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IMPACT OF SUMMER MOBILE FEEDING SITES ON INCREASING CHILDREN'S ACCESS TO FOOD

Stephanie Sather, MS, RDN, LDN; Julie Schumacher, EdD, RDN, LDN; Jacqueline Lanier, DrPH, MCHES; Julie Fehrenbacher, MS, RDN, LDN; Amy Bardwell, PhD

ABSTRACT

PURPOSE/OBJECTIVES

Summer Food Service Program (SFSP) participation rates often underserve the number of children in the community needing access to food. Each year, District 87 in Bloomington, Illinois offers children 18 years old and younger a free lunch at six feeding sites throughout the community as part of the SFSP. During the summer of 2018, mobile feeding units were initiated to deliver lunches to three new feeding sites located at low-income housing complexes. The main goals of this study were to determine if the mobile feeding units effectively served children who otherwise would not attend a feeding site, assess barriers of transportation, and determine future use.

METHODS

District 87 staff and volunteers administered two surveys on separate days at the mobile feeding sites using an iPad and verballing asking the children the questions. The first survey assessed past participation in the SFSP. The second survey focused on current likes and dislikes of the program for future program improvements.

RESULTS

A 21.6% increase in meals served was recorded compared to the 2017 summer. More than 60% of participants (n=38) had never attended a SFSP feeding site before. Transportation to a site was the main barrier identified for 22% of the children who had never participated and 38% of children reported that the convenience of the mobile feeding unit was the best part about it.

APPLICATION TO CHILD NUTRITION PROFESSIONALS

Every child that participated requested that the mobile feeding unit return in future summers. SFSP mobile feeding units can be a viable and effective way to increase participation and provide children with the nutrition they need during summer months or on remote learning days.

KEYWORDS: summer food service program, food insecurity, mobile feeding unit, accessibility, child nutrition

INTRODUCTION

Insufficient access to food for children during the summer has been a topic of concern for many years with the reported percentage of households with children that are food insecure increasing from 4% during January through May to 5.5% during summer months (Huang, Kim, & Barnidge, 2015). As defined by the United States Department of Agriculture (USDA), food insecurity is a household that is uncertain or unable to provide adequate food to meet the needs of all household members based on lack of money or resources (Coleman-Jensen, Gregory, & Rabbitt, 2018a). Research shows 298,000 households in the United States reported having one or more children experience substantial reductions in food intake (Coleman-Jensen, Rabbitt, Gregory, & Singh, 2018b). Given the unprecedented economic situation of the COVID-19 pandemic, it is critical to examine programs such as school nutrition programs to ensure that the nutritional needs of all children are met. Researchers recommend strategizing how, when, and where nutritional support is provided to children (Dunn, Kenney, Fleischhacker, & Bleich, 2020).

The National School Lunch Program (NSLP) has been identified as one of the main factors contributing to the protection of low-income households from food insecurity (Huang et al., 2015). The NSLP is a federally assisted program that provides students with a nutritionally balanced free or reduced-price meal throughout the school year (USDA, 2018b). Twenty-two years after creation of the NSLP, USDA began a program in 1968 that offered free meals to all children 18 and younger outside the academic year, known as the Summer Food Service Program (SFSP) (USDA, 2018c). The SFSP strives to ensure that children continue to receive the nutrition they need when school is not in session by serving free lunch at locations throughout the community where the associated school census has greater than 50% of all students eligible for free or reduced-price lunches (Wilkerson, Khalfe, & Krey, 2015).
In 2016, it was reported that only one in every seven kids who relied on a free or reduced meal during the school year participated in the SFSP (Food, Action, and Resource Center [FRAC], 2019). This was the first year that participation had declined since 2011, and it did so by nearly 5% (Hayes, Rosso, Anderson, & FitzSimons, 2017). Limited data is available on people being served in the SFSP, because unlike other government child nutrition programs, no applications or identifying information is required (*Wilkerson et al.,* 2015). This gives added difficulty when developing strategies to increase participation.

By identifying barriers to participation, the SFSP can help address childhood food insecurity and hunger in the summer months. Transportation to summer feeding sites has been identified as the largest barrier to participation in SFSP, especially in rural areas (Wauchope, & Stracuzzi, 2010) with issues such as lack of transportation for children, long travel distances, high cost of gas and maintenance, and lack of options for transporting meals noted. In 2015, the USDA began promoting mobile feeding as a solution to this barrier (USDA, 2015). The USDA encouraged agencies serving meals to take the food to children with provision of resources to map transport routes, receive additional funding, and collaborate with other community resources. However, limited research has been conducted on the effectiveness of mobile feeding units, and of the SFSP in general.

