P211 (continued)

Programming level measured with Healthy School Progress Report (HSPR), 100-point scale. Analysis was hierarchical linear regression with FV consumption as student-level variable, square root transformed to account for skewed data due to many students eating no FV, and HSPR scores as school-level variable.

Results: FV consumption (n=2571 trays): 96% of students had FV on tray, mean amount on tray: 0.96 ± 0.49 cups, amount consumed (student who had F&V on tray): 0.45 ± 0.40 cups. HSPR: range 24 to 97, mean 55.0 ± 17.2 . Overall HSPR not associated with consumption ($p=0.119$). Score on nutrition education (25 point scale, range 5 to 25) was positively associated with FV consumption ($p=0.004$). Students from school with score of 5 ate 0.18 cups and students from school with score of 25 ate 0.61 cups. Other HSPR sections were not significant.

Conclusions and Implications: Nutrition education appears to be associated with FV consumption at school lunch. Pre-post outcomes evaluation to determine impacts of increased programming on FV consumption is recommended.

Funding: FoodCorps Inc.

P212 Modeling Positive Behavior: Beyond the School Lunchroom

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Objective: To assess the impact of modeling positive behavior and creating a supportive environment on elementary students in order to develop an awareness about healthy eating.

Study Design, Setting, Participants: Children's eating behavior was measured through tray waste data, school food production data, and school environment checklist. The data were collected in three conditions across nine (n=9) schools: Intervention I (n=1,978 students) 2 sets of posters used throughout the school using school role model (teachers, staff, and/or principals) posters plus USDA/TN posters, Intervention II (n=1,729 students) 1 set of school role model posters, and control group (n=2,039 students) no posters/intervention.

Outcome Measures and Analysis: Descriptive statistics and t-tests were used to examine differences from before and after the intervention in three outcomes: food waste, school food production, and school environment utilizing the Smarter Lunchroom Self-Assessment.

Results: The intervention groups out-performed the Control. In the tray waste data, Intervention II consistently had the lowest waste levels and, Intervention I showed the most improvement from pre to post. In the production data, Intervention II was the only group to show a significant decrease in the overall food waste percentage. In the Smar-

ter Lunchroom checklist, the Control had the lowest increase in checks at post.

Conclusions and Implications: The results from this study showed modeling positive behaviors and creating a supportive environment were successful to some degree in reducing food waste and influencing eating behavior. However, more efforts need to be made in improving the lunchroom through nutrition education that emphasize increased motivational activities, taste testing and cooking that lead to long-term changes.

Funding: USDA Team Nutrition

P213 Nutrient Composition of School Provided and Packed Lunches of Elementary School Children Grades Three Through Five

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Objective: The aim of this study was to compare the nutrition composition of school provided lunches through the National School Lunch Program (NSLP) and packed lunches of elementary school children grades three through five.

Study Design, Setting, Participants: Non-experimental, comparative design. The study was conducted in a public-school district in Northeast Ohio. The school district participates in the NSLP. The study included a total of 286 lunches between the two schools.

Outcome Measures and Analysis: The composition of the packed and school provided lunches were measured using the photography method. A nutrient analysis was conducted from the photographs using diet analysis software. Independent t-tests determined differences between the packed lunches and the NSLP lunches at $p \leq 0.05$.

Results: School provided lunches contained significantly ($p \leq 0.05$) more ounces of grain, cups of vegetables, cups of milk, and ounces of meat/beans, milligrams of calcium, and milligrams of sodium compared to packed lunches. Packed lunches contained significantly ($p \leq 0.05$) more cups of fruit, grams of fat, grams of fiber, and milligrams of iron compared to school provided lunches. Total calories ($p=0.603$), grams of saturated fat ($p=0.335$), and grams of sugar ($p=0.597$) were not different.

Conclusions and Implications: The composition of the school provided lunch was very different than the packed lunch. It is important to educate both school personnel and caregivers on these differences to hopefully improve weaknesses in both lunch types.

Funding: None

P214 Parental Support for Breakfast after the Bell Program

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Objective: The federal School Breakfast Program (SBP) serves as a way for children living in economically challenged homes to receive a healthy breakfast each morning, yet participation rates are extremely low. Serving breakfast after the bell is a successful strategy to increase participation. The aim of this study was to understand parental support of breakfast after the bell programs.

