Dedication, innovation, and collaboration: A mixed-methods analysis of school meals in Connecticut during COVID-19

SPECIAL ISSUE COSPONSORED BY INFAS: THE IMPACT OF COVID-19 ON FOOD SYSTEMS



Inter-institutional Network for Food and Agricultural Sustainability

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Abstract

When school buildings across the U.S. closed in March 2020 due to the COVID-19 pandemic,

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many school districts mobilized to establish emergency school meal programs to operate outside the setting of school cafeterias. The aim of this convergent mixed-methods study is to (a) examine the

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structure and rates of participation in the spring 2020 meal programs in Connecticut, and (b) obtain insight about the challenges, strategies used, and lessons learned during this time by food service leaders. We obtained quantitative data from the Connecticut State Department of Education and district websites, and qualitative data from nine one-hour interviews with school food service leaders. Although the National School Lunch Program provides meals at standard price, reduced-price, or no cost based on student household income, all emergency meals during spring 2020 were provided at no cost following the school closures resulting from the COVID-19 public health emergency declaration. The average number of meals distributed from March to May 2020 was significantly lower than the overall participation rates (i.e., paid, free, and reduced-price meals combined) prior to COVID-19. However, participation rates in April and May 2020 approached those of free and reduced-price meal participation a year earlier. Four key action themes emerged from the interviews: (1) tailor the program to community needs and resources; (2) identify strategies to facilitate participation; (3) develop partnerships to coordinate school, municipal, and community efforts; and (4) establish programs that encourage resiliency. The interviewees also saw this event as an opportunity to improve the perception of school meals. Innovations developed during the spring 2020 school building closures provide a road map for best practices for the 2020-2021 school year and beyond.

Keywords

COVID-19, Pandemic, Emergency Meal Programs, School Meals, School Food Services, School Nutrition Programs, Community Collaboration

Introduction

Prior to the COVID-19 pandemic, one in seven American households with children was food insecure, defined as having limited access to adequate food due to a lack of money and other resources (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2020). A few months after the onset of COVID-19, rates of food insecurity rose to the highest rates in modern U.S. history (Bauer, 2020) and were esti-

mated to have tripled among households with children (Schanzenbach & Pitts, 2020). The U.S. Department of Agriculture's (USDA) federal child nutrition programs are a critical part of the safety net to support child food security, and the largest of these programs, the National School Lunch Program (NSLP), serves roughly 29.6 million students daily (USDA Economic Research Service, n.d.). Based on household income, students are eligible for paid (i.e., standard price), reduced (i.e., reducedprice), or free (i.e., no cost) meals. School meals must meet strong federal nutrition standards (Nutrition Standards in the National School Lunch and School Breakfast Programs, 2012), and participation in the school meal program has been found to reduce children's food insecurity and improve the quality of their diet (Cullen and Chen, 2017; Ralston, Treen, Coleman-Jensen, & Guthrie, 2017).

With the emergence of COVID-19 and the resultant school closures in March 2020, millions of students were at risk of losing access to school meals. Recognizing the importance of providing meals to children whose families depend on the NSLP, many school food authorities shifted their operations from providing meals in cafeterias to distributing meals beyond school buildings. In Connecticut, many districts shifted to one of the USDA's summer meal programs (i.e., Seamless Summer Option [SSO] and Summer Food Service Program [SFSP]) (USDA Food and Nutrition Service, 2013) in order to continue providing meals. Typically, SSO and SFSP provide funding for meals during the summer or on vacation days when schools are closed. There are a variety of regulatory differences between the summer programs and the NSLP, most notably that all meals are served at no cost regardless of family income level (Connecticut State Department of Education, n.d.-a, n.d.-b).

To accommodate the unique challenges created by the pandemic, the USDA offered waivers from some specific meal program regulations. For example, the requirement that districts serve meals to be consumed on site was waived. Other important waivers included the ability to provide multiple meals at once, to distribute children's meals to parents or guardians even if the children were not physically present, and to prepare meals outside the regular meal pattern requirements (Kinsey et al.,

2020; USDA Food and Nutrition Service, n.d.). Although these waivers removed many operational barriers, other challenges remained. For example, food service authorities needed to determine how to maintain social distancing among staff while they prepared and provided meals, identify the best locations for distribution sites, and source appropriate food and supplies (Kinsey et al., 2020).

The aim of this mixed-methods study was to capture information about the process of distributing school meals in the state of Connecticut during the early months of the pandemic. Specifically, we examined the level of meal participation statewide in the spring of 2020 and compared these rates to the previous year. Further, in anticipation of the continued disruption to in-person attendance during the 2020–2021 school year, we gathered information about the challenges food service directors (FSDs) faced, the innovations that were tried, and lessons learned.

Research Methods

This study employed a convergent mixed-methods approach. We supplemented quantitative data on school meal distribution in Connecticut with qualitative data from key informant interviews with district food service leaders. This study was deemed exempt from full review by the University of Connecticut institutional review board (Exemption #X20-0103).

Setting

In Connecticut, 93% of public school districts and local education agencies participate in the NSLP (Connecticut State Department of Education [CSDE], 2019a), reaching over 528,000 kindergarten through twelfth grade (K-12) students in 2019-2020. Statewide, 43% of students qualified for free or reduced-price school meals during the 2019-2020 school year (CSDE, 2019b). However, since Connecticut has large economic disparities (Sommelier & Price, 2018), free or reduced-price meal eligibility rates range from less than 5% to over 80% of students in a district (CSDE, 2019b). At the two ends of this economic spectrum, the state has 11 large urban districts where more than two-thirds of the students are eligible for free or reduced-price meals, and about two dozen districts where fewer than 15% of students are eligible for free or reduced-price meals.