The purpose of this case study was to evaluate the effectiveness of a summer mobile feeding unit in one Midwestern community and its ability to reach a new population of children, thus helping

to lessen the impact of food insecurity. The research questions that guided this study included: 1) Does the mobile feeding unit allow the SFSP to feed children who otherwise would not attend a feeding site? 2) In this community, is transportation a barrier for children to attend a SFSP feeding site? 3) Should mobile feeding be continued in future years and if so, what improvements could be implemented to better serve children?

METHODS

Sample

During the summer of 2018, District 87 in Bloomington, Illinois, offered a mobile feeding unit as part of their SFSP for the first time. The intent was to provide meals to those children who may not have participated in the SFSP in the past due to lack of transportation or other resources. As a sponsor, District 87 offered free meals to children each weekday for ten weeks in the summer months. With the exclusion of Independence Day, lunch was served a total of 49 days. District 87 children previously had access to meals at six summer feeding sites, including four elementary schools, a church, and the Boys & Girls Club (referred to as Sites A, B, C, D, E, and F; respectively). All prior feeding sites continued to serve meals in 2018 with the addition of one stationary site (Site G) and three new mobile feeding sites (Sites H, I, and J). Three apartment complexes, all part of the local housing authority whose mission is to provide quality affordable housing to low- and moderate-income families, were chosen as stops for the mobile feeding unit because these were deemed the best locations to reach children (Housing Authority of the City of Bloomington, Illinois, 2019). District 87 employees drove a van equipped with prepared lunches to Sites H, I, and J to offer grab-and-go meals. The mobile feeding unit arrived at each location at approximately the same time each day and stayed for 30 minutes. Under the guidelines of the SFSP, children 18 years and younger could receive a meal and adults could purchase a meal for $3.00.

Data Collection

Data on the number of summer meals served at each site since 2015 was provided by District 87's foodservice director for comparison. In addition, on two Fridays during the summer, June 29th and August 3rd, different short surveys were administered at mobile sites to children participating in the SFSP. Personal assent was given by the child with parental/guardian permission. Volunteers, using iPads, verbally asked children the survey questions and recorded their answers. All children could stop answering questions at any time. No identifying information was collected, and no compensation or punishment was given for participation or lack thereof. When children were too young to answer themselves, parents or older siblings answered the questions on their behalf. The opportunity to participate in the survey was presented to children after receiving their lunch. The Institutional Review Board approved this study as exempt from further review for research involving human subjects. Permission for data collection was given by District 87 and the Bloomington Housing Authority.

Instruments

Given there is minimal previous research on effectiveness of SFSP mobile units, survey questions were developed by District 87's foodservice director and the researchers. Questions sought to identify whether the addition of the mobile feeding sites was reaching a new population of children who previously had not attended a stationary site, and feedback on how the program should be run in the future. The first survey included eight multiple choice questions

regarding prior participation in the district's summer feeding program and how the participants learned about the location of the new mobile site. The goal of the second data collection, near the end of summer, was intended to determine what the children liked and did not like about the mobile feeding unit and whether it should be continued in the future, including recommendations for possible improvements. The second survey had eight multiple choice questions and one open-ended question asking participants what they would change about the mobile feeding unit. Both surveys took less than five minutes to complete.

Data Analysis

Data received from District 87 on NSLP and SFSP participation were compiled and reviewed. The total number of meals served for SFSP on each day of the week at each meal site was received for every year since 2015, in addition NSLP participation was included for the prior school year. Meals served were totaled and compared between and among sites using frequencies, percent changes between years, and SFSP participation rates compared to NSLP participation. To track trends and impact of the new mobile feeding sites, data of meals served – were compared to previous summers. In addition, the survey results from children at mobile feeding sites at the beginning and end of summer were analyzed using SPSS statistical software. Frequencies, bivariate correlation statistics, and one-way ANOVA were calculated. A statistical level of $p<0.05$ was used to determine significance.

