O7 (continued)

Objective: The objective of this pilot study was to determine the feasibility of implementing a community garden program for children living in a low-income housing complex and providing locally sourced produce to a rural food pantry and housing complex as part of the university organic farm's community-building and outreach program.

Study Design, Setting, Participants, Intervention:

This research utilized a quasi-experimental design. A garden was constructed at the public housing complex. Participants were children ages 8–12 who lived at the housing complex and participated in the social cognitive theory-based ParkView Arms Garden Program or participated in the summer supplemental food program at the local food pantry. Both groups received supplemental vegetables and recipes from the university CSA. The intervention group participated in a 10-week summer-camp style garden program.

Outcome Measures and Analysis: Measures included pre and post vegetable consumption and preferences, gardening knowledge and self-efficacy, and body mass index. Due to the small number of subjects in this study, descriptive data was used and analyses were exploratory and graphical.

Results: Eighteen children participated. Initial evidence indicates that the gardening program youth increased self-efficacy for gardening and vegetable preparation and were more willing to taste or try new kinds of vegetables. Two intervention children decreased BMI from obese to overweight. Lessons learned included the positive impact of garden space on the housing community.

Conclusions and Implications: The garden program showed promising impacts and warrants additional research to expand the program. The CSA model may provide a unique opportunity to include families in working on the farm.

Funding: USDA.

O8 Oregon Farm to School Education Grants Reach 20,000 Children and Improve Produce Acceptability

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Background (Background, Rationale, Prior Research, and/or Theory): In 2015, the Oregon legislature allocated \$4.5 million in farm to school funding for school year (SY) 2015–17 with 80% of the funding for procurement grants and 20% for education grants. Education funds were for “food-based, garden-based, or agriculture-based educational activities” for students.

Objective: To estimate how many children the education state funds reached and examine the impact the funded activities had on children's food choice and behaviors related to nutrition.

Study Design, Setting, Participants, Intervention:

We conducted 19 semistructured interviews with stakeholders including education and procurement grantees, producers/distributors, policy advocates, and state partners. We also analyzed data collected by the Oregon Department of Education (ODE) in SY15-16 through annual reports and the ODE Farm to School Baseline and Progress Reports submitted by all grantees.

Outcome Measures and Analysis: Outcome measures included the number of children reached by education grant funds, types of activities funded, the use of Oregon Harvest for Schools materials, and impacts on produce acceptability among children. We conducted descriptive analyses for quantitative data. For qualitative data, we coded repeated ideas, concepts, or elements that emerged and identified themes using a grounded theory approach within and across the different stakeholders.

Results: Education grants reached over 20,000 students in 30 districts with the most reported educational activities being nutrition and food-based lessons, school gardens, and farm field trips. Eighteen of the 24 education grantees used Oregon Harvest for Schools materials. Emerging themes included students eating healthier and better-quality foods, students trying new foods because of gardens and/or because they knew the food was local, and students learning about growing produce in gardens and where their food came from.

Conclusions and Implications: Evidence suggests that state funding for farm to school education grants is reaching many students, encouraging districts to incorporate farm to school educational activities into the curriculum, and positively influencing children's acceptability of produce. Ongoing attention to strengthening policy and continuing funding for education grants is essential for achieving program goals.

Funding: Robert Wood Johnson Foundation.

O9 A is for Apple: Analyzing the Landscape of Nutrition Education Programs in New York City (NYC) Schools

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Background (Background, Rationale, Prior Research, and/or Theory): Nutrition education is important for school students. Yet, schools lack capacity, resources, and expertise to conduct high quality nutrition education. Organizations, including non-profits,

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O9 (continued)

for-profits, universities, and hospitals, partner with schools to provide nutrition education programs (NEPs).

Objective: This study assessed NEPs in NYC schools.

Study Design, Setting, Participants, Intervention: Cross sectional study of the 40 organizations that run 101 NEPs in NYC schools in the 1,840 NYC public schools.

