



5-2-1-0 GOES TO SCHOOL PROGRAM IN REGIONAL SCHOOL UNIT #1 IN MAINE

A REPORT ON THE EVALUATION

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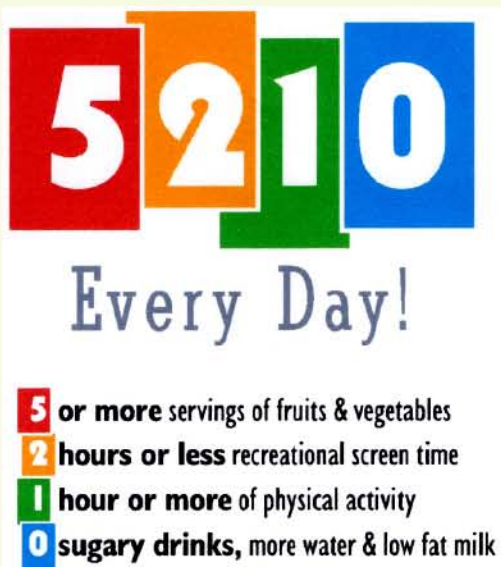


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BACKGROUND

5-2-1-0 Goes to School is a component of the Let's Go! Initiative.¹ The primary goals of the Initiative are (i) to increase physical activity and healthy eating amongst children and youth through the use of the 5-2-1-0 mnemonic to reinforce four recommended health behaviors, and (ii) to address policies, environments, and practices that influence these health behaviors in the school setting. The health behaviors are:

- Eating 5 fruits and vegetables per day,
- Limiting screen time to 2 hours or less per day,
- Engaging in 1 hour or more of physical activity per day, and
- Increasing water consumption as well as low fat milk, while reducing the intake of sugar-sweetened beverages to 0.

The purpose of this evaluation was to assess process and outcome measures on knowledge, attitudes, beliefs, and skills among students, teachers, and school administrators participating in the *5-2-1-0 Goes to School* program in Regional School Unit #1 (RSU #1) in Maine. Please refer to the logic model for the elementary school intervention (Appendix A).

DESIGN AND METHODOLOGY

Sampling sites were five elementary schools, one middle school, and one high school in RSU #1 in Maine. The program was implemented during the 2008-2009 school year, and participating schools were provided resources and tools to incorporate the 5-2-1-0 message into the curriculum and activities. With the technical assistance of Marla H. Davis, RN, a representative from Mid Coast Hospital -- a co-collaborator, the participating schools developed school-wide wellness teams, and chose activities that addressed one or more of the key health behaviors from 5-2-1-0 message. The amount of technical assistance varied from school to school, and included team development, activity planning, acquisition of resources, encouragement, and significant work on RSU-wide wellness policy.

The evaluation involved data collection for both process and outcome measures related to implementation of the *5-2-1-0 Goes to School* program. A pre-post survey design was utilized for the Grades 4-5 Student Survey (Appendices B-C) in order to evaluate the impact of the program; this anonymous and voluntary survey comprised of 18 statements on knowledge and behaviors associated with healthy eating and physical activity, with a four-point Likert response scale. Parental approval or consent forms were not required since the *5-2-1-0 Goes to School* program was not considered to be a research program, and the focus was on program evaluation and quality improvement. Other data sources included the Principal Survey, Champion Survey, Teacher Survey, and School Nutrition Director

¹ Let's Go! Website -- Accessed 19-August 2009. http://www.letsgo.org/5-2-1-0/take_5210_to_school.php

Survey, all of which were administered post-program (Appendices D-G). All survey instruments were designed or adapted by Michele Polacsek from the Maine Center for Public Health. For a description of data sources, please refer to Tables 1-2.

Table 1: Elementary School Evaluation (Pre= October, 2008; Post= May, 2009)

| Survey Tool | PRE | POST | What's Included | Format | Respondents and (Who's Responsible) |
|----------------------------------|--|--|--|--|--|
| 4/5 Student Survey | | | -Students' 5210 knowledge, attitudes, beliefs, perceived environment, and behavior | Classroom paper and pencil | All 4 th and 5 th graders in the 5 elementary schools (Champion) |
| Getting Started Worksheet | | | -What is actually happening in each school around 5210 -LIST of activities (left with Team at PRE and completed by Team at POST test) | Paper and pencil | Champion/Team (Champion) and Marla |
| Environmental Scan | | <i>Question asked on champion survey</i> | -5210 friendly school environment in key places throughout school | Checklist for 2 observers | Marla and Champion conduct scan |
| Principal Survey | | | -Principal personal 5210 KABS and Practices -Environmental and administrative efforts and practices around 5210 -List of activities | Paper and Pencil to be filled out by either principal before meeting with Marla or by Marla during meeting | Principal (Marla) Self-addressed stamped envelope provided for return |
| Teacher Survey | | | -Teacher personal 5210 KABS, and practices -5210 classroom practices, environment -What tools/resources they used -What worked/didn't | Paper and Pencil administered during staff meeting | All teachers in school (Champion) |
| Champion Survey | | | -Champion Role(s) -What worked/didn't -Environmental scan question added at post | Paper and pencil | Champion (Champion) |
| School Nutrition Director Survey | | | Nutrition director personal 5210 KABS and practices -Nutritional changes -Barriers | Paper and pencil | Nutrition director for each school (Champion) and RSU level director (Marla) |
| Superintendent Survey | | | Same as principal survey (slightly edited) | Paper and pencil | Marla—survey to be left with Superintendent and mailed back to Marla |
| LIST of activities | -Leave with Principal -Leave with Team and Champion | Team completes | | | Team (post-only) |

Table 2: Middle and High School Evaluation (Pre= October, 2008; Post= May, 2009)

| Survey Tool | PRE | POST | What's Included | Format | Respondents and (Who's Responsible) |
|----------------------------------|--|----------------|---|--|---|
| Getting Started Worksheet | | | -What is actually happening in each school around 5210 _LIST of activities (left with team at PRE and completed by team at POST) | Paper and pencil | Champion/Team (Champion) |
| Principal Survey | | | -Principal personal 5210 KABS and Practices -Environmental and administrative efforts and practices around 5210 -LIST of activities | Paper and Pencil to be filled out by either principal before meeting with Marla or by Marla during meeting | Principal (Champion) |
| Champion Survey | | | -Champion Role(s) -What worked/didn't | Survey Monkey or paper and pencil | Champion (Champion) |
| School Nutrition Director Survey | | | Nutrition director personal 5210 KABS and practices -Nutritional changes -Barriers | Survey Monkey or paper and pencil | Nutrition director for middle and high schools (Champion) |
| LIST of activities | -Leave with Principal -Leave with Team and Champion | Team completes | | | Team (post-only) |

For a list of activities conducted at each school site in RSU #1, please refer to Table 3. For a list of activities accomplished by the Mid Coast Hospital Coordinator, please refer to Table 4.

