



## Research report

# Chefs move to schools. A pilot examination of how chef-created dishes can increase school lunch participation and fruit and vegetable intake ☆

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## ABSTRACT

To demonstrate the feasibility of introducing a main dish designed by a professional chef in the National School Lunch Program and to document the impact on child participation, a chef was recruited to design pizza to be served in an upstate New York school district. The pizza was designed to meet both the cost and ingredient requirements of the NSLP. High school students were significantly more likely to select the pizza prepared by the chef. While the chef had no significant impact on main dish consumption given selection, more students took a vegetable and vegetable consumption increased by 16.5%. This pilot study demonstrates the plausibility of using chefs to boost participation in the school lunch program, and potentially increase nutrition through side selection, among high school students.

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## Introduction

In May of 2010, the White House announced a program entitled “Chefs Move to Schools” (CMTS) as part of the First Lady’s *Let’s Move* campaign (Cappellano, 2011). This program pairs chefs with schools in order to provide instruction to children and culinary advice to interested school food service workers. There has long been a debate about the nutritional value of school lunches in the US, with some claiming a link between school lunch participation and obesity (Schazzenbach, 2009). This has prompted substantial improvements in the nutritional standards required of school meals so that they now meet the majority of recommendations of the Institute of Medicine (2009). Unfortunately, in some specific instances, these improvements were met with resistance as students chose hunger over the new school lunches (Associated Press, 2013) and increases in waste as students threw away substantial amounts of their nutritionally improved food (Just & Price, 2013; Just, Hanks, Wansink, & Brumberg, 2014). Many have suggested that sending professional chefs into the schools to provide healthier and more appetizing

school meals might help to address this seeming puzzle (Martin & Bush, 2000). The television show, *Jaime Oliver’s Food Revolution* generated national buzz around the idea of chefs collaborating with schools and led to a call for a national program. The purpose of CMTS is to help children make healthier food choices. The CMTS effort was launched with much fanfare and high hopes, though little is yet known of the potential influence of chefs on children’s food choices.

Despite the initial fanfare at the onset of the CMTS program, tight school budgets and the narrow nutritional requirements of the National School Lunch Program (NSLP), relative to those faced by professional chefs, have caused many to question the ability of professional chefs to contribute to school foods. In fact, some school food service professionals have been very vocal in their opposition (Jones, 2010). Professional chefs tend to operate with complete freedom when selecting ingredients and tend to prepare dishes that are significantly more expensive than the typical school lunch. Additionally, there are questions as to whether students would value higher quality creations over the traditional lunch fare. The main purpose of this exercise was to conduct a pilot test to gauge the feasibility of the CMTS program, and measure student response through lunch sales and food consumption.

The NSLP in the US provides a per meal subsidy to schools that meet their nutritional and administrative guidelines. The amount of the subsidy varies depending on the household income of the participating student. Those above 185% of the poverty line generally are charged the full, though reasonable price (national average of \$1.90 in 2009–2010 SY) (U.S. Department of Agriculture, Food and Nutrition Service, 2012) for their meal, with the Federal Government paying a maximum of \$0.42 (USDA FNS, 2013). Students under 185% of the poverty line

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either receive a discount on their meal, paying up to \$0.40 (U.S. Department of Agriculture, Food and Nutrition Service, 2012), or a free lunch, with the national government subsidizing the meal. While there is significant variation in the level of funding and the mode of operations between schools, most face fairly severe limits to their budgets, making changes to the offerings rather difficult.

Through CMTS, volunteer professional chefs partner with schools, educators, and food service workers in the classroom and cafeteria to introduce menu changes that will hopefully lead to improved student health in both the short and long run (Cappellano, 2011). In the cafeteria, chefs, using ingredients found in school kitchens, work alongside food service staff to create or reinvent existing dishes. These professional chefs are also encouraged to interact with the children in the classroom by teaching them about nutrition and food preparation. The hope is that CMTS will increase selection of healthy foods, and increase the percentage of these foods consumed (rather than thrown away), either because chef designed foods provide increased availability of highly nutritious foods, because the foods designed by chefs are more appealing, or due to the education and instruction provided by the chef.

Two known studies to date have examined the influence of chefs on student consumption in school lunchrooms. The first, conducted in two Boston area middle schools, finds that when chefs trained cafeteria staff in menu creation, new foods successfully increased the percentage of students selecting a whole grain and consuming a vegetable (Cohen et al., 2012). However, selection did not reach the 85% consumption benchmark the researchers had set as a target (Cohen et al., 2013) and the program did not have a positive impact on participation in the school lunch program (Cohen et al., 2012). The latter potentially signals that students were not particularly receptive to the new foods. In the second study, chefs taught 9–11 year old students in the UK about preparing food and nutrition after which food consumption was measured. These students showed a significant increase in vegetable consumption after the session suggesting a positive impact of the chef-delivered educational classes (Caraher, Seeley, Wu, & Lloyd, 2013).

