

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Key Project Objectives</th>
<th>Target Audience</th>
<th>Evaluation Types</th>
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<tbody>
<tr>
<td>Adult Paraprofessional</td>
<td>● <em>See Below (Page 4)</em></td>
<td>Adults</td>
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<td>Youth Paraprofessional</td>
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<td>Marshall University Nutrition</td>
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<tr>
<td>Education Program</td>
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</tbody>
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Adult Paraprofessional Project

Geographic Area

- Barbour
- Berkeley
- Boone
- Grant
- Greenbrier
- Hampshire
- Hardy
- Harrison
- Jefferson
- Kanawha
- Lincoln
- McDowell
- Marion
- Mercer
- Mingo
- Monongalia
- Putnam
- Raleigh
- Taylor
- Wood

Delivery Sites & Number of Participants

<table>
<thead>
<tr>
<th>Site Type</th>
<th>Series of Classes</th>
<th>One-Time Lessons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Graduates</td>
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<tr>
<td>Adult Ed. &amp; Job Training</td>
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<td>148</td>
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<tr>
<td>Adult Rehab</td>
<td>12</td>
<td>68</td>
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<tr>
<td>Church/Faith Center</td>
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<tr>
<td>Community Center</td>
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<tr>
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<td>Extension Office</td>
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<tr>
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<td>7</td>
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<tr>
<td>Head Starts</td>
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<td>Library</td>
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<td>18</td>
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<td>Other</td>
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<td>3</td>
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<tr>
<td>Other Youth Ed Sites</td>
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<tr>
<td>Public Housing</td>
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<tr>
<td>Public School</td>
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<tr>
<td>Public/Com. Health</td>
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<td>Worksites</td>
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Target Audience

SNAP-Ed’s primary effort to target SNAP eligible’s lies with our recruiting efforts. Nutrition Outreach Instructors attempt to recruit adult participants directly from SNAP offices. Additionally, recruiting efforts occur in WIC offices, DHHR offices, public housing, food pantries and soup kitchens. When necessary, recruitment also takes place in low-income neighborhoods and public school districts where the free and reduced lunch rates are a high percentage. To ensure effectiveness and accountability we collect both demographic and economic data, and have incorporated voluntary reporting of participation in SNAP programs as part of our enrollment procedures. We maintain the following goal: 90% of SNAP-Ed participants are food stamp eligible.
Methods

A series of seven to twelve classes are held over a period of six weeks to nine months. The meetings last between one and two hours, and convene from two times per week to two times per month. One-time lessons are held at a variety of locations and the Family Nutrition Program is highlighted. The program is explained along with general nutrition information, in the hopes of raising awareness about FNP and the service it provides in the community.

Content

Key messages:
- MyPyramid (& MyPlate)
- Dietary Guidelines
- Label Reading
- Food Safety and Sanitation
- Menu Planning
- Food Resource Management
- Cooking Skills

Key Measures:
- Number of graduates
- Improvement in nutrition behaviors
- Increased food safety practices
- Improvement in frequency and duration of physical activity

Evaluation:
Type: Outcome – Evaluation is based on participants’ self-reported behavior at the beginning and end of a series of classes (24-hr food recall). In addition to the 24-hour food recall which can measure overall diet quality, a 14-item behavior checklist is asked of participants and ranked on a 0-5 scale (0=N/A, 1=do not do – 5=almost always do).

Key Evaluation Outcomes –
As a result of attending an FNP session, participants will be able to demonstrate the following healthy eating and active lifestyle behaviors:
- Increase daily intake of fruits and vegetables
- Increase daily intake of calcium rich foods
- Decrease daily intake of high-fat foods
- Preparing food without adding salt

As a result of attending an FNP session, participants who are eligible, but not participating in available support programs, will be made aware of its benefits and how to apply. Referrals to the following agencies will be tracked:
- SNAP
- WIC
- Food Pantries
- School Lunch/School Breakfast
As a result of attending an FNP session, participants will be able to demonstrate the following safe food handling techniques:

- Proper hand washing techniques
- Safe thawing procedures
- Appropriate techniques for storing foods (i.e. refrigeration)

As a result of attending an FNP session, participants will be able to demonstrate the following food resource management skills:

- Plan meals in advance
- Compare prices when buying food
- Make food last throughout the month
- Use a grocery list when shopping for food

Evaluation Participants:
All graduates of a series of FNP classes are included in comparison (pre- and post-) data. This includes adults participating across 21 counties in West Virginia.

Assignment to Intervention
a) Intervention was carried out on adults participating in FNP classes. The target audience for this intervention is families with young children, and the majority of our participants are women.

b) All participants were included in intervention groups. These participants were a convenience sample of individuals who, most often, voluntarily attended a series of lessons taught by a nutrition outreach instructor.

c) Throughout FY 2012, a total of 18 Adult NOIs reported 474 adults who completed a class series of eight or more lessons. In addition, 151,633 indirect contacts were reported.