Table 3: 5-2-1-0 Activities at Schools in RSU #1 during the 2008-2009 School Year

| RSU #1 Site | Activity |
|------------------------------|--|
| All Schools | <ul style="list-style-type: none"> o Kick Off: All School Teacher Day o Two Staff Wellness Late Start Wednesday o Wellness policy o Parent newsletters |
| Morse High School | <ul style="list-style-type: none"> o Messaging/discussion for 5-2-1-0 in all freshman health classes o Presentation by Dr Tory Rogers and Rick Fortier to teachers and parents o Ceramics focus on fruits and vegetables o End-of-year 5-2-1-0 art contest |
| Bath Middle School | <ul style="list-style-type: none"> o Developed early morning open gym, including staff o 5-2-1-0 assembly with skits o 5-2-1-0 mural for cafeteria |
| Phippsburg Elementary School | <ul style="list-style-type: none"> o Developed Snack Shack for daily .25 healthy snack/water, with 5th grade math class |
| Dike Newell School | <ul style="list-style-type: none"> o 5-2-1-0 Bulletin Board o Purchased action-based learning resources |

| | |
|-------------------------|--|
| Woolwich Central School | <ul style="list-style-type: none"> ○ Sponsored Family Activity Nites (3) ○ Fruit & Veggie Challenge |
| West Bath School | <ul style="list-style-type: none"> ○ Salad Bar ○ Fruit & Veggie Challenge ○ 5-2-1-0 song by kindergarten at assembly ○ Large office glass mural ○ Four “Fruit & Veggie Tastings by Color” in vertical teams ○ Purchased Gail Gibbons books |
| Fisher Mitchell School | <ul style="list-style-type: none"> ○ Family Wellness Nite & Spaghetti Dinner ○ All school 5-2-1-0 assembly ○ Healthy snacks at book fair ○ Community Read event for parents, students, and staff |

Table 4: 5-2-1-0 Program Activities Accomplished by the Mid Coast Hospital Coordinator

| Activity | Note |
|--|---|
| Attended School Wellness Conference; supported team registration. | |
| Developed Memorandum of Understanding with Superintendent. | |
| Developed budget for program for school year | |
| Presented at All School Teacher Assembly | |
| Presented at Fisher Mitchell student assembly | |
| Met with school wellness teams at least once (several times for some) | |
| Provided school Champions with 5-2-1-0 tool kits, brochures, and disc of newsletters | |
| Developed evaluation plan with Maine Center for Public Health consultant | <ul style="list-style-type: none"> ○ Completed environmental survey with School Champions ○ Distributed/collected pre- and post-surveys for Grades 4 and 5 ○ Distributed/collected end-of-year surveys |
| Ordered and distributed healthy eating and movement books to school libraries | |
| Coordinated presentation by Dr. Tory Rogers with staff and parents | |
| Developed mini-grant program | <ul style="list-style-type: none"> ○ Reviewed mini-grant proposals ○ Distributed funding via Central Office |
| Attended 5-2-1-0 activities at schools | <ul style="list-style-type: none"> ○ Documented many activities via photography |
| Developed Community Media plan with Communications Department | <ul style="list-style-type: none"> ○ 5-2-1-0 ads ○ MCHS Annual Report |
| Participated in monthly RSU Wellness Team meetings | |
| Participated on Wellness Policy Subcommittee | <ul style="list-style-type: none"> ○ Worked on policy development ○ Presented policy to School Board |
| Communicated regularly with Let’s Go and Kid’s Coop staff | |
| Attended Let’s Go 5-2-1-0 Conference | <ul style="list-style-type: none"> ○ Accepted “Reddy” Award for Superintendent Shuttleworth |

| | |
|--|--|
| Assisted evaluators with report completion | |
|--|--|

Survey data were entered in Survey Monkey, and managed in Microsoft Office Excel 2007. Descriptive results were obtained using Microsoft Office Excel 2007, and statistical analysis was performed using SPSS software program v14.0.

RESULTS

This section provides summaries of outcome (initial and intermediate) and some process measures collected through the following data sources: Grades 4-5 Student Survey, Principal Survey, Champion Survey, Teacher Survey, and School Nutrition Director Survey.

Grades 4-5 Student Survey

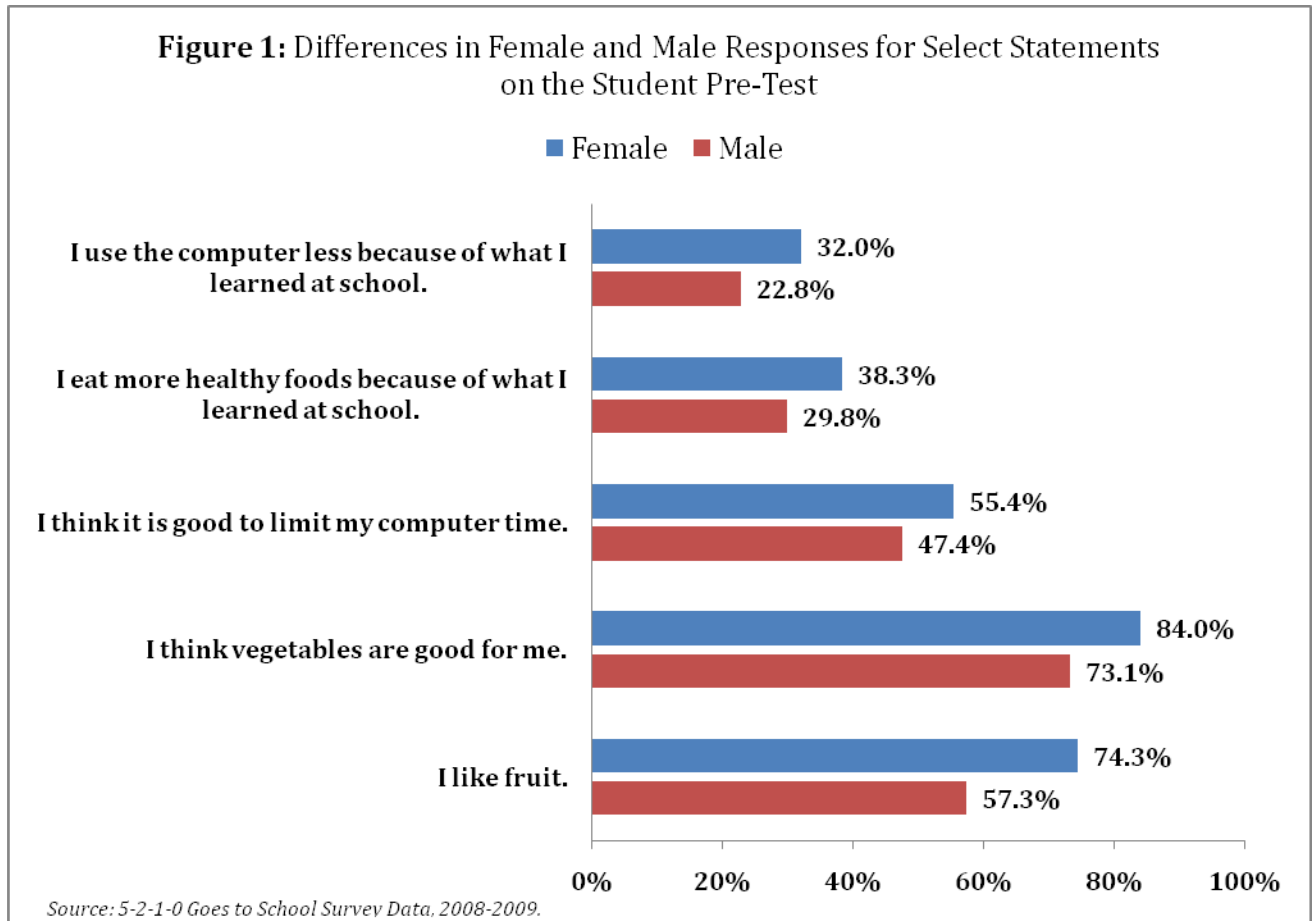
For 348 students from participating schools at pre-test, 50.3% were female (n=175), and 49.1% were male (n=171). For 261 students from participating schools at post-test, 51.7% were female (n=135), and 47.5% were male (n=124).

Table 5 provides a summary of female and male student responses to the pre-test. Most differences were above three percentage points. Figure 1 provides a graphical representation of select statements with the largest differences in female and male responses at pre-test. Please note that only select responses, namely “agree totally,” are summarized in Table 5.