School Meal Distribution Data

There are 189 NSLP sponsors in Connecticut, including school districts, charter schools, some private schools, and other youth programs. For the purposes of this study, we excluded all singleschool and youth program sponsors and identified the school districts that continued to serve meals after March 2020. We searched the website of each program in early June to record information about meal distribution (e.g., days of the week, times open, grab-and-go or delivery, number of sites). Next, we limited the sample to public school districts that continued to serve meals through the end of the school year (N=121). We obtained monthly meal counts for lunches served during January-May 2020. We also obtained meal counts for January-May 2019 as a comparison. The final sample included 120 school districts (one district had not submitted all its meal count data for 2020). For each district, we obtained the total enrollment and number of students eligible for free and reduced-price meals for the 2018-2019 and 2019-2020 school years from Connecticut state government websites.

Key Informant Interviews

We conducted a one-hour, semistructured interview with each of the informants via a videoconferencing platform to hear detailed information related to school meal distribution practices. The informants included FSDs (n=8) and one superintendent (from a district without a full-time FSD). Two to three members of the research team participated in each interview. The CSDE and the research team selected informants to maximize the demographic diversity of the sampled school districts. The sample included urban, suburban, and rural districts; different sized districts; a range of district free or reduced-price meal eligibility rates; and districts from different regions of the state. We asked open-ended questions about meal distribution, families reached, staff, procurement, preparation, community partners, and lessons learned. The questions used in the interviews are listed in Appendix A.

Quantitative Data Analysis

We used frequencies to analyze the quantitative data obtained from district websites and the CSDE. We examined meal participation in the NSLP during two pre-COVID time periods: January–May 2019, and January through the first two weeks of March 2020. The data were provided per month, except March 2020, when data were divided into (a) the period before school buildings closed and (b) the period after the buildings closed. Only lunch (i.e., not breakfast, snack, or supper) data were included in these analyses.

To assess pre-COVID participation, we made the following calculations for *total* participation:
(a) divided the total number of lunches served per month (i.e., free, reduced-price, and paid) by the number of serving days in the month to determine the number of meals served per day, and (b) divided that value by the total enrollment for the district to assess percentage participation per day. To assess the participation rate for only those students eligible for *free or reduced-price* meals, we (a) divided the total number of free or reduced-price lunches served by the number of serving days, and then (b) divided that by the number of students eligible for free or reduced-price meals that year.

Next, we assessed post-COVID participation in 2020 using data from the second two weeks of March through May. Since meals were provided at no cost regardless of the student's free or reducedprice eligibility status, we used the total number of lunches distributed and the total number of days covered for both calculations. First, we calculated overall participation based on total enrollment as the denominator, and second, we calculated free or reduced participation using only the number of students who qualify for free or reduced-price lunches as the denominator. To assess the differences between 2019 and 2020 participation rates each month, we conducted an analysis of variance (ANOVA) accounting for repeated measures within a school district. We adjusted this figure to reflect the average percent of students eligible for free or reduced-price meals.

Qualitative Data Analysis

Key informant interviews were analyzed using the immersion-crystallization approach (Borkan, 1999).

During the immersion process, two researchers conducted an in-depth review of the interview transcripts while taking detailed notes to identify key aspects of emergency school meals programs and select quotes exemplifying those aspects. Then, during the crystallization process, the two researchers developed an initial set of codes based on patterns identified in two interviews, and met with a third researcher for peer debriefing. Based on this meeting, the team established a coding guide. We analyzed the remaining interviews and added additional codes as we found additional patterns. After coding was complete, the team reached consensus on the themes from the interviews. The findings were verified with one of the stakeholders interviewed.

Results

Over three-quarters of school districts statewide served meals after their buildings closed, with all providing lunch, 82% providing breakfast, 4% providing supper, and 1% providing snacks. Key informants discussed how they had integrated their district and school practices with community needs. Themes from the interviewees revealed the following four factors for success: (1) tailor the program to community needs and resources; (2) identify strategies to facilitate participation; (3) develop partnerships to coordinate school, municipal, and community efforts; and (4) establish programs that encourage resiliency. Furthermore, the emergency meal program increased the opportunity to positively influence perceptions of school meals. While the specific wording of these recommendations is our own, the concepts that formed these themes came directly from the key informants.

Theme 1: Tailor Programs to Community Needs and Available Resources

Distribution Processes

The majority (88%) of districts used grab-and-go as their primary distribution method. One interviewee explained that "every meal has a milk, every meal has a fruit or vegetable, every meal has a grain component, and a meat or meat alternate component. They're packaged up in the brown paper

bags, six out on a table at a time, keeping them on ice, and people come and take them." Keeping families and staff safe were key considerations, with one FSD stating, "I have the same stump speech every day with [staff] and that is our first priority is to keep you safe, our second priority is to serve food." This FSD decided to avoid contact between staff by eliminating the assembly line system of bagging meals in the kitchen. Instead, they created a self-service buffet where families selected meal components. Meal components were "color coded as opposed to meal identified, which, if you're picking up three meals, you're taking three out of the red box, three out of the blue box, taking six pieces of fruit, taking six milks. They fill up the bag, they leave, and then the next person comes in under the tent."

