Introduction and Purpose

- This iterative randomized control trial aimed to test impact of select Smarter Lunchroom (SL) changes in improving student food selection and consumption in New York State public middle school (MS) cafeterias in academic years 2013-2014 and 2014-2015.
- An adapted RE-AIM (Reach, Effectiveness, Adoption, Implementation, Maintenance) evaluation framework guided process evaluation conducted to 1) monitor protocol fidelity, 2) determine maintenance post-intervention, and 3) identify facilitators and barriers to implementation.

Process Evaluation Methods

- Reach
  - Proportional representation of students exposed to intervention
- Effectiveness
  - Potential external influences on intervention effectiveness (i.e., contamination)
- Adoption
  - Number of schools participating, number providers trained, & their reported preparedness
- Implementation
  - Fidelity to component of the intervention protocol
- Maintenance
  - Extent of adherence beyond the intervention end date

Figure 1. Implementation diagram for FVM treatments

Figure 2. Adaptation and application of RE-AIM dimensions to process evaluation measures

Results

### Year 1

- **Planning of SL treatments designed to increase selection and consumption of fruits (F), vegetables (V), and unflavored milk (M) over 6 weeks.** To be tested separately and then in combination in 24 public MS in urban and rural locations.

- **Year 2 (Fall 2013 - Spring 2014):** 13 MS implemented F (n=4), V (n=3), or M (n=2) protocols, with controls (n=4).

- **Year 3 (Fall 2014 - Spring 2015):** 11 MS implemented the combined FVM protocol using a crossover design.

- With the assistance of Cooperative Extension partners (interventionists), cafeteria staff (providers) implemented changes.

- Figure 1 illustrates Year 3 combined treatment protocol; Year 2 F, V, or M treatments included the same changes.

### Year 2

- **Implemented the combined FVM protocol using a crossover design in 24 public MS in urban and rural locations.**

- **Year 2 (Fall 2013 - Spring 2014):** 13 MS implemented F (n=4), V (n=3), or M (n=2) protocols, with controls (n=4).

- **Year 3 (Fall 2014 - Spring 2015):** 11 MS implemented the combined FVM protocol using a crossover design.

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### Year 3

- **Implemented the combined FVM protocol using a crossover design in 24 public MS in urban and rural locations.**

- **Year 2 (Fall 2013 - Spring 2014):** 13 MS implemented F (n=4), V (n=3), or M (n=2) protocols, with controls (n=4).

- **Year 3 (Fall 2014 - Spring 2015):** 11 MS implemented the combined FVM protocol using a crossover design.

- With the assistance of Cooperative Extension partners (interventionists), cafeteria staff (providers) implemented changes.

- Figure 1 illustrates Year 3 combined treatment protocol; Year 2 F, V, or M treatments included the same changes.

### Year 4

- **Planning of SL treatments designed to increase selection and consumption of fruits (F), vegetables (V), and unflavored milk (M) over 6 weeks.** To be tested separately and then in combination in 24 public MS in urban and rural locations.

- **Year 2 (Fall 2013 - Spring 2014):** 13 MS implemented F (n=4), V (n=3), or M (n=2) protocols, with controls (n=4).

- **Year 3 (Fall 2014 - Spring 2015):** 11 MS implemented the combined FVM protocol using a crossover design.

- With the assistance of Cooperative Extension partners (interventionists), cafeteria staff (providers) implemented changes.

- Figure 1 illustrates Year 3 combined treatment protocol; Year 2 F, V, or M treatments included the same changes.

### Findings

- **School environmental assessments revealed potential sources of contamination among all participating schools (e.g., FVM promotion signage, food-based holiday parties and fundraisers occurring outside the cafeteria, Fall harvest events, and farm-to-school education efforts).**

- **Training records indicated 63 providers were trained by interventionists in Year 2, while 85 providers were trained in Year 3.**

- **Training records and contact logs indicated interventionists and providers were satisfied with trainings and were prepared.**

- **Training evaluations and interviews provided few suggestions for improvement, though subsequent iterations were adapted to better meet needs.**

### Conclusions and Implications

- **Results highlighted targets for intervention redesign - enhanced communication among all participating staff and improved fostering staff buy-in.** Findings will strengthen interpretation of outcome data and will be useful for supporting nationwide Smarter Lunchroom efforts and should offer insight for other school-based environmental interventions.