Table 5: Pre-test data summary for all “I agree totally” responses, stratified by sex

| Statement | Female Students (n=175) | | Male Students (n=171) | |
|---|----------------------------|-------|--------------------------|-------|
| | (n) | (%) | (n) | (%) |
| 1. I like fruit. | 130 | 74.3% | 98 | 57.3% |
| 2. I like vegetables. | 59 | 33.7% | 46 | 26.9% |
| 3. I think fruit is good for me. | 161 | 92.0% | 145 | 84.8% |
| 4. I think vegetables are good for me. | 147 | 84.0% | 125 | 73.1% |
| 5. I would like to try new fruits. | 97 | 55.4% | 89 | 52.0% |
| 6. I would like to try new vegetables. | 50 | 28.6% | 47 | 27.5% |
| 7. I think soda and sugary drinks are good for my health. | 2 | 1.1% | 14 | 8.2% |
| 8. I think it is good to limit my TV time. | 96 | 54.9% | 81 | 47.4% |
| 9. I think it is good to limit my computer time. | 97 | 55.4% | 81 | 47.4% |
| 10. I like to get a lot of physical activity like riding my bike, running, or playing sports. | 147 | 84.0% | 134 | 78.4% |
| 11. I have tried new foods because of what I learned at school. | 41 | 23.4% | 52 | 30.4% |
| 12. I eat more healthy foods because of what I learned at school. | 67 | 38.3% | 51 | 29.8% |
| 13. I talked to my parents about healthy food because of | 47 | 26.9% | 48 | 28.1% |

| | | | | |
|--|-----|-------|-----|-------|
| what I learned at school. | | | | |
| 14. I drink more water or milk because of what I learned at school. | 70 | 40.0% | 62 | 36.3% |
| 15. I watch less TV because of what I learned at school. | 54 | 30.9% | 40 | 23.4% |
| 16. I use the computer less because of what I learned at school. | 56 | 32.0% | 39 | 22.8% |
| 17. I try to get more physical activity like riding my bike, running, or playing sports because of what I learned at school. | 80 | 45.7% | 83 | 48.5% |
| 18. I like the idea of trying to be as healthy as I can be. | 150 | 85.7% | 135 | 78.9% |

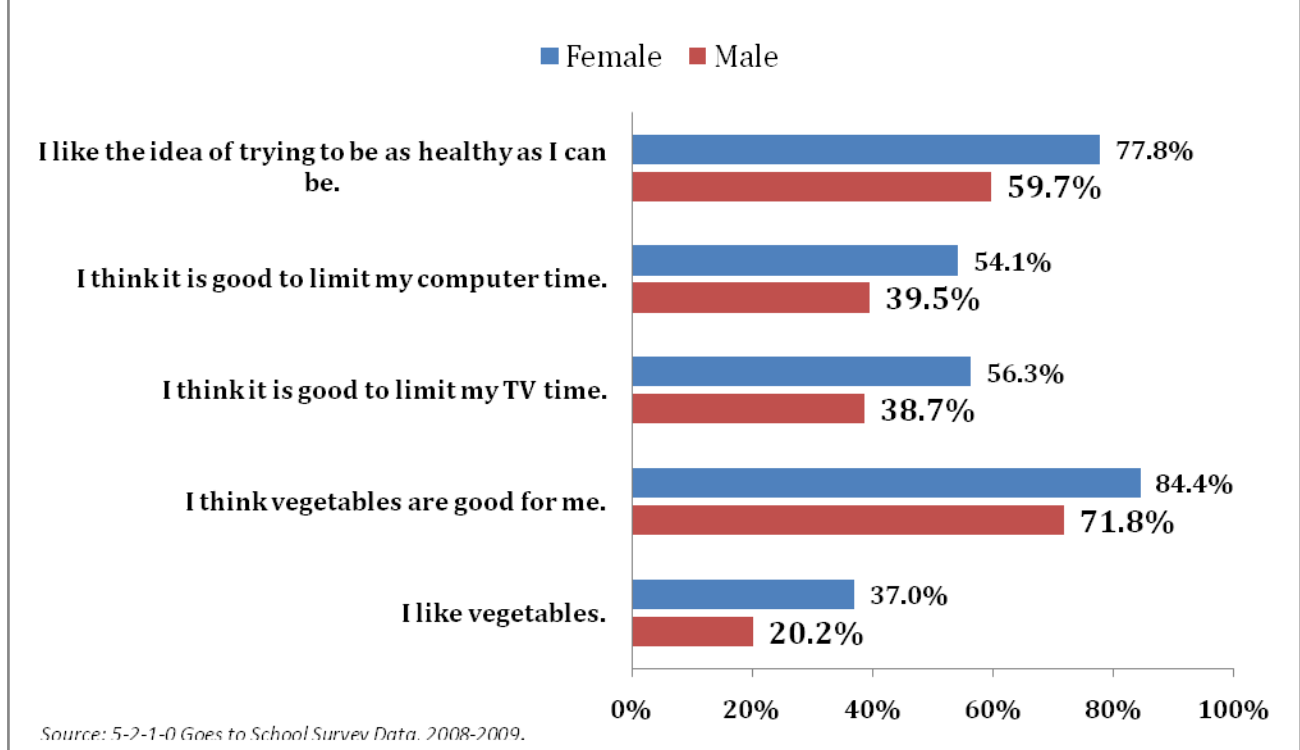


Next, Table 6 provides a summary of female and male student responses to the post-test. All differences were above three percentage points. Figure 2 provides a graphical representation of select statements with the largest differences in female and male responses at post-test. Please note that only select responses, namely “agree totally,” are summarized in Table 6.

Table 6: Post-test data summary for all “I agree totally” responses, stratified by sex

| Statement | Female Students (n=135) | | Male Students (n=124) | |
|--|----------------------------|-------|--------------------------|-------|
| | (n) | (%) | (n) | (%) |
| 1. I like fruit. | 94 | 69.6% | 73 | 58.9% |
| 2. I like vegetables. | 50 | 37.0% | 25 | 20.2% |
| 3. I think fruit is good for me. | 125 | 92.6% | 101 | 81.5% |
| 4. I think vegetables are good for me. | 114 | 84.4% | 89 | 71.8% |
| 5. I would like to try new fruits. | 75 | 55.6% | 58 | 46.8% |
| 6. I would like to try new vegetables. | 44 | 32.6% | 33 | 26.6% |
| 7. I think soda and sugary drinks are good for my health. | 3 | 2.2% | 10 | 8.1% |
| 8. I think it is good to limit my TV time. | 76 | 56.3% | 48 | 38.7% |
| 9. I think it is good to limit my computer time. | 73 | 54.1% | 49 | 39.5% |
| 10. I like to get a lot of physical activity like riding my bike, running, or playing sports. | 104 | 77.0% | 100 | 80.6% |
| 11. I have tried new foods because of what I learned at school. | 32 | 23.7% | 25 | 20.2% |
| 12. I eat more healthy foods because of what I learned at school. | 41 | 30.4% | 29 | 23.4% |
| 13. I talked to my parents about healthy food because of what I learned at school. | 36 | 26.7% | 26 | 21.0% |
| 14. I drink more water or milk because of what I learned at school. | 53 | 39.3% | 42 | 33.9% |
| 15. I watch less TV because of what I learned at school. | 29 | 21.5% | 21 | 16.9% |
| 16. I use the computer less because of what I learned at school. | 38 | 28.1% | 25 | 20.2% |
| 17. I try to get more physical activity like riding my bike, running, or playing sports because of what I learned at school. | 61 | 45.2% | 70 | 56.5% |
| 18. I like the idea of trying to be as healthy as I can be. | 105 | 77.8% | 74 | 59.7% |

Figure 2: Differences in Female and Male Responses for Select Statements on the Student Post-Test



Next, Table 7 provides a summary comparison of pre-test and post-test responses for female students. Please note that only select responses, namely “agree totally,” are summarized in Table 7. To test whether the response percentages were statistically different for four statements (6, 12, 15, 18) at pre-test versus post-test, two-tailed z-tests were performed at 95.0% confidence level. The null hypotheses were “the pre-test and post-test percentages are equal” for the respective statements, and the alternative hypotheses were “the pre-test and post-test percentages are different” for the respective statements. All four tests yielded statistically insignificant findings.