Outcome Measures
These measures are determined prior to participating in an FNP class, and upon completion of an FNP class.

Results:
- Total Adult Direct Contacts: 3694
- Total Adult In-direct Contacts: 151,633
- Total Adult Lessons Taught: 4555

Graduated Participants:
- Increased daily intake of fruits by 0.7 servings
- Increased daily intake of vegetables by 0.3 servings
- Increased daily intake of dairy by 0.5 servings

Additionally:
- 67% of participants improved food safety practices
- 83% of participants improved their food resource management skills
- 89% of participants improved their nutrition practices
- Money spent on food per month was reduced from $151.20 to $139.20
Youth Paraprofessional Project

Geographic Area

- Berkeley
- Kanawha
- Nicholas
- Braxton
- Lincoln
- Putnam
- Clay
- Logan
- Raleigh
- Grant
- McDowell
- Upshur
- Greenbrier
- Mineral
- Wayne
- Hampshire
- Mingo
- Wood
- Hardy
- Monongalia
- Wyoming

Delivery Sites

- 202 classes taught at schools
- 31 classes taught at other youth education sites such as camps
- 2 classes taught in libraries
- 2 classes taught at public/community health sites
- 2 classes taught at churches
- 2 classes taught at public housing sites
- 1 class taught at a community center
- 1 class taught at an extension office
- 1 class taught at a head start
- Total = 244

Target Audience

Limited resource youth ages 9-12
Total # of participants = 6,041

Methods

During the school year, the vast majority of students participate in five to nine sessions lasting approximately 45 minutes. Each lesson includes take home newsletters. Evaluation is conducted through teacher surveys and pre/post tests.

During the summer, participants typically received five to nine sessions lasting 60 minutes each. These lessons normally occur during a day or overnight camping experience. Evaluation is conducted through pre/post tests.

Content

Key Messages focus on basic nutrition & physical activity.

- Eating a variety of foods
- Increased knowledge of the essentials of human nutrition
- Improved practices in food preparation and safety
Evaluation

Type: Outcome – Pre/post tests

Key Evaluation Outcomes:
- 33% more of youth now report eating a variety of foods
- 28% more of youth improved their knowledge of the essentials of human nutrition
- 34% more of youth improved practices in food safety

Evaluation participants:
- 5698 Limited resource youth ages 9-12

Assignment to intervention & control or comparison conditions:
- All students were assigned to intervention groups

Outcome Measures:

a) A pre/post-test system of evaluation was used for the summer camping programs using the Wild and Wonderful Health Challenge curriculum. Questions were related to both knowledge gain and intended behavior changes. Questions included:
- How many cups of water should we drink every day?
- Which drink is a healthy drink?
- Low-fat milk and cheese are a good source of?
- How much physical activity should you get every day?
- What color fruits and vegetables should we eat every day?
- Super sized food is?
- Advertisements try to sell us?
- Skipping breakfast is o.k. _____.

b) A pre/post-test system of evaluation was used for school year programming using the Show me curriculum. Questions were related to both knowledge gain and intended behavior changes. Questions included:
- We should eat food from?
- If you wanted to eat a snack that included a grain food, which one of these would you eat?
- Which is a food group on MyPyramid?
- Foods made with lots of added sugars and solid fats should be eaten?
- What does ‘eating a variety’ mean?
- You are outside at a friend’s house playing with the dog. What do you need to do before you have a snack?
- You just sneezed. Your friend offers you food. What should you do?
- Which activity makes your heart beat faster?
- How many minutes a day should you be physically active?
- What is the purpose of advertising?

Results:
- Total Youth Direct Contacts: 45,560
- Total Youth In-direct Contacts: 561
- Total Youth Lessons Taught: 1731
Marshall University Project (sub-grantee)

Project Overview:

The mission of Marshall’s program is to stimulate behavioral change related to healthy eating and physical activity by creating multiple opportunities to learn and practice program goals. The three primary goals of Marshall’s Nutrition Education Program follow:

- Eat fruits and vegetables, whole grains, and fat-free or low-fat milk products every day.
- Be physically active every day as part of a healthy lifestyle.
- Balance caloric intake from food and beverages with calories expended.

Overall, the program has been successful in achieving these goals, as evidenced by evaluation data to follow. During FY 2012, Marshall’s program employed a direct education approach targeting primarily kindergarten – second grade students, as was done previously; middle schools were also included in some instances. Most student participants engaged in a series of lessons related to eating healthy and being active, which utilized MyPlate concepts to introduce food groups. Taste testing opportunities were available at each lesson throughout the series.