RESULTS AND DISCUSSION

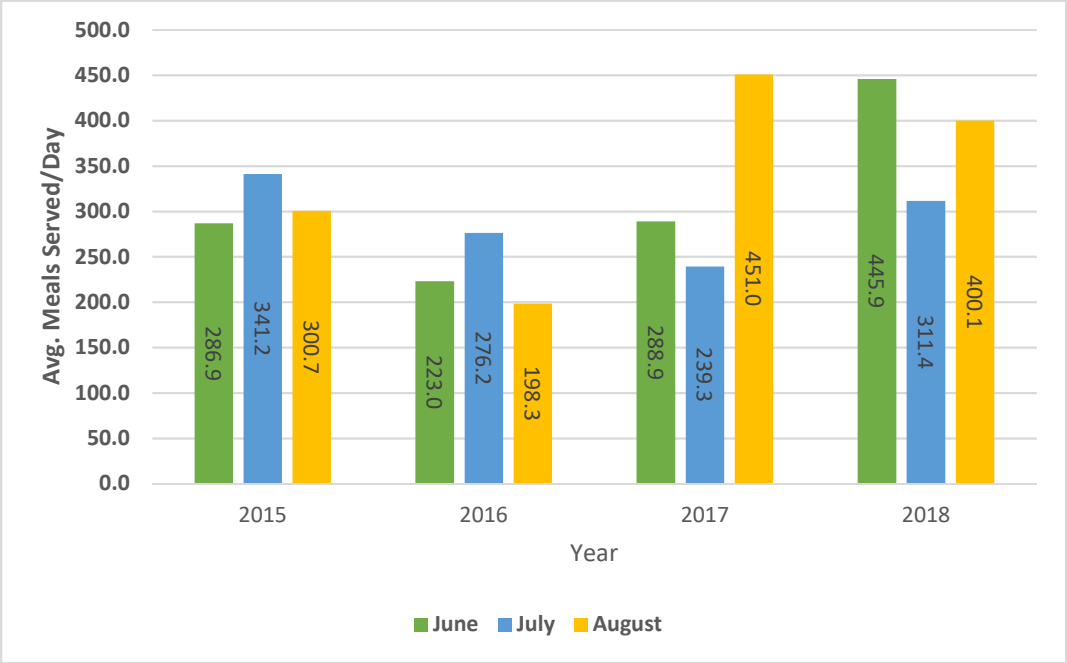
2018 District SFSP Participation

During the summer of 2018, District 87 served a total of 18,658 lunches to children 18 and younger. This was a 27.6% increase from the number of meals served in the summer of 2017 (n = 14,623). According to data from USDA, the state of Illinois had a 5.4% decline in summer meal participation between 2017 and 2018 (USDA, 2019), so this outcome for District 87 is positive. District 87 served an average of 380.78 lunches each day meals were offered. This was the highest average observed since 2015, and 141 more meals per day than the 239.65 served in 2016 in the district when participation dropped state-wide to the lowest rates noted in the last five years.

Although July is the peak month for number of meals served across the nation, for District 87, July 2018 was the lowest participation for the summer with only 311.4 lunches on average served per day compared to 400.1 in August and 445.9 in June. July was also the month with the lowest participation in 2017 (an average of 239.3 lunches served per day); however, August was the peak month that year with an average of 451 lunches served per day. Yet, the summers of 2015 and 2016 saw highest participation rates for District 87 during the month of July. See Figure 1 for District 87's 2015-2018 SFSP average participation.

In 2018, Site A only served meals the month of June while a camp was hosted at the site. Site B served more meals in June (84.3 average meals per day) and July (56.5 average meals per day), followed by Site C (78.8 and 52.9 average meals per day respectively) than any other District 87 site. In August, the Site B program ended, and Site F served the most meals (233.5 average meals per day). Site F hosted a STEM camp the last week of August and all attendees (n =230) were fed lunch by District 87 for the first time as part of the SFSP. This made August an outlier

Figure 1. *District 87's SFSP Participation from 2015-2018*



Note. 2015 included 5 sites; 2016 included 6 sites; 2017 included 7 sites and 2018 included 6 stationary sites and 3 mobile sites.

and skewed averages for Site F. See Figure 2 for District 87's 2018 SFSP participation by feeding site. It is interesting to note that Site B experienced a 125% increase in participation from 2017, the most of any site, but a -13% decrease from a baseline year of 2015.

