INTRODUCTION

Background
In this study we partnered with two Western Wisconsin elementary schools (N=420 and N=440) to examine the influence of a variety of group-level incentives on children’s aggregate fruit and vegetable consumption during school lunch.

We observed and recorded aggregate fruit and vegetable consumption in both schools over an initial baseline period (3 days) followed by an incentive period (6 days/4 days) and a return to baseline period (3 days).

Our previous poster outlined our findings from this research indicating that overall this mix of group-level incentives worked to increase children’s aggregate fruit and vegetable intake during school lunch.

There were several strengths and successes of this research as well as some important limitations and a variety of challenges that we had to address leading to several recommendations for future research all of which we outline and discuss in this poster.

LIMITATIONS & CHALLENGES

Food Service Planning Challenges
This research project required a substantial amount of planning and scheduling as well as the cooperation and participation of the district food service director and the food service staff in both schools.

We worked closely with the food service director and briefly with the food service staff in each school and were mostly successful in arranging all of the details for our research to go smoothly.

Despite our best efforts, several challenges beyond our control arose including out of the ordinary lunch dates as well as menu planning and food quality issues which are listed below.

• Parent Day, Grandparent Day (School I, incentive period)
• Field trips for some grades (School I return to baseline period, School II incentive period)
• Cherry tomatoes (School I, all periods)
• Carrots/Cherry tomatoes (School II, incentive period)
• Banana/Apple (School II, incentive period)
• Peaches/Kiwi (School II, incentive period)
• Kiwi unripe (School I, return to baseline period)

Teacher Participation Challenges
This research project also involved significant planning and scheduling as well as the cooperation and participation of the principal and the teachers in both schools.

We worked closely with the principal in each school to enlist their support and rely on their cooperation to encourage participation among their teachers, but we did not interact directly with the teachers.

The support of the principals was essential, but it is even more important to have the teachers engaged and enthusiastic as they were responsible for informing their students about the incentives and encouraging them to eat more fruits and vegetables for lunch.

Despite being successful in gaining the cooperation of both principals and arranging all of the details for our research to go smoothly, our study was affected by a lack of participation and enthusiasm from teachers in both schools.

In particular, the principal and classroom teachers in both schools were asked to complete a short survey regarding their level of engagement and enthusiasm in reading the announcements and encouraging students to eat more fruits and vegetables during the incentive period.

Below is a short list recap the basic result from these surveys. In addition, the responses to these surveys are summarized tabular.

• Both principals completed the surveys
• Announcement read most days with enthusiasm
• 7 out of 20 teachers completed survey in School I (35%)
• 8 out of 20 teachers completed survey in School II (40%)

Announcement not read many days
• Only moderate level of enthusiasm
• Little additional encouragement provided by teachers

• Aggregate level data do not allow individual level analysis by grade, gender, socioeconomic status or low/high initial intake.
• Likely some children increased consumption, while others did not
• Gains are relatively small in terms of increased servings of fruits and vegetables consumed, but not trivial
• Limited observation days, lack of statistical power, no control school
• Results are suggestive, but do not confirm a causal effect

SUCCESES & STRENGTHS

Successes
• Incentives matter
• Group-level incentives can increase children’s aggregate intake of fruits and vegetables
• Increases in consumption can be sustained beyond incentive period

Strengths
• Aggregate level data allow for large number of students in study
• Aggregate level data allow for accurate weight measures
• Could be replicated through community partnerships at relatively low cost

OBSERVATION SCHEDULE

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DISCUSSION

This research study has several strengths and implications. Our study used group-level incentives and measured the influence on aggregate school-level fruit and vegetable consumption. This allowed us to generate an exact weight measurement of consumption in ounces per lunch served across all children eating the school lunch with very little interference to normal school lunch procedures.

Moreover, offering all students free bowling/skating passes and a chance to win a $20 gift card if group-level behavior changed was relatively easy to implement compared to identifying each child’s behavior and then rewarding positive behavior change with individual prizes. Additionally, the mix of prizes we chose came from local businesses who were happy to provide the incentives at a reduced cost to contribute to their community and assist schools in improving child nutrition.

These factors could be important for schools that want try to run a similar program on their own with limited resources. It is also possible that creating group-level behavior change could be desirable in that it may lead to a change in culture through peer effects. Lastly, our findings from looking at fruit and vegetable intake separately add to the existing evidence of getting a tool to help children’s vegetable consumption.

Our research also has some limitations including a lack of individual measures of fruit and vegetable consumption, limited number of observation days and no control school. We also encountered a variety of challenges in our work leading to some recommendations for future research.

Specifying these challenges in planning and scheduling with school food service that affected our study. This suggests that future studies could benefit from more detailed planning and training with respect to food service personnel. Perhaps food service staff could also be incentivized to more actively cooperate with researchers.

Previous literature suggests that teachers play an important role in influencing nutrition education and its ultimate success. Additionally, it is important to have cooperation from school administrators. Although the principals in both schools were very cooperative and participated enthusiastically in the study, this was not true of many teachers.

The lack of teacher participation and enthusiasm in this study was likely due to common barriers reported in previous research, including a lack of time, too many other obligations, and insufficient training and materials. Therefore, future research could incorporate more intensive teacher training as well as perhaps incentivizing the teachers to become more engaged and enthusiastic.

Overall, the findings of this research contribute to the development and implementation of best practices that can be used by schools in collaboration with researchers and community partners to increase children’s fruit and vegetable intake.