NEP’s success is indicated by data showing an increase in fruit, vegetable, whole grain, and dairy intake after participation in the program. Students enrolled in the program reported increases in daily physical activity, and their attitude regarding being active also improved post-intervention. Teachers associated with the program indicated that students were more aware of and made healthier choices in the cafeteria after participating in Marshall’s program. Through this program, 4,345 students were provided nutrition education, which was shared with their families. Services were expanded to include a greater number of enhanced extension lessons throughout the school year to reinforce the program’s key messages. Additionally, the program grew geographically and served new areas with significant need for services. In the long run, it is expected the program will positively impact entire family units and potentially contribute to reducing obesity among children and increasing those who consume a healthy diet and engage in regular physical activity.

During FY 2012, there were no major setbacks; however, three items were noted that should be addressed. One of these was the inability of NEP staff to complete student focus groups as planned. Gaining access to the schools for these was much more difficult than expected. Program staff still believes these focus groups would provide important qualitative data and are working to remove the barriers identified and hope to initiate these during FY2013. Also related to evaluation was the lack of a specific survey question to address students’ ability to balance caloric intake with calories expended. While several of questions collectively indicated students were practicing the concept, it may be advantageous to add a question that specifically addresses the behavior in the future.

Finally, it should be noted that during FY 2012, two Marshall faculty who were involved with NEP are no longer associated with the program. One left the institution to assume an administrative role at another university, and the other stepped down from grant responsibilities due to health issues/illness. Despite the decrease in faculty participation, those who remain associated with the program have been able to provide all services needed to maintain an active research agenda and assist with program planning and
development. During FY 2012, five abstracts related to Marshall’s NEP were submitted for inclusion at national meetings, and all were accepted for presentation.

Project Planned Improvements:

FY 2012 programming was quite successful; therefore, no major modifications to programming will take place during FY 2013. Due to introduction of MyPlate, curriculum was updated to reflect most current guidance/recommendations.

The majority of planned improvements regard those related to the evaluation process. A new second grade student assessment tool was introduced in fall 2012; pending results of these pre/post-tests, revisions to the tests and/or curriculum may be made. Additionally, the vast majority of evaluation is process and outcomes driven; therefore, new methods are being developed to address evaluating program impacts. In 2013, we hope to secure a plan for evaluating impacts of Marshall’s NEP.

To further assist with NEP planning and evaluation, a new program logic model (comprehensive evaluation plan) was developed in 2012. (A copy has been included at the end of this section.) The model will assist the program in better tracking outputs and outcomes. Process indicators were determined and data related to these are being collected. Outcomes were categorized as either short-term, medium-term, or long-term. Development of the logic model/evaluation plan was very beneficial to program staff, as it created a clear sense of direction for the future.

Finally, one planned activity for FY 2012 the program was unable to accomplish was to conduct student focus groups. The reasons for this are multifaceted. The process of securing consent and assent from this population was a barrier from an institutional research perspective. The bigger problem, however, was securing time in schools to conduct focus group activities with students. Finding an appropriate time to speak with teachers was challenging, but securing blocks of time to meet with the students was nearly impossible. Program staff still believes these focus groups would provide important qualitative data and are working to remove the identified barriers to. It is hoped that student focus groups can be initiated during FY2013.

EARS Feedback:

Question 1A regarding reporting SNAP recipients who receive SNAP-Ed has been the most difficult data to obtain. Because of privacy and confidentiality issues, schools will not allow students to be questioned directly about participation in SNAP. However, we have been able to obtain classroom level data from the state regarding number of students receiving free and reduced cost meals.

✓ FNS does not need to provide additional EARS training or resources.
✓ For FY 2012, Marshall’s program utilized the SNAP-Ed Demographic Collection Form (See attached). These were completed by educators each time they provided education in a classroom.
✓ Currently, there are no plans to make changes in data collection procedures related to EARS during FY 2013.
✓ At this time, there are no comments or suggestions related to modification of the EARS form.
Summaries of Evaluation

**Teaching Observations** (Process Evaluation)

a. **Key Components**

Program educators were evaluated by administrative personnel from both MU and WVU FNP to ascertain whether or not they implemented lessons as they were intended. Three areas were observed, which included presentation, organization/communication, and professionalism. Presentation addressed whether or not the educator identified current lesson and key points, reviewed previous lessons, used visuals effectively, and introduced upcoming lesson. Organization/Communication addressed whether lesson followed curriculum, readiness of equipment/supplies, ability to create a positive learning environment, eye contact, style of delivery, and ability to adapt lesson if necessary, to name a few. Finally, professionalism addressed subject knowledge, ability to write and communicate effectively, punctuality, appearance, and time management.