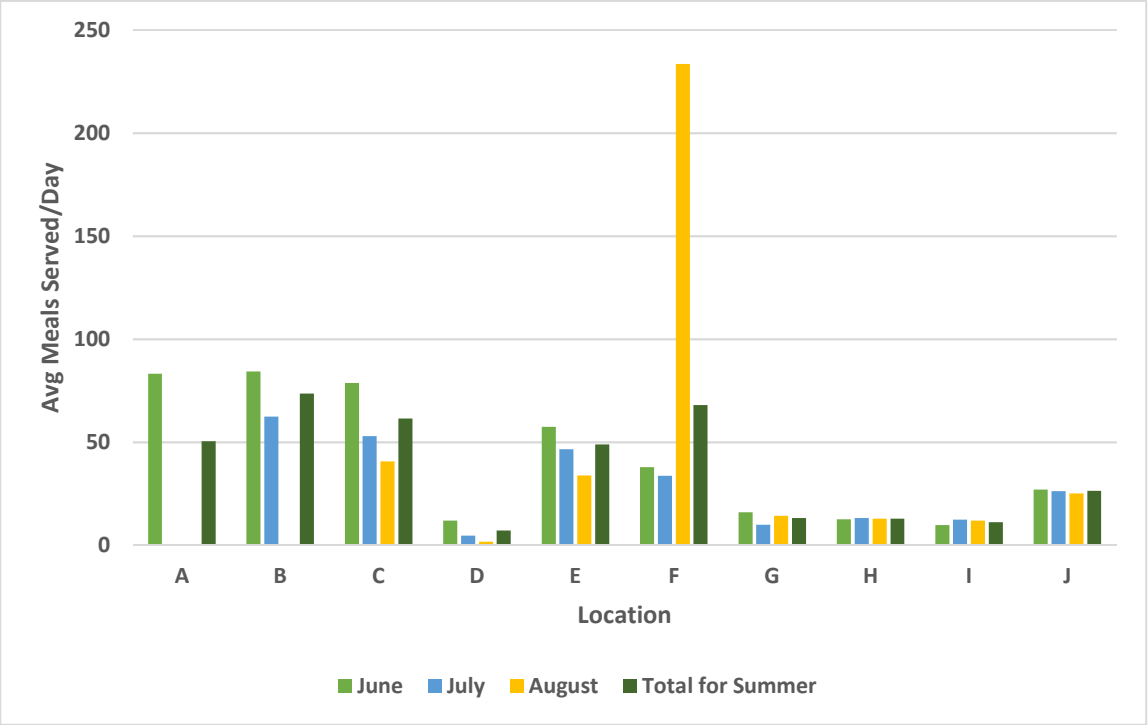
SFSP Participation Compared to NSLP Participation

District 87 had roughly 5,300 students enrolled during the 2017-2018 school year. Among students attending school from kindergarten to senior year, 58% of students qualified for free or reduced price lunches. Site C reached a peak of 85% of students qualifying for free or reduced-price lunches and 83% of Site F students were eligible in the 2017-2018 school year. Sites G and E, which both also offered meals during the summer have 70% and 54% of students, respectively, who qualify. Looking at the average number of meals served per day during the 2018 summer by District 87, only 7% of potential district students participated in the SFSP. Of the 3,074 students who during the school year qualify for free or reduced-price lunch, only 12% participated. Even SFSP feeding sites of C and F, which had the highest rates of low-income students, had lower participation among those who qualified with only 19% of students at Site C and 12% of students at Site F participating. These percentages are comparable to Illinois' average ratio of only one child participating in the SFSP for every 11.6 students participating in the NSLP (Hayes et al., 2017).

Mobile Feeding Sites

Throughout the summer of 2018, the three new mobile feeding sites served 2,473 lunches (50.33 average meals per day). The meals at these three feeding sites contributed to 13% of all meals served by the district during the summer. Peak participation was observed in July (51.86 average meals served per day), with similar numbers noted in June (49.25) and August (49.88). More

Figure 2. *District 87's SFSP 2018 Participation by Feeding Site*



Note. In August, Site F hosted a week-long STEM camp that provided lunch each day for each participant through the SFSP.

consistency in the number of meals served daily was tracked at the mobile feeding sites compared with any other feeding site.

All children receiving a lunch at one of the three District 87's mobile feeding sites on two Fridays during the summer were asked to complete a short survey. All 62 children given meals at the three mobile sites on June 29th agreed to participate (100%) but out of the 47 children who were served a lunch on August 3rd, 37 (79%) were interviewed. Of the 62 participants on June 29th, 38 (61%) reported they had never received a lunch from the SFSP in past years while 30 (81%) of the 37 participants surveyed on August 3rd, indicated this was the first summer they had used the program.