Safety concerns also guided decisions regarding the number of days per week that distribution sites were open. In early June, 48% of districts had sites open Monday through Friday to distribute graband-go meals; 29% were open 3 days a week; 14% were open 2 days a week, and only 1% were open 1 day a week.

The districts that distributed fewer times per week provided multiple days' worth of meals at once to "minimize the number of times that people were together." Some interviewees reported providing extra meals on Fridays to cover the weekend. The quantitative data provided by the CSDE indicated that 4% of the districts provided meals to cover Saturdays, and 24% provided meals to cover both Saturdays and Sundays. Large urban districts serving thousands of meals per day were most likely to distribute food 5 days a week; however, an FSD from a smaller district indicated they "wanted to keep the meals as fresh as we could" and had "plenty of staff members still willing to work." One FSD noted that daily distribution helped "to keep it as simple as possible" and avoided "having to provide storage instructions and expiration dates."

Statewide, the number of distribution sites per district ranged from one (60% of districts had a single distribution site) to 38, with five large districts distributing food at over 20 sites each. Interviewees explained that site selection was typically based on where the most families could be

reached, such as schools that were "centrally located in the district." In addition to schools, sites were placed within the community, "so that every neighborhood had a site close by. . . . If anyone wanted to walk, they can access the site and the meals easily." One FSD used a district map with income levels to "see what the income levels are and where the kids are" and used this information to add sites where they were needed. Community distribution sites included libraries, fire departments, community centers, housing centers, and daycare centers.

A common challenge cited in the interviews was keeping the meals cold during distribution. Both large and small districts struggled with insufficient space to keep food cold, as well as the need to transport refrigerators. One FSD stated that refrigeration was "a huge issue ... and once we didn't have maintenance help anymore, it was a struggle for a few weeks." When asked for recommendations for the next school year, one FSD stated, "Rent an outdoor refrigerator container because we didn't have enough refrigeration."

Bus delivery was the primary distribution strategy for only 12% of the districts. A larger subset (n=49) of districts obtained a waiver to allow delivery if necessary. One district that decided to distribute entirely by bus to individual homes noted the large geographic area of the regional district. The superintendent explained that they "felt a lot of people would not want to leave their homes, or that the families that really needed the help the most wouldn't come get the food ... and we wanted to keep the bus drivers employed too, as much as possible." However, delivering food had challenges. Some families forgot to pick up the food from their front door, and long driveways prevented buses from reaching homes. To address this, the district "encouraged people to put out coolers" at their doors or mailboxes to keep the food cold until it could be retrieved. Further, a system was developed to notify families "to the minute" of food delivery times.

Interviewees also shared that districts shifted their distribution processes throughout the closures. Many FSDs reported making alterations based on changes in family participation or to increase the safety or efficiency of the distribution process. For example, some districts decided to provide breakfast and lunch together instead of at different distribution times. Others changed the time of day or length of time the sites were open based on staff and family feedback.

Menu Development

Most interviewees reported both challenges and creative solutions related to the types of food distributed. Almost all FSDs described their intention initially to use the remaining food in their inventory: "I had each manager go to each kitchen; they took a full inventory. And we knew what we were dealing with ... We started doing our menu planning right from there ... and it worked well because we did not have to get any deliveries in for the first few weeks." She added that "inventory was so key, because then we were able to start grabbing stuff from other schools if we didn't have it in that one central location."

Food service personnel used creativity to produce meals with existing inventory that aligned with USDA meal patterns. Although some districts in the state requested USDA waivers, multiple FSDs noted in their interviews that meeting the meal pattern "wasn't an issue at all." Menu items included yogurt parfaits, fruit smoothies, makeyour-own pizza, and turkey dinners. One FSD stated that the emergency meal program was "doing menu items that we would do during the year. So, all of the products that we have available, or the recipes that we're following, are all going to be within those guidelines. So, it's pretty simple. We don't really have anything in the kitchen that wouldn't be part of the reimbursable meal."

When new inventory was needed, however, meal planning became more challenging due to supply chain problems. In particular, individually packaged items (e.g., baby carrots) were difficult to acquire. One FSD mentioned, "We couldn't get a carrot to save ourselves. We couldn't get apple slices to save ourselves." One solution was to individually wrap produce in-house, with some deciding to buy bag sealing machines to reduce staff labor. It was also important to "make sure that if we run out of something ... we always had something that we can give." One FSD described keeping a supply of raisins, dried sweetened

cranberries, and graham crackers as quick additions if she was missing a meal component.

Initially, after schools closed many districts reported serving cold meals, such as sandwiches, cereals, and salads. As time went on and they needed to provide multiple meals at once, several described providing refrigerated meals to be reheated at home. These meals included items such as pizzas, macaroni and cheese, tacos, chicken fajitas, cheeseburgers, pasta, and chicken tenders. Heating instructions were included on the packaging. One FSD emphasized the importance of writing on the package that the food was fully cooked and could be eaten cold, in case the family did not have access to heating appliances.