b. **Participants**

Educators who teach in the classrooms were evaluated throughout the year to ensure that goals/key messages of the program were being implemented properly. Some observations took place early in the fiscal year while others were later after educators had gained experience and were more confident. Participants consisted of dietetic interns, who provide direct education, as well as the program’s full-time educators.

c. **Evaluation Measures**

The teaching observation form is a two page rating scale, which consists of 24 questions. Observers rate each on a 5-point scale (Needs Improvement – Excellent) and have additional space for comments, when warranted.

d. **Results**

Thirty seven observations were completed by administrative staff during FY 2012 and provided a great deal of insight on how program lessons were being implemented in classroom settings. Overall, educators performed well (4 or 5 on rating scale) in nearly all 24 areas assessed. No educators received low scores (1 or 2) in any area, which would indicate a need for improvement. If an instance occurred where an educator scored low in a particular area, he/she would be made aware of the observed behavior and strategies for improvement would be discussed. This did not occur during FY 2012, as all performed at an acceptable level.

The Program Director receives and reviews each teaching observation and shares finding with educators. When meeting with educators, he discusses ways to further strengthen delivery of nutrition messages. Forms are also reviewed to ascertain whether or not any patterns in delivery exist. If deficiencies occur with multiple educators in a particular area, the Program Director will address the issue with all educators to ensure it is corrected. Again, this was not a problem in FY 2012, but it has been in previous years.

**Teacher Focus Groups** (Outcome Evaluation)

a. **Key Components**
In order to gain more insight on teachers’ perceptions of program effectiveness, focus groups were conducted in several participating schools. Teachers were invited to participate in focus groups held either during lunch or designated planning times. Several key questions were identified for discussion but participants were encouraged to add additional information that might be helpful for program administration, development, or delivery.

b. Participants

Participants consisted of kindergarten, first and second grade teachers and principals in four schools served by Marshall’s Nutrition Education Program. Approximately 20 teachers participated in one of the four focus groups, which was fewer than anticipated. After last year’s efforts, it was thought that conducting these groups during teacher in-service or planning days would increase participation. However, the Program Director was not successful in securing time for groups during these days. Therefore, program staff continued with focus groups during lunch and/or planning periods for FY 2012.

Additionally, NEP administrators had hoped to increase the number of focus groups conducted, which did not occur. Because so much time was spent in schools assessing students (pre/post-testing), school administrators were reluctant to grant permission for additional time to assess teachers. NEP staff will continue to search for ways to increase the number of focus groups and participants in the coming year.

c. Evaluation Measures

Focus groups were moderated by trained personnel and a recorder was present to document proceedings. Teachers were asked about their perceptions regarding the benefit of Marshall’s program to the children and whether or not they had observed behavior and knowledge change after participation the Nutrition Education Program. Participants were also asked about personal benefits gained by participation in the program, including changes in personal behavior. Strengths and areas for improvement in the program were addressed as was the usage of extension lessons. Finally, in instances where the new student pre and post-tests were utilized, teachers were asked to provide feedback on the tools and the process.

d. Results

Focus group results were overwhelmingly positive in nature. Perceived benefits of the program for the children were varied among participants; however, there were several common themes identified. Primarily, teachers discussed availability of new/different foods for the children. Several stated that children in their classrooms had limited experiences trying new foods at home due primarily to economic constraints. They indicated that children were hesitant to try new foods initially but became excited about it as the lessons progressed. The fact that taste testing occurs with every lesson was one of the program’s most beneficial attributes.

Another benefit of the program was the increased intake and willingness to consume “healthy foods” both in the cafeteria, homes, and the classrooms. One teacher commented that she observed students were more willing to try new foods on the menu at school; another stated that students “ask for fruit at snack time instead of cookies.” Additionally, participants of the focus group stated that kids are bringing healthier foods from home and suggested that the program is primarily responsible for these changes.
Finally, another perceived benefit was the fact that students’ knowledge of nutrition, food safety, and physical activity was greatly improved after participating in Marshall’s Nutrition Education Program. One teacher stated that her first grade son participated in the program and now comes home from school telling her that he “needs to drink more milk to build strong bones.” Several commented that students talk about what food group their food would be in as well as the sugar content of foods. Another said that she has overheard students reminding their peers that they need to wash their hands.

Focus group participants also identified personal benefits from their classes taking part in the Nutrition Education Program. Teachers expressed appreciation that well-trained “friendly, loving, and knowledgeable” professionals entered their classrooms, which provided them with a short break where they could learn as well. Several commented that the program reminded them of the importance of being a positive “role model” to their students with regard to eating and physical activity patterns. One teacher stated, “I started walking three times a week and eating more fruits and veggies” because of this program.