Table 7: Comparison of pre-test and post-test responses for female students

| Statement | Pre-Test (175) | | Post-Test (135) | |
|--|----------------|-------|-----------------|-------|
| | (n) | (%) | (n) | (%) |
| 1. I like fruit. | 130 | 74.3% | 94 | 69.6% |
| 2. I like vegetables. | 59 | 33.7% | 50 | 37.0% |
| 3. I think fruit is good for me. | 161 | 92.0% | 125 | 92.6% |
| 4. I think vegetables are good for me. | 147 | 84.0% | 114 | 84.4% |
| 5. I would like to try new fruits. | 97 | 55.4% | 75 | 55.6% |
| 6. I would like to try new vegetables. | 50 | 28.6% | 44 | 32.6% |

| | | | | | |
|-----|--|-----|-------|-----|-------|
| 7. | I think soda and sugary drinks are good for my health. | 2 | 1.1% | 3 | 2.2% |
| 8. | I think it is good to limit my TV time. | 96 | 54.9% | 76 | 56.3% |
| 9. | I think it is good to limit my computer time. | 97 | 55.4% | 73 | 54.1% |
| 10. | I like to get a lot of physical activity like riding my bike, running, or playing sports. | 147 | 84.0% | 104 | 77.0% |
| 11. | I have tried new foods because of what I learned at school. | 41 | 23.4% | 32 | 23.7% |
| 12. | I eat more healthy foods because of what I learned at school. | 67 | 38.3% | 41 | 30.4% |
| 13. | I talked to my parents about healthy food because of what I learned at school. | 47 | 26.9% | 36 | 26.7% |
| 14. | I drink more water or milk because of what I learned at school. | 70 | 40.0% | 53 | 39.3% |
| 15. | I watch less TV because of what I learned at school. | 54 | 30.9% | 29 | 21.5% |
| 16. | I use the computer less because of what I learned at school. | 56 | 32.0% | 38 | 28.1% |
| 17. | I try to get more physical activity like riding my bike, running, or playing sports because of what I learned at school. | 80 | 45.7% | 61 | 45.2% |
| 18. | I like the idea of trying to be as healthy as I can be. | 150 | 85.7% | 105 | 77.8% |

Lastly, Table 8 provides a summary comparison of pre-test and post-test responses for male students. Please note that only select responses, namely “agree totally,” are summarized in Table 8. To test whether the response percentages were statistically different for three statements (11, 17, 18) at pre-test versus post-test, two-tailed z-tests were performed at 95.0% confidence level. The null hypotheses were “the pre-test and post-test percentages are equal” for the respective statements, and the alternative hypotheses were “the pre-test and post-test percentages are different” for the respective statements. For statement 18, the two-tailed z-test statistic comparing the percentage of “I agree totally” responses at pre-test and post-test was statistically significant, meaning there was a significant difference in “I agree totally” responses for male students at pre-test (78.9%) versus post-test (59.7%). The tests for statements 11 and 17 yielded statistically insignificant findings.

Table 8: Comparison of pre-test and post-test responses for male students

| Statement | Pre-Test (171) | | Post-Test (124) | |
|---|-------------------|-------|--------------------|-------|
| | (n) | (%) | (n) | (%) |
| 1. I like fruit. | 98 | 57.3% | 73 | 58.9% |
| 2. I like vegetables. | 46 | 26.9% | 25 | 20.2% |
| 3. I think fruit is good for me. | 145 | 84.8% | 101 | 81.5% |
| 4. I think vegetables are good for me. | 125 | 73.1% | 89 | 71.8% |
| 5. I would like to try new fruits. | 89 | 52.0% | 58 | 46.8% |
| 6. I would like to try new vegetables. | 47 | 27.5% | 33 | 26.6% |
| 7. I think soda and sugary drinks are good for my health. | 14 | 8.2% | 10 | 8.1% |

| | | | | | |
|-----|--|-----|-------|-----|-------|
| 8. | I think it is good to limit my TV time. | 81 | 47.4% | 48 | 38.7% |
| 9. | I think it is good to limit my computer time. | 81 | 47.4% | 49 | 39.5% |
| 10. | I like to get a lot of physical activity like riding my bike, running, or playing sports. | 134 | 78.4% | 100 | 80.6% |
| 11. | I have tried new foods because of what I learned at school. | 52 | 30.4% | 25 | 20.2% |
| 12. | I eat more healthy foods because of what I learned at school. | 51 | 29.8% | 29 | 23.4% |
| 13. | I talked to my parents about healthy food because of what I learned at school. | 48 | 28.1% | 26 | 21.0% |
| 14. | I drink more water or milk because of what I learned at school. | 62 | 36.3% | 42 | 33.9% |
| 15. | I watch less TV because of what I learned at school. | 40 | 23.4% | 21 | 16.9% |
| 16. | I use the computer less because of what I learned at school. | 39 | 22.8% | 25 | 20.2% |
| 17. | I try to get more physical activity like riding my bike, running, or playing sports because of what I learned at school. | 83 | 48.5% | 70 | 56.5% |
| 18. | I like the idea of trying to be as healthy as I can be. | 135 | 78.9% | 74 | 59.7% |

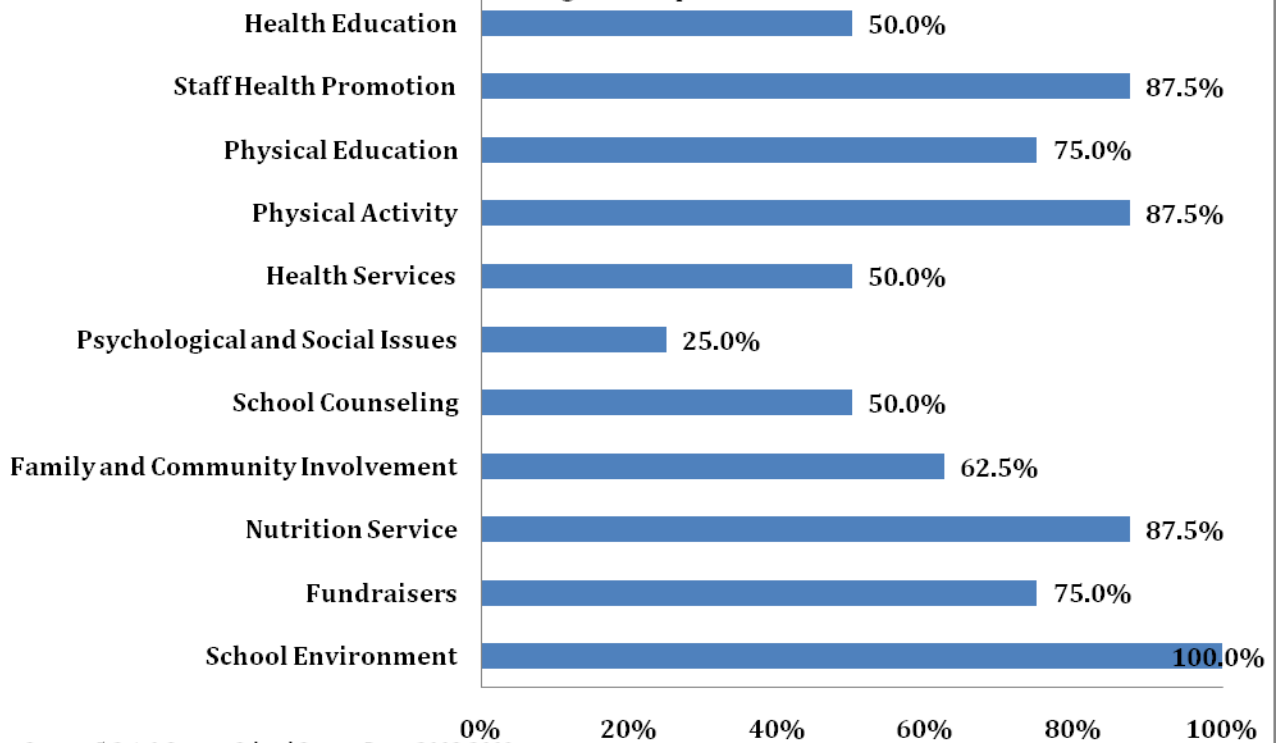
Principal Survey

- This survey was completed by Principals (6) and a Superintendent (1) from eight schools.
- All principals (n=6 or 100.0%) participated in the *5-2-1-0 Goes to School* program in 2008-2009; they participated in wellness committees, and supported activities and presentations.
- One-hundred percent of respondents (n=8) were aware what each numerical component of the 5-2-1-0 message stood for.
- Twenty-five percent of respondents (n=2) learned something new from the 5-2-1-0 message, such as student involvement in wanting to eat right and exercise when given the opportunity, and information on sport drinks.
- Seventy-five percent of respondents (n=6) made personal changes as a result of the *5-2-1-0 Goes to School* program such as limiting soda intake, eating more vegetables and grains, avoiding sugar, and watching less T.V. and exercising more.