Study Design, Setting, Participants: Data from this study was collected through an online survey from parents/guardians (n=488) of school-aged children (K-12) enrolled in public schools across the state of Utah.

Outcome Measures and Analysis: The outcome measure was support for breakfast after the bell programs (yes/no). Data were analyzed using generalized estimating equation (GEE) regression methods, accounting for individual-level and district-level effects.

Results: Parents who perceive there were benefits to the SBP had higher odds of support for breakfast after the bell strategies compared to parents who do not see benefits (OR: 3.17; CI: 1.69-5.94). Parents who perceived school breakfast as healthier than home breakfast were also more encouraging of breakfast after the bell compared to parents who see home breakfast as healthier (OR 6.04; CI 2.15-16.95).

Conclusions and Implications: These findings indicate a relationship between parental support for breakfast after the bell, perception of the nutritional quality of school breakfast, and perceived benefits. School stakeholders may want to target perceptions of nutritional quality and highlights benefits of school breakfast participation in order to garner support for breakfast after the bell programs.

Funding: None

P215 School Characteristics and School Meal Consumption Patterns: An Examination of Predicted Plate Waste Using Multiple Linear Regression

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Objective: To examine school wellness policy and school food environment characteristics and their association with the consumption of school food by children.

Study Design, Setting, Participants: Public-use data from the Youth, Education, and Society (YES) study, an annual survey of middle and high school administrators from across the US from 2006-2014, was sourced from ICPSR in Spring 2016. Data were analyzed using multiple linear regression in SAS v9.2. Only complete responses from the 2013-2014 school year were included in the analysis (n=399).

Outcome Measures and Analysis: A total of 15 variables representing school wellness policies, nutrition goals, food portion sizes, food delivery, administrative concerns for obesity, and student responses toward school food regulations were tested in two multiple linear regression models. Any insignificant interactions and variables were

dropped resulting in final models which included ten variables and one interaction.

Results: A statistically significant proportion of the total variation in perceived plate waste was predicted by school wellness policy characteristics $F(9,390) = 4.74$, $p < .0001$, $R^2 = .11$. School food environment characteristics were not found to be statistically significant predictors of perceived plate waste $F(6,393) = 1.16$, $p = .33$, $R^2 = .02$. The interaction between administrative concerns and nutrition goals was significant ($p = .02$).

Conclusions and Implications: Based on this sample and analytic approach, plate waste is better predicted by school wellness policy characteristics than school food environment characteristics. When schools were perceived to have greater amounts of healthful eating efforts plate waste was predicted to decrease. Future research related to the integration and implementation of wellness policies is needed to assess their true impact on childhood obesity.

Funding: None

P216 Which School Food Authorities Pay More for Food Used in USDA School Meal Programs?

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Objective: School food authorities (SFAs) strive to serve nutritious, appealing meals while keeping food and other costs within their budget constraints. This study examines how school food costs are associated with SFA purchasing practices, use of cooperatives, size, region of country, and rural, urban or suburban location.

Study Design, Setting, Participants, Intervention: Data are from the USDA School Food Purchasing Study III 2009-10, a nationally representative sample of 390 SFAs, stratified by region.

Outcome Measures and Analysis: The outcome measure is purchase price per ounce for 8 major categories of foods (fruits/vegetables; milk/dairy; protein foods etc.). The analysis employs a multivariate fixed effects model and adjusts for survey design effects to examine how SFA purchasing practices, use of cooperatives, size, region of country, and rural, urban or suburban location influence food costs.

Results: Greater volume purchases, a larger number of suppliers and using USDA donated commodities in processed foods lowered food costs, as did selecting vendors based on price promotions. Cooperative buying did not lower costs. Food costs were lower for larger SFAs, higher for rural SFAs, and also varied across regions.

Conclusions and Implications: Small SFAs in rural areas and high cost regions may find it more difficult to affordably purchase foods for healthy, appealing meals. Economies of scale may encourage SFAs to buy large volumes of single products. For small SFAs, this could limit variety. Cooperatives may provide benefits other than low cost, such as access to a wider range of products; this should be further investigated.

Funding: USDA