There were relatively few comments regarding areas for improvement. Primarily these focused on the need for more “hands on” activities in the classrooms. This information was shared with the Program Director, and feasibility will be explored in the future. It is also interesting to note that a few unexpected benefits of the program were discovered during the focus groups. In one school, faculty stated that attendance has improved since NEP was initiated. The students love nutrition education lessons and “never want to miss on that day”. In the same school, teachers stated that students have dramatically improved their handwashing practices after participating in NEP, which they feel has also led to less sickness and a decrease in absenteeism.

Finally, all teachers who participated in the new student assessment provided praise for the improved method of collecting data. They did not feel that removing students from the classroom for one-on-one assessment was disruptive and all. Nearly everyone preferred this method to the previous classroom assessment, and one teacher commented on a desire to review the pre/post-tests to assess age appropriateness.

**Student Pre/Post Assessment** (Outcome Evaluation)

a. **Key Components**

To determine the effectiveness of the educational intervention, a pre/post assessment was conducted at a number of participating schools. The tests were developed with assistance from an early education specialist, with input from all NEP team members. While the kindergarten – second grade assessments are constructed similarly, they vary in content and number of questions. For example, the kindergarten assessment has 18 questions, while the second grade survey has 25. Pre and post assessment data were collected in one-on-one sessions outside the classroom environment by trained NEP personnel. Small flip charts with pictures were utilized to assist students with a better understanding of questions.

b. **Key Evaluation Impact**

The key impact areas for the classroom intervention were knowledge enhancement as well as behavioral and attitudinal changes. Students were expected to correctly identify MyPlate concepts as well as new fruits and vegetables. Behaviors related to frequency of
handwashing and daily physical activity were expected to improve as were intake of fruits, vegetables, and milk. Attitudinal questions were also included to assess any improvements related to attitudes toward trying new foods, being active, and choosing healthy snacks.

c. Participants

The sample consisted of school aged students (K-1) in 14 public elementary schools having greater than 50% of students on free and reduced meal plans. Students included males and females aged 5 through 9 years in a four county area in central western West Virginia. See demographic data below. It should be noted that numbers in all categories do not always reflect the total sample number; this was due to missing data. Some variability in gender and age was expected from pre-test to post-test due to absenteeism and birthdays; however, it is also suspected that some may be attributed to student error, as all data were self-reported.

<table>
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<th>K Pre-Test</th>
<th>K Post-Test</th>
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<th>1st Post-Test</th>
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<td>363 (50.2%)</td>
<td>296 (42.5%)</td>
<td>164 (24.4%)</td>
</tr>
<tr>
<td>7</td>
<td>10 (1.4%)</td>
<td>21 (2.9%)</td>
<td>32 (4.6%)</td>
<td>447 (66.5%)</td>
</tr>
<tr>
<td>8</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>32 (4.6%)</td>
<td>52 (7.7%)</td>
</tr>
<tr>
<td>9</td>
<td>0 (0.0%)</td>
<td>0 (0.0%)</td>
<td>1 (0.1%)</td>
<td>3 (0.4%)</td>
</tr>
</tbody>
</table>

There were no control or comparison groups used in the study for self-reported pre/post survey data collection. Schools were purposefully selected by the Program Director. They were chosen because teachers and administrators at these schools were agreeable to allow access to NEP staff for data collection purposes. All classrooms available to participate at each school were allowed to do so; therefore, no randomization can be claimed.
d. Evaluation Measures

Kindergarten:
The 18 item assessment is separated into five sections, with question one addressing demographic data (gender and age). Questions 2 – 7 consist of identification of pictorial representations of fruits (banana and kiwi), vegetables (broccoli and sweet potato), MyPyramid, and MyPlate. Items eight and nine deal with knowledge of MyPlate concepts, while 10 – 16 address frequency of practices related to handwashing and food consumption. Finally, the remaining two questions address attitudes toward trying new foods and being active. Students are provided with three faces: one smiling, one frowning, and one neutral; they are asked to point to the one that shows their feelings after hearing each of two statements.

First Grade:
The first grade pre/post-assessment is constructed similarly to the kindergarten tests, but has additional questions. Similar to the kindergarten assessment, the first grade test is separated into the same five sections. Question one deals with demographic data (gender and age), and questions 2 – 7 address identification of pictorial representations of fruits (pear and canteloupe), vegetables (cauliflower and radish), MyPyramid, and MyPlate. Items 8 – 12 deal with knowledge of MyPlate concepts, while 13 – 20 are related to frequency of handwashing, physical activity, and consumption of particular foods/food groups. Finally, the remaining three questions address attitudes toward trying new foods, being physically active and eating vegetables. Students are provided with three faces: one smiling, one frowning, and one neutral; they are asked to point to the one that shows their feelings after hearing each of two statements.

e. Results

Kindergarten:

<table>
<thead>
<tr>
<th></th>
<th>Pre-Assessment</th>
<th>Post-Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correctly ID Banana</td>
<td>677 (97.7%)</td>
<td>710 (99.0%)</td>
</tr>
<tr>
<td>Correctly ID Kiwi</td>
<td>133 (19.2%)</td>
<td>375 (52.2%)</td>
</tr>
<tr>
<td>Correctly ID Broccoli</td>
<td>580 (83.7%)</td>
<td>673 (93.7%)</td>
</tr>
<tr>
<td>Correctly ID Sweet Potato</td>
<td>73 (10.5%)</td>
<td>320 (44.6%)</td>
</tr>
<tr>
<td>Correctly ID MyPyramid</td>
<td>496 (71.6%)</td>
<td>681 (94.8%)</td>
</tr>
<tr>
<td>Correctly ID MyPlate</td>
<td>507 (73.2%)</td>
<td>677 (94.3%)</td>
</tr>
<tr>
<td>Understand Function of Protein Foods</td>
<td>214 (30.9%)</td>
<td>349 (48.6%)</td>
</tr>
<tr>
<td>Know Bread’s Food Group</td>
<td>363 (52.4%)</td>
<td>493 (68.7%)</td>
</tr>
<tr>
<td>Use Soap - Wash Hands for 20 Seconds</td>
<td>510 (73.6%)</td>
<td>647 (90.1%)</td>
</tr>
<tr>
<td>Active Daily</td>
<td>609 (87.9%)</td>
<td>676 (94.2%)</td>
</tr>
<tr>
<td></td>
<td>Pre-Assessment</td>
<td>Post-Assessment</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>----------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Consume Grain Regularly</td>
<td>193 (27.8%)</td>
<td>209 (28.9%)</td>
</tr>
<tr>
<td>Consume Vegetables Regularly</td>
<td>193 (27.8%)</td>
<td>268 (37.3%)</td>
</tr>
<tr>
<td>Consume Fruit Regularly</td>
<td>323 (46.6%)</td>
<td>340 (47.4%)</td>
</tr>
<tr>
<td>Consume Milk Regularly</td>
<td>345 (49.8%)</td>
<td>433 (60.3%)</td>
</tr>
<tr>
<td>Consume New Foods Regularly</td>
<td>162 (23.4%)</td>
<td>186 (25.9%)</td>
</tr>
<tr>
<td>Positive Attitude - Trying New Foods</td>
<td>551 (79.5%)</td>
<td>589 (82.0%)</td>
</tr>
<tr>
<td>Positive Attitude Toward Physical Activity</td>
<td>437 (63.1%)</td>
<td>604 (84.1%)</td>
</tr>
</tbody>
</table>

First Grade:

<table>
<thead>
<tr>
<th></th>
<th>Pre-Assessment</th>
<th>Post-Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correctly ID Pear</td>
<td>562 (84.4%)</td>
<td>614 (91.5%)</td>
</tr>
<tr>
<td>Correctly ID Cantaloupe</td>
<td>45 (6.8%)</td>
<td>170 (25.4%)</td>
</tr>
<tr>
<td>Correctly ID Cauliflower</td>
<td>143 (21.5%)</td>
<td>337 (50.2%)</td>
</tr>
<tr>
<td>Correctly ID Radish</td>
<td>77 (11.6%)</td>
<td>236 (35.3%)</td>
</tr>
<tr>
<td>Correctly ID MyPyramid</td>
<td>404 (60.7%)</td>
<td>640 (95.4%)</td>
</tr>
<tr>
<td>Correctly ID MyPlate</td>
<td>222 (33.3%)</td>
<td>634 (94.5%)</td>
</tr>
<tr>
<td>Understand Function of Protein Foods</td>
<td>135 (36.8%)</td>
<td>291 (43.4%)</td>
</tr>
<tr>
<td>Understand Function of Fruits/Vegetables</td>
<td>135 (20.3%)</td>
<td>398 (59.3%)</td>
</tr>
<tr>
<td>Understand Function of Dairy Foods</td>
<td>358 (51.4%)</td>
<td>321 (47.8%)</td>
</tr>
<tr>
<td>Understand Function of Grain Foods</td>
<td>596 (89.5%)</td>
<td>592 (88.2%)</td>
</tr>
<tr>
<td>Know Egg’s Food Group</td>
<td>240 (36.0%)</td>
<td>260 (38.7%)</td>
</tr>
<tr>
<td>Use Soap</td>
<td>637 (95.6%)</td>
<td>657 (98.1%)</td>
</tr>
<tr>
<td>Wash Hands for 20 Seconds</td>
<td>519 (77.9%)</td>
<td>595 (88.7%)</td>
</tr>
<tr>
<td>Active Daily</td>
<td>607 (91.1%)</td>
<td>636 (94.8%)</td>
</tr>
<tr>
<td>Choose from Five Food Groups Daily</td>
<td>411 (61.7%)</td>
<td>471 (71.0%)</td>
</tr>
<tr>
<td>Consume Grain Regularly</td>
<td>145 (21.8%)</td>
<td>217 (32.3%)</td>
</tr>
</tbody>
</table>
### Table