Respondents also reported school-initiated changes in some areas due to the *5-2-1-0 Goes to School* program. These are highlighted in Figure 3. Descriptions of the changes included extra recess breaks, serving healthier foods at parties, using physical activity as a reward, sending newsletters to families, adding extra physical education for younger students, altering wellness policies, removing soda machines, reconstructing school menus, and developing skits, contests, and other displays on the 5-2-1-0 message.

Figure 3: Percentage of Respondents Reporting School-Initiated Changes on Select Topics, Following

5-2-1-0 Goes to School Program Implementation in RSU #1 in Maine



Source: *5-2-1-0 Goes to School Survey Data, 2008-2009*

- Over thirty-seven percent of respondents (n=3 or 37.5%) reported other observable changes in their schools related to the program, such as increased awareness among staff and students, and an increasing desire to include wellness in education policy, i.e. “how does this policy improve...?”
- Over eighty-seven percent of respondents (n=7 or 87.5%) reported it was “helpful” or “very helpful” to have someone in the role of “Champion” at the school.
- Fifty percent of respondents (n=4) used the information provided to help improve their wellness policy.
- Fifty percent of respondents (n=4) “agreed” or strongly agreed” that the program made significant changes to improve opportunities for physical activity throughout the school day; in addition, over eighty-seven percent of respondents (n=7 or 87.5%) “agreed” or strongly agreed” that the program made significant changes to improve nutritional offerings to students.
- Based on five responses, an average of 643 students were reached by the program in 2008-2009 (Median: 310 students; range: 115-2300 students).
- Over eighty-seven percent of respondents (n=7 or 87.5%) planned to continue the program next year, and would recommend the program to other schools.

- Twenty-five percents of respondents (n=2) were involved with other projects this year that complemented the *5-2-1-0 Goes to School* program, such as Take Time, Mainely Nutrition, ACES, Walk Across America, and Week of Creative Movement.

Champion Survey

- This survey was completed by six respondents who served as education technicians, instructors, nurses, social workers, and teachers at six schools.
- One-hundred percent of respondents (n=6) were aware what each numerical component of the 5-2-1-0 message stood for.
- One-hundred percent of respondents (n=6) learned something new from the 5-2-1-0 message, such as the sugar content of sodas and fruit juices.
- Over sixty-six percent of respondents (n=4 or 66.7%) made personal changes as a result of the program, such as trying to get five servings of fruits and vegetables a day, controlling portion sizes, reducing TV time, and switching from energy drinks to unsweetened tea.
- One-hundred percent of respondents (n=6) formed a team to implement the program. Teams included principals, nurses, teachers, students, and food service staff, and met anywhere from biweekly at the beginning of the school year to monthly.
- Specific elements of program implementation included working on “Family Activity Night,” serving on wellness committees, developing ideas for the Healthy Food Cart, organizing tastings, communicating via posters, newsletters and contests, arranging to have a Hannaford-sponsored “Food Play”, providing fruit and vegetable challenges, providing resources to teachers, rewarding students with extra physical activities, and offering a snack shack in school that sold fruits and vegetable snacks.
- Over sixty-six percent of respondents (n=4 or 66.7%) gave a rating of 3/5 on whether the program made significant changes to improve opportunities for physical activity throughout the school day; in addition, 100.0% of respondents (n=6) “agreed” that the program made significant changes to improve nutritional offerings to students.
- Fifty percent of respondents (n=3) reported that the support received from their school administration was “helpful” or “very helpful.”
- Over eighty-three percent of respondents (n=5 or 83.3%) planned to continue the program next year, and would recommend the program to other schools.

Teacher Survey

- This survey was completed by 99 respondents who taught K-High School students at seven schools. Data from Champion Surveys that were erroneously completed by teaching staff at one school are included in this section, bringing the total to 109 completed surveys.

- Seventy-seven percent of respondents (n=84 or 77.1%) were aware what each numerical component of the 5-2-1-0 message stood for.
- Over thirty-seven percent of respondents (n=41 or 37.6%) learned something new from the 5-2-1-0 message, such as the recommended limit of T.V. screen time, sugar content of drinks such as fruit juice and soda, recommended portion sizes, wellness, statistics, and the use of movement and activity as a reward instead of food.
- Forty-five percent of respondents (n=49 or 45.0%) made personal changes because of the program, such as changing eating habits at home and school, increasing exercise, starting a 5-a-day chart at home with kids, packing better lunches for family and discussing healthy eating at the dinner table, eliminating soft drinks from diet, paying attention to sugar intake, trying to watch less TV, and being more mindful of what is consumed in front of students.
- As part of the program, 49.5% of the 99 respondents who completed the Teacher Survey (n=49) made changes in the classroom environment, 38.4% of the 99 respondents (n=38) made changes in activities, 19.2% of the 99 respondents (n=19) made changes in curriculum, and 7.1% of the 99 respondents (n=7) made changes in communications with parents.
- Nineteen percent of the 99 respondents who completed the Teacher Survey (n=19 or 19.2%) observed some improvements in students' physical activity as a result of classroom changes, such as students walking or biking more often in preparation for a camping trip, and more exercise breaks supported by teachers. In addition, sixty percent of the 10 respondents who completed the Champion Survey (n=6) "disagreed" or strongly disagreed" that the program made significant changes to improve opportunities for physical activity throughout the school day.
- Forty-four percent of the 99 respondents who completed the Teacher Survey (n=44 or 44.4%) observed improvements in student's nutrition as a result of classroom changes, such as improvements in snacks that students brought to school, increased awareness, peer pressure to have fruit instead of sweet snacks, better cafeteria offerings, participation in snack challenge encouraged healthier snacks for most, and less energy drinks and more water consumed. One respondent shared the following comment: *"Only to the extent of "forced" change due to cafeteria and café serving healthier foods but students are still leaving school to buy fast food and returning back to eat in front of other students."* In addition, sixty percent of the 10 respondents who completed the Champion Survey (n=6) gave a rating of 3/5 on whether the program made significant changes to improve nutritional offerings to students.
- Fifteen percent of the 99 respondents who completed the Teacher Survey (n=15 or 15.2%) observed other changes in students as a result of classroom changes, such as increased awareness and discussion, more invigorated and ready to learn after physical activity, and resistance at times.

- Forty-one percent of the 99 respondents who completed the Teacher Survey (n=41 or 41.4%) reported that the program provided them with resources, such as visual aids including posters, books and CDs, information for parents, staff development training featuring a speaker, toolkits, mini-grants to provide nutritious snacks as well as Xbox and DDR dance pads for non-food rewards, and displays on the sugar content in beverages.
- Over thirty-eight percent of respondents (n=42 or 38.5%) reported that the support received from their school administration for the program was “helpful” or “very helpful.”
- Over forty-seven percent of respondents (n=52 or 47.7%) planned to continue the program next year. Reasons for not continuing the program included time commitment, and staff retirement; one respondent commented that such initiatives should begin at home.
- Over sixty-five percent of the 99 respondents who completed the Teacher Survey (n=65 or 65.7%) would recommend the program to other teachers. Reasons for not recommending the program included insufficient exposure to the program, and the need for more time to observe results and changes due to program.