Outcome Measures and Analysis: Survey completed by organizations that run NEPs with questions on organizational structure, program characteristics, and schools worked with during 2016–17 school year; and publically available data from NYC Department of Education on school demographics. Descriptive statistical analysis.

Results: Most NEPs surveyed (68%) have ≤10 full time staff. Forty-three percent of NEPs started after 2011. Common student activities include cooking (69%), classroom lessons (66%), gardening (46%), and field trips (31%). Reported barriers include limited time for NEPs (37%) and limited space for implementation (34%). Overall, 56% of NYC schools had at least one NEP. Only 27% of schools had more than one. NEPs were evenly distributed across schools with varying percentage of students qualifying for free/reduced price lunch and percentage Black and Hispanic students. NEPs varied by school type: 69% of elementary schools had one or more NEP; 50% of middle schools; and 32% of high schools. A previous study from 2011–2012 found 39% of elementary schools in the NYC boroughs of Brooklyn, Manhattan and Queens had one or more NEPs. An analysis of elementary schools in these boroughs for the 2016–2017 data found a rate of 71%.

Conclusions and Implications: There are not enough NEPs being implemented in NYC schools for students to receive the full benefits of nutrition education. Policy makers, researchers, funders, and advocates need to effectively collaborate for more schools to have more NEPs. This study can be a model for other cities, regions, or states to conduct landscape assessments of NEPs.

Funding: New York State Health Foundation.

O10 Food Waste in Schools: An Intervention of Randomized Schools on the Reduction of Food Waste

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Background (Background, Rationale, Prior Research, and/or Theory): The USDA estimates that 30 to 40% of the food produced in the United States is wasted, resulting in a loss of \$218 billion dollars in food. In addition to the economic cost of food, there is an additional cost in resources such as land, water, labor and transport that is not often factored into the cost of food waste. Food waste is also the leading emitter of methane in the world. Methane is a greenhouse gas more potent than carbon dioxide.

Objective: This study sought to address many of the gaps in the current research on food waste intervention programs in schools by measuring a large sample size, measuring each meal component and randomizing the selection of schools participating.

Study Design, Setting, Participants, Intervention: The school district used for this intervention has a total of 46 schools of which 30 schools were elementary/middle schools that prepare their meals on-site. A randomly selected 15 of the 30 eligible schools participated in the study. Data collection occurred one month prior to the intervention training from February 16, 2017 until March 8, 2017. Afterwards we conducted a training session on March 10, 2017 for the food service workers and March 22, 2017 for the lunchroom monitors. Finally we measured the post intervention food waste from April 4, 2017 until April 28, 2017.

Outcome Measures and Analysis: A total of 9,140 trays were measured for food waste, 4,637 for the pre-intervention and 4,503 trays for the post-intervention.

Results: Of the food and beverages served during our 60 visits to schools 2,473 pounds were wasted before the intervention and 2,123 were wasted after the intervention. Overall, 350 pounds of food was saved which was a 14% reduction in food waste due to this intervention.

Conclusions and Implications: Overall the intervention showed the impact of a food service training program on reducing food waste. One of the limitations was that the study only measured plate/tray waste and did not include production waste.

Funding: None.

Student Showcase

O11 Hunger and Environmental Nutrition (HEN) Garden Lab: Participant Outcomes in a Garden Literacy Program Targeting Nutrition and Dietetics Students

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Objective: Although gardens are now common in K-12 farm-to-school initiatives, there currently is a deficit of research on initiatives targeting adult, college-aged students. The goal of this project was to identify which teaching practices best improved garden literacy and self-efficacy in nutrition and dietetics students.

Target Audience: Nutrition and dietetic students (n = 30). **Theory, Prior Research, Rationale:** This study used a community-based participatory approach that guided development and implementation of the HEN Garden Lab education and teaching methods.

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