<table>
<thead>
<tr>
<th>Behavior</th>
<th>Pre-Intervention</th>
<th>Post-Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consume Vegetables Regularly</td>
<td>261 (39.2%)</td>
<td>289 (43.1%)</td>
</tr>
<tr>
<td>Consume Fruit Regularly</td>
<td>392 (58.9%)</td>
<td>411 (61.3%)</td>
</tr>
<tr>
<td>Consume Milk Regularly</td>
<td>382 (57.4%)</td>
<td>441 (65.7%)</td>
</tr>
<tr>
<td>Positive Attitude Toward Trying New Foods</td>
<td>539 (80.9%)</td>
<td>580 (86.4%)</td>
</tr>
<tr>
<td>Positive Attitude Toward Vegetables</td>
<td>464 (69.7%)</td>
<td>496 (73.9%)</td>
</tr>
<tr>
<td>Positive Attitude Toward Phys Activity</td>
<td>601 (90.2%)</td>
<td>628 (93.6%)</td>
</tr>
</tbody>
</table>

### Discussion

Overall, student scores improved in all areas but two (highlighted above) from pre to post-assessment. Six hundred ninety-three kindergarten students completed a pre-assessment, and 718 completed the post-test. A comparison of results indicated that recognition of fruits and vegetables increased after the intervention. Students' knowledge of MyPlate concepts also improved. At time of post-test, 90.1% reported using soap all the time when washing their hands, which was a 16.5% increase over pre-test results. The number of students choosing foods from all food groups increased after the intervention, as did children's attitudes toward eating healthy and physical activity. Six hundred sixty-six first graders participated in the nutrition education pre-test, and 672 completed the post-assessment. Recognition of fruits and vegetables increased by over 20% in nearly every category. The only exception was in identification of a pear. While more students identified the pear correctly at post-test, the increase was not as considerable. The number who correctly identified MyPlate increased from 33.3% at pre-test to 94.5% after the intervention. Students' knowledge of MyPlate concepts improved in two of the four areas. Reported increases in the length of hand washing as well as daily physical activity were found. Increases in students choosing fruits, vegetables, grains, and milk “all the time” were reported after the intervention. Attitudes related to trying new foods and physical activity also improved.

In the future, inferential statistical analyses could provide more detailed information regarding program effectiveness. Currently, students, classrooms, or schools are not matched for comparison, but the NEP team is gathering data which it hopes will enable comparison at the classroom and school level for future reporting. Additionally, a new instrument was utilized during FY 2012; therefore, results from FY 2011 and 2012 cannot be compared to explore changes over time. Finally, NEP staff has planned to add comparison groups that will have no intervention but will complete the pre and post-tests to address the impact of the program. This has been problematic, as schools are hesitant to grant entry for data collection without receiving additional benefits (nutrition education); availability of researchers to collect additional data has also contributed to the problem.

**Teacher Observation and Behavior Survey** (Outcome Evaluation)

#### a. Key Components

In order to evaluate teacher and student behavior changes upon completion of Marshall’s NEP program, a Teacher Observation and Behavior survey was completed. The first
portion of the survey solicited information on student behavioral changes post intervention as well as their discussion of these changes. The second portion of the survey addressed behavior changes in the teacher post intervention as well as discussion and modeling of key program components after participation in nutrition education. Finally, there were several opportunities throughout the survey for teachers to share any positive feedback and/or constructive criticism to assist with program development and improvement.

b. Participants

During FY 2012, 191 teachers participated in the NEP program and had nutrition educators in their classrooms. The teachers were provided with a hard copy of the survey and asked to complete and return to their building’s nutrition educator(s). One hundred fifty seven (82%) completed and returned the survey.

c. Evaluation Measures

The beginning of the survey addressed teacher observed behavior changes in students after participation in the nutrition education program. Behavior changes included were more awareness of good nutrition, making healthier meal/snack choices, eating breakfast, more willing to try new foods, improved hand washing and food safety, and increased physical activity. Teachers were asked to reply either yes, no, or unsure if change had occurred. The next portion asked whether or not the students had discussed making a change in any of the areas listed above.

Next, the teachers were asked to respond whether or not they had made any changes in the behaviors listed previously since their class’s participation in the nutrition education program. There was also an opportunity to for them to reply that they were “already practicing” the behaviors prior to participating in the program. Finally, teachers were asked if they talked about or models any of the behaviors listed in the paragraph above.