School Nutrition Director Survey

- This survey was completed by one School Nutrition Director.
- The respondent participated in the *5-2-1-0 Goes to School* program in 2008-2009, and was aware what each numerical component of the 5-2-1-0 message stood for.
- The respondent felt that promoting the 5-2-1-0 message fit with their role as School Nutrition Director.
- Changes were made to the food service program in schools as a result of the program, such as more fresh fruit and vegetable options, taste tests, and new movement programs.
- Changes in students’ food choices were also observed, and may have resulted from the program, such as an increase in the amount of produce purchased, and the success of salad and fruit bars among junior high and high school students.

LIMITATIONS

Given the limited resources available to implement the program in participating schools, certain limitations should be noted, such as limited application of research design, and lack of a comparison or control group. Certain limitations should also be noted when interpreting the findings from this report. With regards to survey instruments, reliability and validity were not established for all instruments. In terms of survey administration, differences were noted in the administration of the survey to students in Grades 4-5, as well as factors related to the sampling sites and the implementation process at each site. Without a thorough knowledge and understanding of these factors, the findings from this

report have limited generalizability beyond the surveyed sample. Lastly, there are potential errors and biases associated with the findings, such as response bias related to social desirability. Based on descriptive statistics, more female students than male students “agreed totally” with statements on healthy eating (Table 5-6). Given the sample size and limited research application, it was not possible to determine if these differences stemmed from social desirability, i.e. female students being aware of the expectations and therefore, providing more agreeable responses, or whether these were true differences in knowledge, attitudes and beliefs of female students versus male students in the sample.

DISCUSSION AND RECOMMENDATIONS

This section provides a summary of process measure findings based on feedback received from Principals, Champions, Teachers, and School Nutrition Directors. It is intended to provide a platform to stimulate discussions on *5-2-1-0 Goes to School* program implementation.

o Program Successes

- Champions: Availability of and support from Marla Davis, monthly food tastings, family activity night, teaching about portion sizes and nutritional value of fruits and vegetables, willingness of students to try new foods, various contests, display bottles with sugar content, and reduction in school soda consumption.
- Teachers: Increasing student awareness and discussion on healthy eating and physical activity, increasing consumption of fruits and vegetables, relating actions to personal well-being, food tastings, display on beverage sugar content, “Healthy Choices” week with activities related to 5-2-1-0, combining message into curriculum e.g. World Agriculture and Food Production unit studies, indoor and outdoor movement breaks, more organic and healthier foods options such as wheat instead of white in the school cafeteria, as well as art projects, contests, and skits.
- School Nutrition Directors: Creative and unique abilities employed following the provision of mini-grant funds to each school.
- Others: Making students more aware of their food choices, and having them try new foods.

o Program Challenges

- Champions: Insufficient time for planning and getting the program into classrooms, staff involvement and engagement, and some degree of negativity and resistance from staff and students.
- Teachers: Several respondents highlighted the challenge in getting families to understand the importance and effects of eating habits, especially after

receiving some negative feedback and parents continuing to send inappropriate snacks. Peer pressure was also identified as a challenge. Some respondents identified the loss of fundraising money as a challenge since they were unable to sell food that “buys” at dances and other events; others also mentioned the lack of “party foods” and the difficulty in appropriately rewarding students, when brownies, doughnuts or crackers are not options. Some respondents highlighted the challenges posed by fast food restaurants, video games, and commercials in altering behaviors related to nutrition and physical activity. In addition, some respondents felt there were forced to comply with the program, and were not entirely convinced about the behaviors that were being promoted. One respondent highlighted the lack of buy-in from co-workers. Some respondents also highlighted the lack of professional development to implement the program, coupled with the reality of having too many initiatives to work on during the school year, which resulted in shifting priorities.

- Others: Sedentary lifestyles, and effort involved in maintaining consistent level of physical activity and nutrition.

- ***Suggestions for Program Improvement***

- Principals: Maintain 5-2-1-0 message promotion, and increase involvement of parents, physicians, and local food vendors in the process.
- Champions: Provision to purchase healthy snacks for students if they do not bring these from home.
- Teachers: Several respondents highlighted the need to engage parents more. Suggestions included frequent communication, getting students to walk or bike to school, and providing funds for alternative snack options. In terms of communicating the message, one respondent was concerned about making students worry too much about their weight. In addition, some respondents suggested bringing the message to students via their “media,” given the negative lifestyle messages that children are routinely exposed to. One respondent highlighted the need to provide information to staff and students, but to avoid harassing them and instead, promote self-participation and self-regulation on healthy eating and physical activity. Some also suggested making stronger connections between primary care providers and public education, as well as involving food stamp and grocery stores in an effort to raise awareness and support low income families. The visual displays were viewed as powerful tools, and several hoped the program would continue into the next school year. One respondent suggested more information to gear the program towards high school, and not just elementary school students. Several respondents emphasized the pressure to work on too many

initiatives, with little time and direction provided. A common suggestion was to have fewer initiatives that can be allocated sufficient time to be done well.

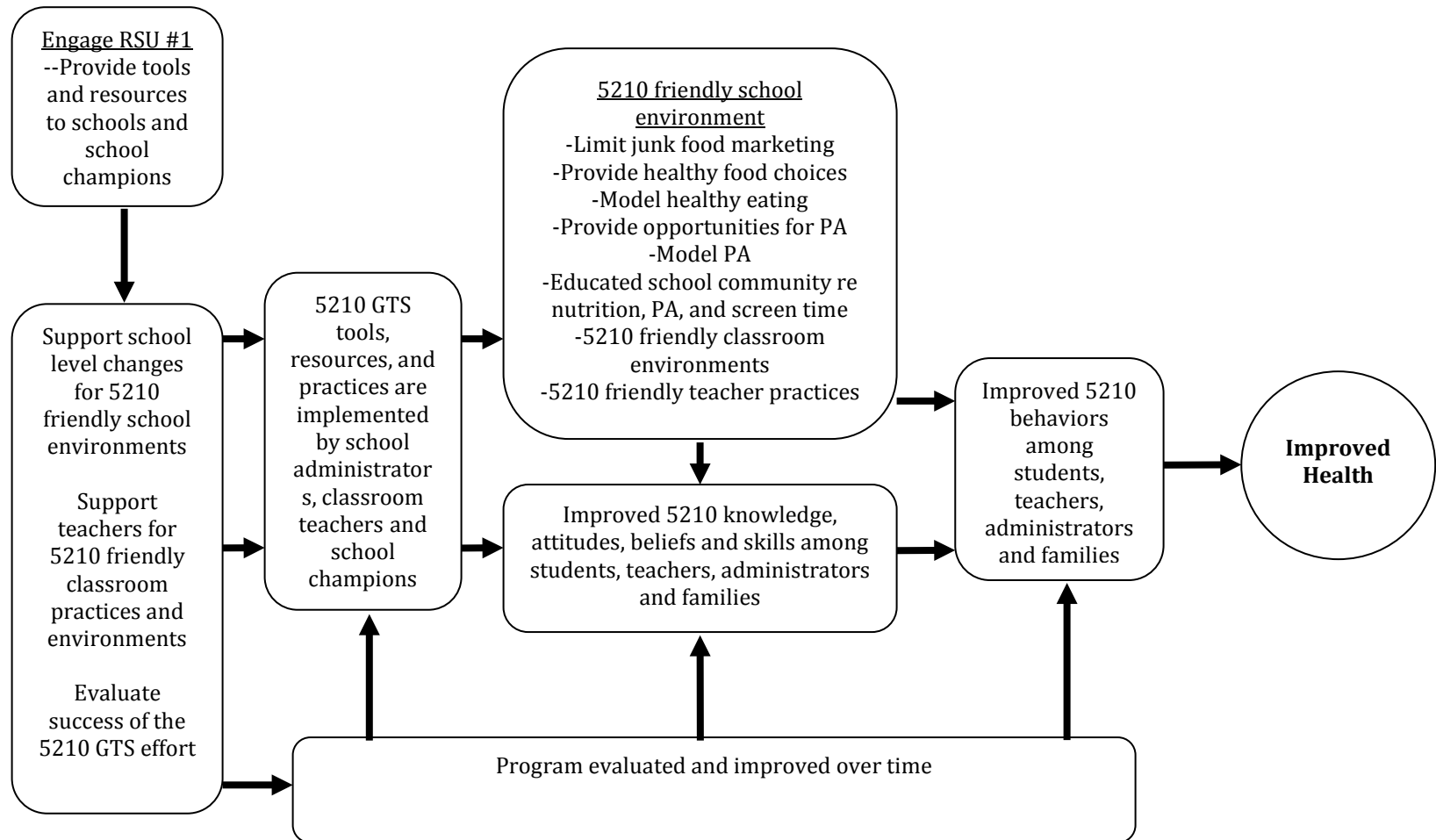
- School Nutrition Directors: Continued support in the future in order to maintain focus on the issues, program, and related activities.
- Others: Need to educate students and suggest good choices, rather than force these on them, and let common sense prevail.