Questions asked in the first survey gathered more insight into previous participation in the SFSP. When asked why they did not previously participate, 57% of the 38 children who had not previously participated stated they did not know about the SFSP, 22% stated there was not a feeding site close enough to attend, 5% stated they received lunch through another way, while the remaining 16% provided other reasons including 'I lived in a different apartment' and 'I thought I was too little.' When all participants were asked in the first survey how they learned about the mobile feeding site, 29% (n=18) of the participants said they saw the van at their apartment complex which was more effective than getting a paper from school (21%), hearing about it from parents (13%), hearing about it from friends (11%), finding out about it online (3%) or other (not defined) (23%). More than 80% (n=50) of the 62 participants stated they attended the mobile feeding site 4-5 times a week while only 8% reported attending once per week or less with the remaining 11% participated 2-3 times per week. Children in kindergarten

to 5th grade made up the majority of children participating in the SFSP (64.5%, n=40) at these three sites. Students recently completing middle school (grades 6-8) comprised 22.5% of the 62 participants with pre-kindergarten children and those in high school making up equal percentages of those coming to receive a lunch at 6.5%.

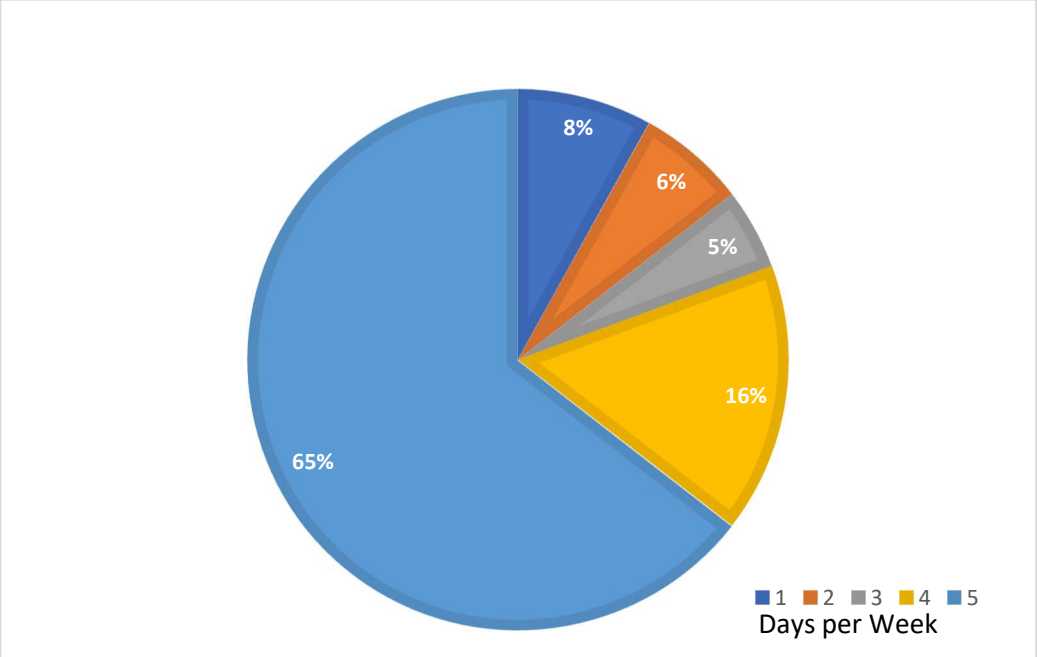
Concern about transportation to a feeding site was one of the main factors for implementing the mobile sites. As previously mentioned, 22% of the 62 children surveyed initially reported never attending a site because there was not one close enough to their homes. Of the 24 children in the first survey who had previously participated in the SFSP during a previous summer, 71% walked to the site, 17% drove in a car, 8% rode the city bus, and 4% rode bikes. Over half, 14 of the 24 children who were previous SFSP participants (58%), attended Site F school.

The second survey in August asked for feedback on the mobile sites. The convenience of the mobile feeding site and proximity to home was the second most common answer (39%) given by the 37 participants as to why they liked the mobile feeding site, only after the food (43%). At the new mobile sites, 79% of participants walked, 16% arrived in a car, and 4% rode bikes. Nearly three-quarters (71%) of all participants (n =99) said they liked everything about the mobile feeding unit, and 100% of these responded that they would like to see the mobile feeding sites continue in coming years. There were criticisms with the food as 23% of participants expressed dissatisfaction, including dislike for certain food items, lack of variety, and a desire for more of certain foods. Only one response (3%) expressed a complaint that the mobile feeding unit came too early during the day.