The survey concluded with demographic information regarding how long they had participated in the program, how many times program staff were in the classroom, and where they typically interact with their students.

d. Results and Discussion

The table that follows addresses observed (by the teacher) positive student behavior changes after participation in the program. It also looks at whether or not students discussed some of these same attributes, as observed by the teacher.

<table>
<thead>
<tr>
<th>Observed Behavior Changes</th>
<th>Students Discussed Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>More aware of importance of good nutrition</strong></td>
<td>155 (98.7%)</td>
</tr>
<tr>
<td><strong>Making healthier meal choices</strong></td>
<td>120 (76.4%)</td>
</tr>
<tr>
<td><strong>More willing to try new foods</strong></td>
<td>151 (97.4%)</td>
</tr>
<tr>
<td><strong>Improved Handwashing</strong></td>
<td>139 (89.1%)</td>
</tr>
</tbody>
</table>
The next section of the survey dealt with changes in teachers’ behaviors and modeling of those behaviors for students after their classrooms participated in NEP. Results from this portion are included in the table below. It should be noted that, in some instances, many of the teachers were already practicing a behavior, which was not considered a new behavior. With regard to modeling, teachers were not asked whether or not modeling a particular behavior was a new or continuing event.

<table>
<thead>
<tr>
<th>Behavior Changes</th>
<th>Modeling Behaviors in Classroom</th>
</tr>
</thead>
<tbody>
<tr>
<td>More aware of importance of good nutrition</td>
<td>99 (63.5%)</td>
</tr>
<tr>
<td>Making healthier meal choices</td>
<td>105 (66.9%)</td>
</tr>
<tr>
<td>More willing to try new foods</td>
<td>111 (71.2%)</td>
</tr>
<tr>
<td>Increased Physical Activity</td>
<td>81 (51.6%)</td>
</tr>
<tr>
<td>Offer healthier choices for students</td>
<td>101 (65.2%)</td>
</tr>
</tbody>
</table>

Of the 157 teachers that completed the survey, nearly every one reported positive behavior changes in students after participation in NEP. Teachers responded that students discussed changes openly with them and among their peers. Teachers also noted that they and their students incorporated new foods into their diets. In addition to making better food choices after the intervention, teachers reported continuing nutrition discussions in the classroom and modeling behaviors addressed in the lessons.
## Marshall University Nutrition Education Program Logic Model

<table>
<thead>
<tr>
<th>PROGRAM INVESTMENTS</th>
<th>ACTIVITIES</th>
<th>PROCESS INDICATORS</th>
<th>SHORT TERM</th>
<th>MEDIUM TERM</th>
<th>LONG TERM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multidisciplinary Team</td>
<td>Classroom Interventions</td>
<td># lessons taught</td>
<td>Immediate results...</td>
<td>Intermediate results...</td>
<td>Long-term impacts...</td>
</tr>
<tr>
<td>Graduate Student Requirement to Perform Nutrition Education</td>
<td></td>
<td># incentives distributed</td>
<td>Self-Efficacy</td>
<td>Participating children eat fruits and vegetables, whole grains, fat-free or low-fat milk products, and lean protein every day</td>
<td>Decreased childhood obesity in communities served</td>
</tr>
<tr>
<td>Deep Knowledge of and Experience in Appalachia</td>
<td>School Environment</td>
<td># students, classrooms, schools, counties reached through classroom interventions reached</td>
<td>Knowledge</td>
<td>Participating students improve recognition of healthy foods</td>
<td>Healthier families in communities served</td>
</tr>
<tr>
<td>Financial Resources (e.g., SNAP-Ed)</td>
<td></td>
<td># days bulletin boards displayed</td>
<td>Outcome</td>
<td>Expectations</td>
<td></td>
</tr>
<tr>
<td>Show Me Nutrition Curriculum</td>
<td></td>
<td># of electronic mailing list members, frequency and nature of list messages</td>
<td>Positive feedback from school staff on nutrition education services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variety of Fresh Foods</td>
<td>Caregiver Involvement</td>
<td>Audiences reached and to what extent through school events</td>
<td>Collective Efficacy</td>
<td>School staff regularly spread messages of the importance of good nutrition and exercise</td>
<td></td>
</tr>
</tbody>
</table>

### Short Term Outcomes
- Increased self-efficacy among participating children
- Improved knowledge of healthy foods among participating students

### Intermediate Outcomes
- Increased daily intake of fruits and vegetables, whole grains, fat-free or low-fat milk products, and lean protein
- Improved balance of caloric intake from food and beverages with calories expended

### Long-Term Outcomes
- Decreased childhood obesity in communities served
- Healthier families in communities served

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**Final Report submitted by:**

**R. Jeff Olson, WV SNAP-Ed Coordinator**

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