It was difficult initially to obtain the necessary packaging materials for the meals to-go. One FSD described, "In the beginning, I could not get paper bags to save my life. So, I started ordering from Office Depot, 16-pound paper bags. They were outrageously priced, but I needed something." A key consideration was ensuring that the packaging could withstand the journey home without coming apart. Selecting packaging for foods to be heated at home also required ensuring safety while considering cost. As one FSD described, "I was always nervous in the beginning that if a kid was home, would they take the metal tin and put it in the microwave to try to heat it? So, we started thinking like kids, like okay, if I get this, and my mom is working or dad is working, what the heck am I going to do with this? So, we went into printing out instructions for all the food, how to safely reheat in the microwave." Later, they continued to provide heating instructions when they "got a little bit braver and ... switched to the tins because they were so much cheaper."

The waiver that allowed foods to be provided in bulk—particularly milk (e.g., quarts vs. half-pints)—"worked out really well." One FSD added, "we got really good positive feedback from families on that, because they didn't get all these little milk containers." Another FSD mentioned switching to bulk milk made "a huge savings on time." Many FSDs also described using funds from another USDA program, the Department of Defense (DoD) Fresh Fruit and Vegetable Program (USDA Food and Nutrition Service, 2020b), during this

time. The DoD program specifically supports school purchases of fresh produce. One FSD noted the value of the DoD accounts, adding that "a lot of people were appreciative and I was just happy that something fresh got into the hands of our families that really, really needed it."

Staffing Practices

A key component of the emergency school meal program involved organizing staff members and production processes. Many FSDs emphasized the need for regular communication with staff to identify emerging problems, find solutions, and increase efficiency. One FSD described, "We were meeting daily ... so we're able to discuss any issues that arose that particular day, and discuss as a group any adjustments that we had to make. So that's been helpful. We've actually been meeting more than we do during a normal school year." Another FSD emphasized the need to ask staff about the problems they were seeing and potential solutions: "Try to do the work side by side so you can see what your staff is going through physically, and what their needs are ... talk to the regular staff. They're going to have good ideas too." Additionally, one FSD addressed the need to meet with staff "on a daily basis when you're in a crisis situation like this and you're doing things you've never done before." Maintaining staff morale was key: "keeping a positive attitude, making it fun ... was really important to getting this to work."

Almost all FSDs interviewed shared that there were substantial concerns about staff becoming sick: "Those first couple of weeks, [staff] were just very scared. But they did it because they knew how important it was to still feed the kids. They just pushed themselves and we just made sure everybody was safe and did what they needed to do." To address these concerns, production sites prioritized safe distancing so that "everybody had their own little area that they were working in." In one district, they marked the floor to help maintain safe distancing; in another, school nurses came in regularly to monitor staff wellness, take temperatures, and provide reminders about social distancing and sanitization practices.

The fear of having no personnel to distribute meals if one staff member became sick led some

FSDs to develop staff rotations. One FSD "proposed to the superintendent that ... each site had two teams. If someone got sick on Team A, and they all had to go home and quarantine, I could quickly pull in Team B and put them at a different school and start serving." Although procedures were in place to reduce the risk of illness, many FSDs noted that the mere potential was "very stressful."

Another challenge was that some staff could not, or would not, work during the closures. The reasons included their own health concerns, their need to take care of dependent children, or their lack of motivation to work due to the executive order from the governor that ensured all staff would be paid whether or not they worked. Consequently, some districts had staff shortages. One solution was finding help outside the meal program, in particular, from school paraprofessionals, administrative staff, and community volunteers. Maintenance staff and custodians were also mentioned frequently. They supported the distribution process by carrying items, ensuring a clean work environment, and relocating heavy items like refrigerators.

Overall, FSDs were impressed with the attitudes and work ethic of their staff: "I give a lot of credit to the individuals that have come to work, and continue to come to work" and "everybody's been doing awesome." Of note, continuing to support students and the community helped some staff members as well, with one staff member commenting that "this has been a really depressing period . . . but coming in and helping in the kitchen, really made my day ... it was so good to see everyone and know that we were doing something nice for people." Similarly, an FSD mentioned that some of her staff "look forward to coming and getting out" because it was "giving them a little normalcy in their life. ... They felt like they had an actual purpose and they were really helping the community."

Theme 2: Identify Strategies to Facilitate Family Participation

Participation Rates

The rates of meal participation from January–May

2019 and January–May 2020 are presented in Table 1. The March meal counts are presented for the first two weeks, before the buildings closed, and the second two weeks, after emergency meals began. For January–May 2019, the average monthly overall participation rate ranged from 45.6% to 49.9%, and the average monthly free or reduced-price participation rate ranged from 68.1% to

74.9%. The average overall participation rates from January through the first two weeks of March (pre-COVID) 2020 were not significantly different from participation the previous year. However, in mid-March, overall participation dropped by 32.3 percentage points after the buildings closed. Overall participation improved a bit in April and May, but was still significantly lower than in 2019.

