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Outcome Measures and Analysis: Trained physical education teachers used standardized protocols to measure height and weight of 3rd-5th graders in the fall and spring of the 2012 school year. Data were merged with student socio-demographic factors. Sex- and age-specific BMI percentile was calculated. Multivariate mixed linear models assessed the change in BMI percentile.

Results: Youth BMI percentiles changed significantly ($p < .05$) from fall to spring, increasing by 0.05 for youth participating in CC for 2 years, decreasing by 1.18 for youth participating in CC for 1 year ($p < 0.05$), and increasing by 0.54 for non-CC youth.

Conclusions and Implications: Findings indicate initial exposure to CC may be helpful in reducing BMI percentile, but other factors may be involved following the first year. Additional research is necessary to determine the long-term impact of CC on BMI percentile.

Funding: Piedmont Health Foundation, NIH NIGMS INBRE, Furman University.

P167 Evaluation of the Promotion of Free School Breakfast on Consumption and Perceptions of School Breakfast in a Rural District

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Objective: The objectives of this study were to determine changes in parent and student perceptions of the School Breakfast Program (SBP) and differences in breakfast consumption throughout the year after implementation of universal free breakfast and a small intervention in Stillwater Public Schools.

Design, Setting and Participants: Convenience sampling was used to measure perceptions of SBP among children and parents using an online survey and plate wastes were conducted in three schools at baseline, midpoint and conclusion of the study.

Outcome Measures and Analysis: Chi square analyses were used to measure differences in perceptions of SBP at baseline and conclusion for children and their parents. ANOVA was used to show differences by month for selection and consumption of breakfast meals and nutrients.

Results: Overall, perceptions of school breakfast changed significantly over the study period with lower perceptions seen at conclusion compared to baseline for parents ($n=988$), and no significant differences in perceptions were seen between baseline and conclusion for participating children ($n=797$). No differences by month for selection and consumption of most nutrients were seen, although there were significant differences in average percent of meals consumed by breakfast location ($p < 0.001$).

Conclusions and Implications: By increasing opinions of SBP and promoting consumption of healthy meals, children's nutrition and school performance may improve.

Funding: Oklahoma State University.

P168 Development and Testing of Training Modules Targeting Health Care Providers for the Optimal Implementation of Evidence-Based Dietary Guidelines

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Objective: To develop and test the effectiveness of training-of-trainers (ToT) workshop and supportive training manuals targeting primary health care workers (PHCWs) in Lebanon to optimally implement evidence-based national Food Based Dietary Guidelines (FBDGs).

Target Audience: Health coordinators at the Ministry of Public Health (MoPH) and PHCWs across Lebanon.

Theory, Prior Research, Rationale: According to World Health Organization guidelines, evidence-based FBDGs were developed in Lebanon to promote healthy lifestyles and prevent chronic diseases among adults. Training of PHCWs on effective implementation of FBDGs was needed.

Description: Workshop and ToT manual were developed by a team of nutrition experts from the American University of Beirut, MoPH, and UNICEF. 20 PHCWs participated in the 3-day workshop on FBDGs with supportive educational materials and activities to train other PHCWs on new guidelines for counseling patients.

Evaluation: Pre-questionnaires assessed nutritional knowledge and skills of PHCWs and common nutrition-related health conditions reported in centers. Participants evaluated the content of training sessions and supportive educational materials throughout the workshop. New skills learned and planned trainings conducted at health centers were assessed three weeks post training.

Conclusions and Implications: 62% of participants were involved in assessing dietary intake of patients prior to workshop, yet voiced their need for more training on weight management and dietary guidelines. During the workshop, 90% of participants found the training and manuals to be comprehensible and pertinent to their practice. Post-evaluation, participants had more confidence in planning nutrition programs, conducting lectures, and counseling patients. Participants suggested expanding the workshop to a larger group of PHCWs to prevent chronic diseases in a country undergoing nutrition transition.

Funding: UNICEF and Lebanese National Council for Scientific Research (LCNRS).

P169 Impact of a Seed-to-Table Gardening Program and Scratch-Cooked Meals on School Lunch Consumption in Urban School Students

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Objective: In an effort to prevent childhood obesity and create healthier learning environments, a variety of gardening and healthy school meals programs are in schools. Yet, few are formally evaluated. This study assessed for the first year of a seed-to-table gardening and kitchen classroom education combined with a cafeteria scratch-cooked meals program.