CONCLUSION

Overall, the findings provide an evaluation of process and outcome (initial and intermediate) measures on knowledge, attitudes, beliefs, and skills among students, teachers, and school administrators participating in the *5-2-1-0 Goes to School* program in Regional School Unit #1 (RSU #1) in Maine. Some behavior variables related to healthy eating and physical activity were also tracked using the Student Survey. Given the limited duration and application of the program in participating schools, no significant differences were found in pre-test and post-test behaviors. Because behavior change involves sequential stages, it would be important to track outcome measures and program success over time in order to observe long-term behavior change.

APPENDICES

Appendix A: Logic Model for Elementary School Intervention



Appendix B: Grades 4-5 Student Pre-Test

| | |
|---------|-------|
| School | _____ |
| Date | _____ |
| Grade | _____ |
| Teacher | _____ |

Please circle the answer that fits with how you feel about each statement:

- | 1. | I am a: | | Boy | | Girl |
|-----|---|---------------|------------------|----------------|-----------------|
| 2. | I like fruits | I don't agree | I agree a little | I agree mostly | I agree totally |
| 3. | I like vegetables | I don't agree | I agree a little | I agree mostly | I agree totally |
| 4. | I think fruit is good for me | I don't agree | I agree a little | I agree mostly | I agree totally |
| 5. | I think vegetables are good for me | I don't agree | I agree a little | I agree mostly | I agree totally |
| 6. | I would like to try new fruits | I don't agree | I agree a little | I agree mostly | I agree totally |
| 7. | I would like to try new vegetables | I don't agree | I agree a little | I agree mostly | I agree totally |
| 8. | I think soda and sugary drinks are good for my health | I don't agree | I agree a little | I agree mostly | I agree totally |
| 9. | I think it is good to limit my TV time | I don't agree | I agree a little | I agree mostly | I agree totally |
| 10. | I think it is good to limit my computer time | I don't agree | I agree a little | I agree mostly | I agree totally |

PLEASE TURN OVER AND FINISH QUESTIONS ON BACK

11. I like to get a lot of physical activity like riding my bike, running or playing sports
- | | | | |
|---------------|------------------|----------------|-----------------|
| I don't agree | I agree a little | I agree mostly | I agree totally |
|---------------|------------------|----------------|-----------------|
12. I have tried new food because of what I learned at school
- | | | | |
|---------------|------------------|----------------|-----------------|
| I don't agree | I agree a little | I agree mostly | I agree totally |
|---------------|------------------|----------------|-----------------|
13. I eat more healthy food because of what I learned at school
- | | | | |
|---------------|------------------|----------------|-----------------|
| I don't agree | I agree a little | I agree mostly | I agree totally |
|---------------|------------------|----------------|-----------------|
14. I talked to my parents about healthy food because of what I learned at school
- | | | | |
|---------------|------------------|----------------|-----------------|
| I don't agree | I agree a little | I agree mostly | I agree totally |
|---------------|------------------|----------------|-----------------|
15. I drink more water or milk because of what I learned at school
- | | | | |
|---------------|------------------|----------------|-----------------|
| I don't agree | I agree a little | I agree mostly | I agree totally |
|---------------|------------------|----------------|-----------------|
16. I watch less TV because of what I learned at school
- | | | | |
|---------------|------------------|----------------|-----------------|
| I don't agree | I agree a little | I agree mostly | I agree totally |
|---------------|------------------|----------------|-----------------|
17. I use the computer less because of what I learned at school
- | | | | |
|---------------|------------------|----------------|-----------------|
| I don't agree | I agree a little | I agree mostly | I agree totally |
|---------------|------------------|----------------|-----------------|
18. I try to get more physical activity like riding my bike, running or playing sports because of what I learned at school
- | | | | |
|---------------|------------------|----------------|-----------------|
| I don't agree | I agree a little | I agree mostly | I agree totally |
|---------------|------------------|----------------|-----------------|
19. I like the idea of trying to be as healthy as I can be
- | | | | |
|---------------|------------------|----------------|-----------------|
| I don't agree | I agree a little | I agree mostly | I agree totally |
|---------------|------------------|----------------|-----------------|

Appendix C: Grades 4-5 Student Post-Test

| | |
|---------|-------|
| School | _____ |
| Date | _____ |
| Grade | _____ |
| Teacher | _____ |

Please circle the answer that fits with how you feel about each statement:

- | 1. | I am a: | | Boy | | Girl |
|-----|---|---------------|------------------|----------------|-----------------|
| 2. | I like fruits | I don't agree | I agree a little | I agree mostly | I agree totally |
| 3. | I like vegetables | I don't agree | I agree a little | I agree mostly | I agree totally |
| 4. | I think fruit is good for me | I don't agree | I agree a little | I agree mostly | I agree totally |
| 5. | I think vegetables are good for me | I don't agree | I agree a little | I agree mostly | I agree totally |
| 6. | I would like to try new fruits | I don't agree | I agree a little | I agree mostly | I agree totally |
| 7. | I would like to try new vegetables | I don't agree | I agree a little | I agree mostly | I agree totally |
| 8. | I think soda and sugary drinks are good for my health | I don't agree | I agree a little | I agree mostly | I agree totally |
| 9. | I think it is good to limit my TV time | I don't agree | I agree a little | I agree mostly | I agree totally |
| 10. | I think it is good to limit my computer time | I don't agree | I agree a little | I agree mostly | I agree totally |

PLEASE TURN OVER AND FINISH QUESTIONS ON BACK

11. I like to get a lot of physical activity like riding my bike, running or playing sports
- | | | | |
|---------------|------------------|----------------|-----------------|
| I don't agree | I agree a little | I agree mostly | I agree totally |
|---------------|------------------|----------------|-----------------|
12. I have tried new food because of what I learned at school
- | | | | |
|---------------|------------------|----------------|-----------------|
| I don't agree | I agree a little | I agree mostly | I agree totally |
|---------------|------------------|----------------|-----------------|
13. I eat more healthy food because of what I learned at school
- | | | | |
|---------------|------------------|----------------|-----------------|
| I don't agree | I agree a little | I agree mostly | I agree totally |
|---------------|------------------|----------------|-----------------|
14. I talked to my parents about healthy food because of what I learned at school
- | | | | |
|---------------|------------------|----------------|-----------------|
| I don't agree | I agree a little | I agree mostly | I agree totally |
|---------------|------------------|----------------|-----------------|
15. I drink more water or milk because of what I learned at school
- | | | | |
|---------------|------------------|----------------|-----------------|
| I don't agree | I agree a little | I agree mostly | I agree totally |
|---------------|------------------|----------------|-----------------|
16. I watch less TV because of what I learned at school
- | | | | |
|---------------|------------------|----------------|-----------------|
| I don't agree | I agree a little | I agree mostly | I agree totally |
|---------------|------------------|----------------|-----------------|
17. I use the computer less because of what I learned at school
- | | | | |
|---------------|------------------|----------------|-----------------|
| I don't agree | I agree a little | I agree mostly | I agree totally |
|---------------|------------------|----------------|-----------------|
18. I try to get more physical activity like riding my bike, running or playing sports because of what I learned at school
- | | | | |
|---------------|------------------|----------------|-----------------|
| I don't agree | I agree a little | I agree mostly | I agree totally |
|---------------|------------------|----------------|-----------------|
19. I like the idea of trying to be as healthy as I can be
- | | | | |
|---------------|------------------|----------------|-----------------|
| I don't agree | I agree a little | I agree mostly | I agree totally |
|---------------|------------------|----------------|-----------------|

Appendix D: Principal Survey

School: _____
 Date: _____
 Filled out by: _____

1. What is your professional title?
2. Are you aware of a program called "5210 Goes to School" this year?
 Yes No
3. In your role as principal, did you participate in "5210 Goes to School" this year?
 Yes No

If YES, please describe your participation

4. Are you aware of what each component (5,2,1,0) stands for?
 Yes, all of the numbers
 Yes, some of the numbers
 No, none of the numbers

5. Did you learn anything new from the 5-2-1-0 message?
 Yes No

If YES, what was it?