Table 1. Overall and Free or Reduced Lunch Participation Rates, January–May in the 2018–19 and 2019–20 School Years (SYs) in Connecticut School Districts (N=120)

	2018-19 SY ^a % (SE)	2019-20 SY ^a % (SE) (no weekends)	% Difference ^b	p-value ^c
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Participation Rates B	ased on Total Student Populati			
		Pre-COVID		
January	45.6 (0.9)	47.3 (0.9)	1.7	0.2
February	46.0 (1.0)	49.4 (1.0)	3.4	0.01
March ^e	45.6 (1.0)	42.9 (0.9)	-2.7	0.04
Overall ^f	45.8 (0.6)	46.5 (0.6)	0.7	0.3
		Post-COVID		
Marchg	45.6 (1.0)	13.3 (1.0)	-32.3	<0.0001
April	49.9 (1.4)	22.2 (1.4)	-27.7	<0.0001
May	48.3 (1.3)	21.5 (1.3)	-26.8	<0.0001
Overall ^h	47.9 (0.7)	19.0 (0.7)	-28.9	<0.0001
Participation Pates P	ased on Number of Students E	ligible for Erec / Peduced Price	o Moolei	
raiticipation Rates b	ased on Number of Students L	Pre-COVID	e ivicais.	
January	68.1 (1.5)	67.6 (1.5)	-0.5	0.8
February	68.6 (1.5)	71.0 (1.5)	2.4	0.3
Marche	68.2 (2.6)	62.0 (1.5)	-6.2	0.002
		• • • • • • • • • • • • • • • • • • • •		
Overallf	68.3 (0.9)	66.8 (0.9)	-1.5	0.2
		Post-COVID		
Marchg	68.2 (2.6)	41.6 (1.5)	-26.6	<0.0001
April	74.9 (4.4)	72.9 (4.4)	-2.0	0.7
May	72.0 (4.2)	70.8 (4.2)	-1.2	0.8
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^a Calculated using least squares mean regression.

b Calculated as the percent participation for the 2019–20 SY (without weekends) minus the percent participation for the 2018–19 SY.

^c Calculated using analysis of variance accounting for repeated measures within a school district and adjusting for the average percent of students eligible for free or reduced-price meals.

^d Calculated by: (Pre-COVID) dividing the number of meals served by the total number of students, accounting for the number of serving days; (Post-COVID) dividing the total number meals served by the total number of students, accounting for the number of serving days

e Pre-COVID values for March during the 2019-20 SY represent the days prior to the school closures that month

f Calculated using only Pre-COVID dates from January through mid-March during the 2018-19 and 2019-20 SY.

g Post-COVID values for March during the 2019-20 SY represent the days after the school closures that month.

h Calculated using data from March - May 2018-19 SY and 2019-20 SY; March 2020 is Post-COVID days only

ⁱ Calculated by: (Pre-COVID) dividing the number of free or reduced-priced meals served by the number of students eligible for free or reduced-price meals, accounting for the number of serving days; (Post-COVID) dividing the total number meals served by the number of students eligible for free or reduced-priced meals, accounting for the number of serving days.

A second way to examine participation rates is to compare the post-COVID participation rates to the pre-COVID participation rates for students eligible for free or reduced-price meals. The rationale is that these are the students at greatest risk of food insecurity. When viewed this way, the reach in April and May is more encouraging. When not counting weekends as serving days, the decreases in participation in April and May 2020 were smaller (-2.0% and -1.2%, respectively) and not statistically significant. Because 29% of districts offered meals for one or two weekend days, we recalculated the post-COVID participation rates including the additional weekend days. Although this decreased the percentage daily participation values (because the number of meals is being divided by a larger number of days), the difference between the April and May 2020 and 2019 free or reduced-cost participation rates still did not reach statistical significance.

The interviews provide the FSDs' perspectives on the decrease in participation and the distinction between overall participation and free or reducedprice participation rates. Most FSDs reported that meal program participation fell "dramatically" after buildings closed. Although the FSDs did not collect information about the free or reduced-price eligibility status of participating families, they had different perceptions across districts. One FSD said that "it was the free and reduced population that was really taking advantage of the feeding," while another stated, "These weren't just families that were on free and reduced lunch. ... These were families that didn't necessarily want to chance going to the grocery stores, and some of the families, you know, were suddenly without a job." Other districts noted similar trends, as a different FSD added, "I don't care what walk of life you are ... or what financial status you are, we saw everything from A to Z and we still do." One FSD noted that the only reason for nonparticipation should be because "they've got food in their refrigerator."

Communication about the Program

It was also clear from the interviews that increasing participation was a priority. All the interviewees agreed that effective communication strategies were critically important; however, they reported varying levels of success. One FSD who was proud of her high staff morale and creative menus remarked, "I can honestly say that the biggest stumbling block I saw in this whole thing was communication." She reported meeting families in June who were still unaware of the emergency meal program. In contrast, other FSDs described "a steady stream of communication" and that they had "really, really gotten the word out."

The most common methods to share meal program details were emails and postings on districts' websites. Other strategies included phone calls, text messages, banners, flyers, signs, social media postings, newspaper postings, radio announcements, word of mouth, and municipal networks, such as mayors, churches, and libraries. Several FSDs explained that "not everybody is connected technology-wise" and that "you can send out an email blast from the school district, but that doesn't necessarily fit everybody." Many worried that families were receiving so much information via email that school meal information was getting lost: "people sometimes just need an old-fashioned phone call." That FSD said they saw an increase in participation after spending "about three full days of calling" families qualifying for free or reducedpriced meals. Another district that utilized robocalls had the principals instead of the superintendent create the messages so "the parent may think, 'Oh my God, hey, that's our principal!" Another FSD "put up a big banner in the park...to let families know about the sites and the new site opening up down the road in the low-income area."

Existing city and town networks were utilized as well. One district's English Learners' program "had the phone number of every immigrant family and called every home to communicate to them where meals were being served." The district's FSD also contacted "all the religious leaders in town to communicate the message to everyone in their congregations" and utilized the public library's "vast communications network" by adding school meal program information to the library newsletter. Districts also tailored the message to specific populations, such as immigrant families who may not have been able to access federal pandemic assistance.

