

Multi-Pronged Intervention to Increase Secondary Student Participation in School Lunch

Research Brief | January 2021

BACKGROUND

The “Multi-Pronged Intervention to Increase Secondary Student Participation in School Lunch” was a 3-year quasi-experimental study funded by the USDA National Institute of Food and Agriculture to examine novel methods for increasing school-meal participation.

Implemented in partnership with the San Francisco Unified School District (SFUSD) during the 2015-2018 school years, a total of 24 middle and high schools participated: half received the intervention and half served as controls.

The intervention consisted of:

- Additional school lunch points of sale (vending machines and mobile carts)
- Outreach to teachers that promoted school meals
- Cafeteria redesign to increase appeal to students

Main outcomes were school meal participation, self-reported fruit and vegetable consumption and school meal perceptions among students.



PRIMARY FINDINGS

School meal participation declined, though less in intervention than in comparison schools among students eligible for free or reduced price meals.

- From baseline (2014-15) to follow-up (2017-18), lunch participation dropped in both intervention (4.1%) and comparison schools (5.1%).
- The overall decline in lunch participation coincided with a drop-in free or reduced-price meal eligibility across all schools (from 72% to 58%). This is likely related to changing local economic conditions, including a county-wide minimum wage increase that began in summer 2015. (Thompson et al, *Childhood Obesity*, 2020)
- Among students eligible for free or reduced-price meals, lunch participation declined significantly less in schools receiving the intervention (1.8%) than in comparison schools (4.9%). (Thompson et al, *Childhood Obesity*, 2020)

Students' self-reported fruit and vegetable consumption did not improve, nor did their perceptions of the taste and healthfulness of school meals. (Machado et al. 2020)

Given the significant time, money, and political capital required to implement the intervention, districts should carefully consider similar investments. Taken together, our results suggest that efforts beyond adding points of service, teacher promotion of school meals, and cafeteria redesigns are needed to improve school-lunch uptake by middle and high school students.

ADDITIONAL FINDINGS

During our study period, SFUSD implemented a policy to ban chocolate milk in its school cafeterias. We were able to examine the impact of this policy on student milk selection and consumption.

- We found that removing chocolate milk modestly reduced student milk selection and consumption without compromising average intake of key milk-related nutrients. Consumption of added sugars from milk declined significantly. ([Thompson et al, PCD, 2020](#))
- Based on our findings, we believe secondary schools should consider removing chocolate milk to support healthy beverage consumption.

NEXT STEPS FOR SFUSD

Once the COVID-19 crisis passes, SFUSD will focus on improving school meal quality, moving from a pre-packaged model to a central kitchen and bulk service model. We were successful in obtaining funding from the USDA to conduct a follow-up evaluation study “Transition to freshly-prepared school meals: impacts on meal appeal, student participation, intake, food and packaging waste and school finances.” While this 4-year study technically began in April 2020, the COVID-19 pandemic has necessitated a temporary pause for data collection and implementation of the intervention. We remain in close touch with SFUSD and will return to baseline data collection after students have returned to in-person school, including school meals, and SFUSD has the capacity to implement their new meal service. We anticipate resuming baseline data collection in the 2021-2022 school year. We do not expect the need for significant changes to the study design and are using this time to fine tune our methods and protocols.

STUDY PUBLICATIONS

1. **Multi-pronged intervention to increase secondary student participation in school lunch: Design and rationale.** Machado S, Ritchie L, Thompson H, Reed A, Ibarra Castro A, Neelon M, Madsen K. *Contemp Clin Trials*. 2020 Mar;78:133-139. doi: 10.1016/j.cct.2019.01.013.
2. **The impact of a multipronged intervention to increase school lunch participation among secondary school students in an urban public school district.** Thompson HR, Gosliner W, Ritchie L, Wobbekind K, Reed AL, O'Keefe O, Madsen KA. *Child Obes*. 2020 Aug;16(S1):S14-S22. doi: 10.1089/chi.2019.0233.
3. **The impact of a multi-pronged intervention on students' perceptions of school lunch quality and convenience and self-reported fruit and vegetable consumption.** Machado SS, Ritchie LD, Thompson HR, Madsen KA. *Int J Environ Res Public Health*. 2020 Aug 18;17(16):5987. doi: 10.3390/ijerph17165987.
4. **Effect of removing chocolate milk on milk and nutrient intake among urban secondary school students.** Thompson HR, Ritchie L, Park E, Madsen KA, Gosliner W. *Prev Chronic Dis*. 2020. 2020 Aug 27;17:E95. doi: 10.5888/pcd17.200033.

OTHER STUDY PRODUCTS & FORTHCOMING PUBLICATIONS

We produced a school [meal operator toolkit](http://bit.ly/NPitk012621) (<http://bit.ly/NPitk012621>) in partnership with SFUSD, based on lessons learned from this study.

Two additional research papers are in preparation: a qualitative evaluation of the intervention implementation process from the perspective of SFSUD school foodservice staff (Implementation leadership in school nutrition: a qualitative study) and an evaluation of teacher perspectives on the intervention (Teacher Outreach to Improve Teacher Perceptions & Encouragement of School Lunch).