6. Have you made any personal changes because of the program?
 Yes No

If YES, would you mind telling us what they were?

7. In the table below, please indicate the areas in which your school made changes because of the project, and indicate which changes were made. If you're not sure, please check the "don't know" box.

| | No change | Changes were made | Don't know |
|--|--------------------------|--------------------------|--------------------------|
| School environment* (includes school-wide activities) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Fundraisers | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Nutrition services | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Family and community involvement | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

| | | | |
|---------------------------------|--------------------------|--------------------------|--------------------------|
| School counseling | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Psychological and social issues | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Health services | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Physical activity | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Physical education | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Staff health promotion | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Health education | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

*see attached list

If changes were made, please describe them below:

8. Were there any other changes that you observed in your school related to the “5210 Goes to School” program?

Yes No Not Sure

If YES, what were they?

9. “5210 Goes to School” recommends that someone from the school act as a champion for physical activity and nutrition changes. Please rate how helpful it was to have someone play that role in your school

| | | | | | | |
|-------------|---|---|---|--------------|--|--------------------------|
| Not Helpful | | | | Very Helpful | | Don't Know |
| 1 | 2 | 3 | 4 | 5 | | <input type="checkbox"/> |

10. Did you use the information provided by “5210 Goes to School” to help improve your school system wellness policy?

Yes No Don't Know

11. Please indicate how strongly you agree with the following statements on a scale from 1-5:

| | | | | | |
|---|--------------------------|---|---|---|-----------------------|
| | Strongly disagree | | | | Strongly Agree |
| The project made significant changes to improve opportunities for physical activity throughout the school day | 1 | 2 | 3 | 4 | 5 |

Appendix E: Champion Survey

| |
|---------------|
| School: _____ |
| Date: _____ |

1. What is your job title? _____
2. Are you aware of what each number (5-2-1-0) in the "5210 Goes to School" program stands for?
- Yes, all of the numbers
- Yes, some of the numbers
- No, none of the numbers

3. Did you learn anything new from the 5-2-1-0 message?
- Yes No

If YES, what was it?

4. Have you made any personal changes because of the program?
- Yes No

If YES, would you mind telling us what they were?

5. Did you form a team to implement "5210 Goes to School"?
- Yes No

If YES, please tell us who was on your team and how often you met

6. Please describe your role by listing the specific things you did to implement "5210 Goes to School"

1. _____
2. _____
3. _____
4. _____
5. _____

7. Please describe any environmental changes over the past year related to 5210 concepts in the areas of Vending:

Food Service:

Marketing:

Physical Activity:

8. School Culture in general:
Please tell us your biggest:
Successes:

Challenges:

Surprises:

9. Please indicate how strongly you agree with the following statements on a scale from 1-5:

| | Strongly disagree | | | Strongly Agree | |
|---|--------------------------|---|---|-----------------------|---|
| The project made significant changes to improve opportunities for physical activity throughout the school day | 1 | 2 | 3 | 4 | 5 |
| The project made significant changes to improve nutritional offerings for our students | 1 | 2 | 3 | 4 | 5 |

10. Please rate the support you may have received from your school administration (other than from your school champion) for "5210 Goes to School"

Not Helpful 1 2 3 4 5 Very Helpful

10. Do you plan to continue "5210 Goes to School" next year?
 Yes No Not Sure

If NO, please tell us why.

11. Would you recommend the project to other schools?
 Yes No Not Sure

If NO, please tell us why.

12. Do you have any other comments or suggestions for improvement of this project (including other resources you feel you might need in the future)?

Appendix F: Teacher Survey

School: _____
Date: _____
Grade: _____

1. Are you aware of a program called "5210 Goes to School" this year?
 Yes No

2. Are you aware of what each component (5,2,1,0) stands for?
 Yes, all of the numbers
 Yes, some of the numbers
 No, none of the numbers

3. Did you learn anything new from the 5-2-1-0 message?
 Yes No
If YES, what was it?

4. Have you made any personal changes because of the program?
 Yes No
If YES, would you mind telling us what they were?

5. Did you make any other changes in your classroom related to the "5210 Goes to School" program?
 Yes No Not Sure
If YES, please indicate what types of changes you made in your classroom and describe them where appropriate

 Changes in the classroom environment (e.g. posters, displays, no food or physical activity as reward, etc.)

 Changes in activities (e.g. physical activities incorporated into the school day, discussion about nutrition, etc.)

 Changes in curriculum (e.g. added pieces supporting healthy nutrition and physical activity)

 Changes in communications with parents (e.g. mentioning "5210" at conference, etc.)

 Other changes

6. Please indicate what you consider to be your greatest successes implementing "5210 Goes to School"

7. Please describe any challenges you faced implementing "5210 Goes to School"

8. Did you observe any improvements in students' physical activity as a result of your classroom changes?

Yes No Not Sure

If YES, please tell us what you observed

9. Did you observe any improvements in student's nutrition as a result of your classroom changes?

Yes No Not Sure

10. If YES, please tell us what you observed

11. Did you observe any other changes in your students as a result of your classroom changes?

Yes No Not Sure

If YES, please tell us what you observed

12. Did the "5210 Goes to School" program provide you with any resources or tools (e.g. trainings, mini-grants, toolkit, etc.)?

Yes No Not Sure

If YES, please indicate what they were and how useful they were to you

13. "5210 Goes to School" recommends that someone from the school act as a champion for physical activity and nutrition changes. Please rate how helpful it was to have someone play that role in your school

Not Helpful Very Helpful Don't Know/had little contact

1 2 3 4 5

14. Please rate the support you may have received from your school administration (other than from your school champion) for "5210 Goes to School"

Not Helpful Very Helpful

1 2 3 4 5

15. Do you plan to continue "5210 Goes to School" next year?
 Yes No Not Sure

If NO, please tell us why.

16. Would you recommend the project to other teachers?
 Yes No Not Sure

If NO, please tell us why.

17. Do you have any other comments or suggestions for improvement of this project (including other resources you feel you might need in the future)?

Appendix G: School Nutrition Director Survey

| |
|---------------------|
| District: _____ |
| Date: _____ |
| School: _____ |
| Completed by: _____ |

1. In your role, did you participate in “5210 Goes to School” this year?
 Yes No

2. Are you aware of what each component (5,2,1,0) stands for?
 Yes, all of the numbers
 Yes, some of the numbers
 No, none of the numbers

3. Have you made any changes to the food service program in your school(s) as a result of “5210 Goes to School”?
 Yes No

If YES, please explain the change(s) _____

4. Did you observe any changes in students’ food choices that may have resulted from “5210 Goes to School”?
 Yes No

If YES, please explain the change(s) _____

5. What did you like or find most useful about the “5210 Goes to School” project?

6. Do you have any suggestions for improving the project?

7. Do you feel that promoting the 5-2-1-0 message fits within your role as a School Nutrition Director?
 Yes No

8. Do you have any other comments?