Communication about the Food

Several FSDs mentioned the importance of communicating about the specific food families could expect to receive. One used Facebook to show people the meals: "I took a picture of ... the actual table full of all the grilled chicken Caesar salads ... and parents were commenting like, 'oh my God, that looks so good." Another FSD surveyed families as to why they were not participating and found that "the number one response was that they didn't know what was available." In response, she began posting daily menus. While many FSDs reported that menus sometimes changed last minute due to supply network challenges, it was important to give families an idea of what meals would be offered; this increased their comfort and the program's appeal.

Accessibility, Comfort, and Clear Information The FSDs perceived that participation rates were also helped by focusing on accessibility and family comfort, and eliminating common misconceptions about the meal programs. As physical access to the meal sites was a barrier to many families, one district leader who adopted a delivery model of distribution noted, "All schools should be thinking differently about how we get the food to the families, and not just make the families come to us." However, for districts without the resources to deliver meals, one FSD explained his process of strategically locating grab-and-go sites. He "specifically picked sites where they would get a lot of walkers" and created community sites at daycares and community centers. Efforts were made to place distribution sites in low-income neighborhoods, which increased participation, as reported by that FSD. Ultimately, making meal pick-up or delivery easier for families, particularly families without cars or with jobs as essential workers, ensured that students who needed meals could access them.

Meal program leaders noted the need to be aware of and combat many common misconceptions regarding emergency meal programs. These misconceptions included parents' fears of "double dipping" when receiving free meals in addition to P-EBT or SNAP benefits, worries that meal pickup was unsafe, assumptions that meals were only

for students who are eligible for free or reducedprice meals, and fears of needing to show identification when picking up meals. It was critical that districts identified families' assumptions and fears, either through surveys or conversations, and updated communication messages to indicate that meal pick-up was safe and for all families, no matter their financial status or reception of other benefits. For example, to ensure that immigrant families felt comfortable accessing free meals, one district "updated the meal plan flyers ... which say you don't need to show any proof of immigration status" and placed Spanish speakers at every pickup site. Identification of common barriers to participation required districts to communicate with and deeply understand the families in the district, highlighting the importance of school and family relationships.

Beyond ensuring access and eliminating misconceptions, an effective strategy to maintain family participation was to strengthen family comfort during the distribution process. One FSD explained, "the families coming through were seeing the same people and I think that was really reassuring to them. ... They got to know each other by name." In other districts, staff "dressed up every day in something funky." A focus on making the process fun for students helped reduce the fear of stigma, and the relationships built between staff and families during a time of fear and uncertainty increased the likelihood that families would return each day.

Theme 3: Develop Partnerships to Coordinate School, Municipal, and Community Efforts

Relationships between the schools and community institutions helped strengthen meal programs and provide more resources for families. Common partners included restaurants, community organizations, foundations, social service agencies, food pantries, food distributors, farms, and the municipal government. Not every district engaged in community partnerships; however, when asked to talk about the benefits of having those connections, one FSD responded, "It's critical. You get so much more done."

Fill in Gaps by Aligning Efforts

The interviewees provided several examples of how community partners assisted emergency school meal programs when the schools were unable to distribute meals. When one FSD struggled to distribute meals to students from the two schools in her district without hot meal programs, "a social service agency said, 'Don't worry, we will supply food to any family that wants it." Similarly, many districts did not have the capacity to serve food over weekends or spring break. In one district, social service agencies provided families with gift certificates to purchase groceries over spring break; in another, a nonprofit raised money to fund a restaurant that cooked weekend meals. In these situations, FSDs identified where their services fell short and took advantage of strong community relationships to fill in the gaps. Some FSDs felt that pre-existing relationships with town or city institutions increased the likelihood of collaboration, yet several also described how they were able to build new relationships during the closures.

Several interviewees reflected on their work to integrate school and community efforts, emphasizing the importance of mutual communication. Some enhanced meal distribution by including school-based food pantries in their programs. One district had a previously established school-based pantry. Another district found new ways to distribute nonperishable food by accepting community donations and collaborating with a local food pantry that dropped off leftover items. This was more convenient for families because they did not have to travel to a different location to access additional food. Unfortunately, in this case, someone received food from the pantry items at the school that was outside of its "best by" date and subsequently posted a negative comment on the food service's Facebook page. This precipitated the decision to end this initiative.

In another case, the food pantry gave the food service staff slips of paper to hand out to families when they came to pick up food. The slip said, "If you're in need of a weekend meal or fruits or veggies or canned goods, here's a number to call." Another FSD said, "We didn't really coordinate with [the food pantry] but just knew that they were doing the weekends. And so, we would tell people

[about them] when they came to our site ... and hopefully they were doing the same for week days."

While not all schools co-organized their operations with social service agencies and food pantries, some found that aligning with each other's efforts helped ensure that families knew about the local resources available. Another FSD utilized city hall as a way "to get integrated in with food drives and food pantries" so that they "weren't working as a separate entity." Ultimately, schools were part of the municipal resource networks and social safety net during the COVID-19 pandemic, and integrating town and city efforts allowed for a streamlined and united community response to the challenges of the time.