While exposing children to healthy foods is an important factor in healthy eating (Cooke, 2007), there is clear evidence that taste is perhaps an even larger motivator (Brug, Tak, te Velde, Bere, & de Bourdeaudhuij, 2008; Horne et al., 2004; Lakkakula, Geaghan, Zanovec, Pierce, & Tuuri, 2010; Wardle et al., 2003). With the new school guidelines introduced in September 2012, the selection of fruits or vegetables and whole grains is not optional (FNS USDA, 2012a). Schools will not be reimbursed by the Federal Government if the tray does not contain at least one serving of fruits or vegetables. Students who make it through the lunch line without selecting a fruit or vegetable are generally instructed by lunch staff that they must select one before leaving the line. Breads are now to be whole grain, and students must select either a fruit or a vegetable with lunch. In this new landscape, chefs can contribute if they can make these healthier foods more appealing and appetizing leading to greater consumption and greater participation.

In this pilot study, we examine the potential impact of a local, professional chef preparing four main dishes for a high school lunch menu. The main dishes were designed to be compatible with the new school lunch guidelines implemented in 2012. The dishes were also designed so that production costs would not increase relative to the conventional school fare. In order to meet the new school lunch guidelines the chef modified existing school recipes, and consulted with the school food service director about additions or changes to ensure compliance with the relatively strict standards. For further details on the guidelines the reader is referred to the final rule published in the *Federal Register* (FNS USDA, 2012b). The success of this event was measured by whether the new creations plausibly lead to an increase in the number of high school students purchasing the school lunch relative to when the standard foods (that also meet the guidelines) are offered.

High schools in the US generally have lower participation rates compared to middle and elementary schools (U.S. Department of Agriculture, Food and Nutrition Service, 2012). We are also interested in whether the new main dishes increase the selection and consumption of these chef-created main dishes. Because the nutritional standards of the national school lunch guidelines are already quite stringent, we do not directly evaluate the nutritional outcomes. Rather, we examine whether by using the same nutritional standards currently required by the NSLP, the chef can increase participation and consumption.

## Method

### Participants

The study involved an upstate New York high school in which we implement a before/after intervention and was approved by the authors' IRB. While our pilot study does not constitute a true randomized controlled experiment, we can use participation rates at the associated elementary and middle schools as pseudo controls. The school district is primarily white (93.9%) with the next largest minority black (2.0%). Based on lunch sales data from the district, just 19.8% of students were eligible for free or reduced price lunch (Common Core of Data, 2012). Median household income in the district's county was \$55,929, which compares to a national median of \$52,672 (US Census Bureau 2014). High school students in NY State are generally ages 13–18, with 370 students enrolled in this particular high school. The middle school (ages 10–14) had 364 students enrolled, and the elementary school (ages 4–11) had 406 students enrolled.

### Procedures

The district had a four-week rotation of main dishes, with many sides appearing daily. The menu was identical in elementary, middle and high schools other than the foods introduced by the chef. Pizza was served each Thursday, and was generally popular with students, comprising over 90% of all main dishes taken. Three types of pizza were always offered: cheese, garlic, and pepperoni, but each Thursday the school chef would prepare her own specialty pizza. In addition, cheese bagels, deli sandwiches, and peanut butter and jelly sandwiches were also available to students on a daily basis.

In the US school lunch, students are allowed to select up to five items as part of their school meal. Typically a student will select one main dish, a beverage, and two to three side dishes, which include stand-alone fruits or vegetables. Students are not considered to have taken a fruit or vegetable serving unless they take a side dish consisting almost entirely of fruit or vegetable matter. Notably, sides of fruits and vegetables were served daily.

With the consent of the school food service staff, a local chef specializing in French cuisine, who volunteered her time to participate in this pilot study, was introduced to the school food service environment and informed of the policies specific to school lunches. She visited the school three days prior to the event to assess what foods were available and determine what she could prepare. Based on the available foods in the cafeteria, and the popularity of the main dishes with the students, this professional chef chose to develop recipes for three types of pizza as well as a ranch flavored hamburger. In an effort to engage the students, the professional chef held an afterschool taste-testing event where the students had the opportunity to meet her and taste the foods that she would prepare for lunch the following day. These two events constituted the complete CMTS event held at this school. No educational sessions were conducted as part of this event.

To remain consistent with the existing menu rotation, the chef's pizzas and hamburger were served on Thursday, April 19, 2012. Her recipes used only ingredients already available in the school

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