Design, Setting and Participants: A pre- (2013) post- (2014) design evaluated changes in students' fruit and vegetable (FV) intake during school lunch among K-8 students ($n \approx 300$) from an urban public school.

Outcome Measures and Analysis: Digital photos were taken of individual students' trays before and after lunch, which included both school food and food from home. Side-by-side pairs of photos (before and after lunch) were visually assessed to determine food selection and consumption.

Results: After one year of intervention, among those who had cooked vegetables on their tray, there was a significant ($p < 0.05$) increase in students who ate at least some cooked vegetable (13.9% in 2013 versus 36.1% in 2014). There was a significant ($p < 0.05$) increase in students who took from the salad bar (0.3% in 2013 versus 5.5% in 2014). And, there was a significant ($p < 0.05$) increase in students who consumed at least some fruit (24.6% in 2013 versus 46.5% in 2014).

Conclusions and Implications: Overall, changes were modest, but are consistent with change expected after one year when compared to other similar programs of this intensity. Continued follow-up is needed as the program continues and students have more education and become more accustomed to the changes in the menu and school culture.

Funding: Edible Schoolyard New York City.

P170 Food, Health & Choices (FHC): Using Cost-Effectiveness Analysis (CEA) to Determine if Scaling Up is a Wise Investment

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Objective: CEA is useful when advocating to policy-makers for scale-up of effective childhood obesity prevention interventions. This study assesses the cost-effectiveness of FHC, an effective 24-lesson science-based obesity prevention curriculum.

Design, Setting and Participants: A CEA was conducted from a societal perspective with a no-intervention comparator. For this analysis, FHC implementation was modeled as if the entire population of New York City (NYC) fifth grade public school students (76,778) received the curriculum for one year.

Outcome Measures and Analysis: The CEA included costs of implementation, administration, and future medical costs of adult obesity. Effectiveness of the FHC intervention at age ten was based on obesity reductions from a randomized-controlled trial in twenty NYC public schools

(boys 4% decrease with curriculum vs. 1.3% increase in control; girls 2.4% decrease with curriculum vs. 1.4% decrease in control). Projected adulthood obesity was based on published longitudinal studies. The Medical Expenditure Panel Survey (MEPS) provided estimations of direct medical costs for obese adults. To account for investment risk, a 3% discount was applied to future costs and effectiveness.

Results: For this population, FHC costs \$7,988,000 (\$104/student/year). Implementation would result in 1263 fewer men and 131 fewer women becoming obese as adults, saving 6,497 quality-adjusted life years (QALY) and averting \$16,218,000 in direct medical costs (2015 dollars). Base-case results of the CEA determined intervention costs of \$4,540/QALY (95% confidence interval: \$3,600 - \$12,000/QALY).

Conclusions and Implications: The FHC curriculum is well below the \$30,000/QALY threshold and thus cost effective. It is warranted to advocate for scale-up of FHC to fifth grade students.

Funding: USDA.

P171 Food, Health & Choices (FHC): School Demographics and Neighborhood Food Environment Explains Variations in BMI Across Schools

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Objective: To determine how school-level demographics and neighborhood food environment explain the variation in BMI z-score among twenty urban, low-income high-minority schools.

Design, Setting and Participants: Cross-sectional, multilevel analysis of fifth grade students ($n=952$) from 20 schools.

Outcome Measures and Analysis: Heights, weights, gender, and age were collected for each student and BMI z-scores were calculated according to CDC recommendations. BMI z-scores showed a moderate intraclass correlation coefficient of 0.031. School-level demographics were obtained from publicly available school records. Counts of fast food and healthy retail outlets (supermarkets, farmers markets, and mobile produce vendors) were obtained from the commercial vendor ReferenceUSA® for the schools' attendance zone, and density was calculated per square kilometer. We conducted multilevel linear regression models, to determine variance explained of between-school BMI z-scores, in three stages: MODEL 1 included gender (50.8% female) and age (10.6 ± 0.6 years), MODEL 2 added school-level demographic [percent Black ($29.6 \pm 22.0\%$), Hispanic ($59.0 \pm 23.2\%$), eligible for free/reduced price lunch ($86.0 \pm 19.3\%$) and English-language learners ($16.6 \pm 10.6\%$)] and MODEL 3 added fast food restaurants (7.9 ± 5.3 ; density: $18.31 \pm 11.70/\text{km}^2$) and healthy retail options (8.7 ± 6.4 ; density: $20.10 \pm 14.66/\text{km}^2$).

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