Program Enhancement Through Partnerships
Community partnerships sometimes moved beyond integration with other services, as they also worked to enhance the school meal distribution itself. Several stores donated shoes and snacks to food service staff, and one dairy distributor provided a district with refrigeration. In fact, the district's FSD noted, "without the refrigeration, we would only have the capacity to do 400 or 500 meals." The refrigeration and staff support provided by community partners reflects the fact that food services faced many new logistical and workforce-related challenges throughout the meal distribution, and that there were opportunities for outside organizations to assist creatively.

For the districts that utilized grab-and-go meal programs, the distribution sites provided an opportunity to share additional resources. One FSD commented, "this was a great opportunity to make sure that people that may not have before, or may have just missed qualifying for SNAP, now had that opportunity." Another district collaborated with organizations such as End Hunger Connecticut and created "community information hubs," where families could access services such as SNAP applications, kindergarten enrollment, and library books when picking up meals. Information hubs were an opportunity for families to access accurate materials and safely speak to experts in person. As many families utilized free meals for the first time during the pandemic, they most likely would benefit from knowledge of other resources previously unfamiliar to them, such as SNAP. In addition, one district noticed "participation spikes" on days where they distributed face masks and distance-learning packets at the grab-and-go sites. Based on this, they decided "to create more uses for the tents, in order to drive higher participation." Using the meal sites for multiple uses had the added benefit of incentivizing more families to utilize the meal program.

Theme 4: Establish Programs that Encourage Flexibility and Resiliency

Overall, one of the most common themes across the interviews was the need for flexibility and resiliency in order to maintain effective and efficient emergency school meal programs. For example, when reflecting on the programs, FSDs made statements relating to the seemingly constant changes, such as, "We had to rethink the whole process. So, I have to say from the beginning of this program, it evolved to where we are now" or "Everything is always changing with this."

Many FSDs mentioned being "nervous" and "apprehensive" in the beginning of the closures; however, they were able to get "in a really good groove." Numerous comments reflected the idea that "it was certainly a learning process." In addition, many FSDs reflected that the program "ended up working out, actually, really well" and "is manageable now." Some added that the lack of time to prepare demanded this flexible approach: "You had to make quick decisions. And you had to go with it. And then if it didn't work, you change it on the fly. And I think the most important thing is not to be married to a decision." As a result of the experience, multiple FSDs mentioned that they increased their "confidence," and now believe their team of personnel is prepared for any future emergency and "could pretty much do anything under pressure."

Looking forward, FSDs noted that flexibility would be necessary in the next school year due to the likelihood of changing schedules and plans. Some FSDs mentioned that they were included in district leadership decision-making teams, while others were not included in these discussions.

Additional Observations

Family Feedback

The FSDs reported that feedback from families regarding the continuous adaptations made by emergency school meal programs was overwhelmingly positive. FSDs received cards and pictures from students, as well as notes and comments from caregivers about the quality of the food and the sense of normalcy that it provided the students. One district experienced some negative comments on social media when the meals were slightly different than those stated on the menu; however, the programs generally received positive feedback.

Opportunity to Influence School Meal Perceptions A few FSDs discussed the opportunities that arose during the emergency closures, particularly noting that "it was a good opportunity for the families to be able to see firsthand what the meals look like," especially for the caregivers "who maybe never had their kids pick up meals." FSDs reported that family members made comments such as "that looks so good" in response to pictures of meals on social media of their children's school meals. Multiple FSDs discussed the substantial changes that have been made in school lunch quality since this generation of children's parents were in school; therefore, they felt it was important to highlight the quality of current school meals. The emergency school closures provided school food services programs with this opportunity to showcase the school meals to encourage greater participation in the school meals program in future school years. Finally, one FSD also believed this experience demonstrated the need to provide free school meals to all students—not only those who quality for free or reduced-priced meals. She believed that doing so would promote a "culture for everybody" in which all students and families understand that "it's okay, no matter what level financially you're at, to eat at school."

Discussion

The interview approach used in this study sought to identify real-time adaptations in school meal programs during an unprecedented and ongoing crisis. The findings have been condensed into a resource table for busy food service professionals (see Appendix B). We hope this information will aid other food service programs in their continued response to COVID-19.

Although overall participation rates for school lunch were significantly lower across the state after school buildings closed, the participation rates in April and May approached the level of free or reduced-price participation for the same months in 2019. Many of the specific strategies that the FSDs highlighted prioritized reaching students eligible for free or reduced-price meals, including placing the distribution centers in lower-income neighborhoods, targeting communication through community and other school partners, and creating distribution sites that also met additional needs of the families. It is important to note, however, that all the emergency meals were free, and the staff did not track whether each student was eligible for free or reduced-price meals as they would in the school cafeteria. Therefore, we do not know the proportion of students who received meals in 2020 who were eligible for free or reduced-price meals. Future research is needed to assess how each district's emergency meal recipients compare to their typical population of meal participants.

Although consistent themes emerged from the interviews we conducted, future work is needed to quantitatively assess the costs and benefits of the strategies described. A limitation of the current study is that we do not have quantitative data on the use of different strategies across all the districts in the state. Future studies should measure the use of the strategies noted in the interviews and assess which are associated with significant increases in participation by students eligible for free or reduced-price meals.

Finally, all the people interviewed in this study were in leadership positions in the school food service operations and provided perspectives from that position. Future research is needed to capture a more holistic view of the program by including the perspectives of food service staff, students, families, government agencies, other school district employees, and community partners. Hearing from

these other stakeholders could answer questions about whether staff members feel safe at work, reasons why families do or do not participate in the program, community needs for additional support, the perceived effectiveness and usability of the meal programs, and how schools are being called upon to promote health and wellness in additional to providing academic instruction.

Conclusions

The findings from the current study provide insight into how meal distribution rates changed during the spring of 2020 in Connecticut and how food service leaders responded to the crisis. Despite the inability to plan ahead for long-term emergency school closures, school food personnel quickly shifted meal production and distribution practices to continue feeding their students. The strategies reported by a diverse group of FSDs were developed by a desire to maximize family participation, staff well-being, and safety for all. FSDs responded to the challenge of the pandemic by designing and implementing new procedures and protocols, finding ways to use existing resources, and establishing a culture of flexibility and innovation so they could adapt to the changing needs and unique circumstances of their individual districts and families. Expanding beyond the typical role of the school meal program, many districts built or strengthened connections with community partners to enhance existing services and increase their reach and impact.

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Appendix A. Questions Asked During Interviews with Food Service Directors

- (1) Thinking back to when schools first closed, can you describe the decision-making process your district went through when selecting distribution methods and sites? What factors did you consider?
- (2) What does your distribution process look like?
- (3) What methods have your sites used to distribute meals? Who is involved in this process?
- (4) What are some innovative or creative distribution methods your sites have come up with, or that you have heard of others using?
- (5) Do you have thoughts about the families who are participating in your program now, as compared to the families who were participating before COVID?
- (6) Do you have thoughts about the families who are not participating right now? Any ideas about reasons why they are not participating?
- (7) Were there any staffing challenges you faced when you initially got started? Have new challenges emerged?
- (8) Can you describe who is staffing your sites right now? How does it compare to who was serving meals before?
- (9) Can you tell me about the communication strategies that were used in your district to keep parents updated on site openings and closures, and new distribution methods?
- (10) What are some challenges you have had in terms of food procurement and preparation?
- (11) What are some innovative or creative preparation methods your sites have come up with, or that you have heard that others are using?
- (12) Have there been any community organizations, including the food banks in Connecticut or the local food pantries in your district, that you have worked with during this time?
- (13) Are there things you have learned that can help us improve any part of the current meal service, not necessarily just during emergencies?
- (14) Are there things you have learned about how we can be better prepared for future emergency school closures?

Appendix B. Best Practices for Implementing Emergency School Meal Programs Identified Through Key Informant Interviews

Domains and Themes	Supportive Strategies		
A. Tailor programs to community needs and available resources			
A1. Distribution Process	 Increase access to meals: Deliver meals to student homes (recommend coolers at end of driveway; notify families with exact delivery time) Consider where most low-income families live. Create grab-and-go sites at schools and community locations within walkable distances. Be flexible to maximize efficiency, reach and safety: Add or remove sites and staff Adjust times that each site is open Increase or decrease number of meals distributed at once Rent outdoor refrigerator if needed 		
A2. Menu Development	 Know your food inventory: Keep an up-to-date, complete inventory for each building Use freezer inventory first Stock up on components for fruit and vegetable meals to ensure meals fit the NSLP meal pattern Use Department of Defense funds for fresh produce Rethink equipment and packaging: Purchase equipment and supplies to do own packaging Provide meals to be reheated at home Offer bulk milk Color-code meal components at distribution sites to ensure everyone gets all components Clearly explain that food is fully cooked and how to reheat safely 		
A3. Staffing Practices	 Spend time together in person: Protect morale, keep it positive, and make it fun Communicate daily Observe problems and generate solutions together Prioritize and ensure staff safety: Create safely distanced workstations Invite nurses and maintenance staff to help Create rotating teams to limit exposure Fill staff shortages with other school personnel (e.g., paraprofessionals, nurses) 		

B. Identify strategies to facilitate family participation

B1. Communication about the program

- 1) Use every strategy you can to reach families:
 - School district channels: emails, robocalls, posts on social media, text messages, posts on district websites
 - Community channels: banners in the community, library newsletter
 - Reach out individually if necessary: personal phone calls, church leaders, special program leaders
- 2) Make sure messages are available in all the languages spoken by participating families

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3) Clarify misconceptions:

- All children—not just those who are free or reduced-price-eligible can obtain food
- · You can still get meals if you have received P-EBT
- No one will be checking immigration status

B2. Communication about the food

- 1) Share detailed information about the foods provided
- 2) Note the availability of meals for those with dietary restrictions

C. Develop partnerships to coordinate school, municipal, and community efforts

C1. Fill in gaps by aligning efforts

- 1) Collaborate with other local food providers:
 - Local restaurants
 - Farms
- 2) Engage the charitable food system:
 - Establish school-based food pantries
 - Align efforts with community food pantries
- 3) Work with partners to meet the local need:
 - Social services
 - City hall

C2. Enhance the program through partnerships

- 1) Industry partners can help with equipment needs (refrigeration, shoes)
- 2) Set up "Community Information Hubs":
 - · Engage families in other ways at distribution sites
 - Examples: SNAP enrollment, kindergarten registration, voter registration, and library book check-outs

D. Establish programs that encourage flexibility and resiliency

D1. Have a growth mindset

- 1) Communicate the need to be flexible to the staff:
 - Need to make quick decisions
 - Need to be willing to drop an idea if it is not working
 - Eventually, confidence builds