Correlations

Figure 3 shows the average number of days a week the children who took the first survey participated in the SFSP. The correlation of the average number of days per week mobile feeding site participants stated they came to receive a lunch was found to be negative and statistically significant, $r(62) = -0.370$, $p < .05$, two-tailed. Children that participated in the study and attended a SFSP feeding site during a previous summer ate less frequently at a mobile feeding site in the summer of 2018. A one-way ANOVA with a Post Hoc test was run to determine which previous feeding site had an effect on frequency of attending a mobile site in 2018. Those children who attended Site C's SFSP during a prior summer ate less frequently at a mobile feeding site than those children who attended Site F ($p<0.05$). There was a significant effect of which feeding site had previously been attended on the number of days per week a child came to eat at a mobile feeding site at the $p<.05$ level [$F(2, 20) = 4.891$, $p = 0.019$]. A one-way between subjects ANOVA was conducted to compare the effect of mobile feeding site and frequency per week of participating in the SFSP. There was a statistically significant effect at the $p<.05$ level [$F(4, 58) = 5.853$, $p = 0.001$]. Finally, the correlation between mobile feeding sites and those who had previously participated in the SFSP was found to be statistically significant, $r(62) = +0.285$, $p < .05$, two-tailed. Site H had the greatest number of children attend who had eaten at a SFSP during a previous summer (64%). Half of the children attending Site I, and 29% of the children attending Site J, had participated in the SFSP previously.

Figure 3. *Mobile Feeding Site Participation Frequency*



Note. This shows the average number of days per week mobile feeding site survey participants (n=62) stated they come to get a lunch at a mobile feeding site at the beginning of summer.

CONCLUSIONS AND APPLICATIONS

Outreach Benefits

As a sponsor for the SFSP, District 87 saw many positive outcomes during the 2018 summer. The main goal of reaching as many children in need of a healthful meal as possible was met with feeding rates that were the highest since 2015. While it is impossible to conclude that increased participation of the SFSP in 2018 is linked specifically to feeding using mobile sites, an average of more than 82 additional meals (21.6% increase) were served each day by District 87, compared to 2017.

From those who agreed to participate in a short survey at mobile feeding sites during beginning and ending months of the summer (n = 99), 69% said this was their first year eating with the SFSP while the other 31% stated that they had eaten at a stationary feeding site in previous summers. Site F was the most frequently identified previously attended site with 52% of the participants eating there during previous summers. While it is likely the mobile feeding sites were pulling some children away from eating at Site F, this location still noted a 31% increase in participation between the summers of 2017 and 2018. In fact, Site C, where 19% of 62 children who completed the survey and reported eating previously (the second highest site), also resulted a 68% increase from 2017-2018. From this data, it can safely be assumed that District 87 reached a new population of children with use of the mobile feeding approach and locations for the unit. With the exception of Site H, the new locations for mobile feeding did not take children away from previously established locations.

Transportation to a Stationary Site

In prior research on the topic of SFSP attendance, transportation to the site has been a deterrent for many children (Wauchope, & Stracuzzi, 2010). The means by which children traveled to a District 87 feeding site prior to the initiation of the mobile feeding sites and how each survey participants arrived at the mobile feeding sites in the summer or 2018 were almost identical in percentages. Walking was by far the most common means of attending a site. The distance traveled in most cases was much less during the 2018 summer with the mobile feeding sites because each was located at an apartment building and many of the children were residents in these apartments. It was noted by District 87 volunteers, that many students riding their bikes were not riding specifically to collect a lunch, but were playing outside and riding around the site before and after eating. Other child nutrition programs should consider meeting students where they are during the summer months to increase participation in the SFSP.

Conclusion

Food insecurity continues to be a concern for many individuals and families, especially when those being affected are children (Coleman-Jensen et al., 2018a). Rates of childhood food insecurity increase during summer months when children are not in school and do not have access to school meals (Hayes et al., 2017). District 87, like other SFSP sponsors, are going to great lengths to help determine how to increase participation in the SFSP in order to help combat hunger and improve outcomes for children in the community. This study is crucial in showing sponsors the benefits of a mobile feeding unit.

Lack of transportation to a stationary feeding site may contribute to previous non-participation as 22% of children reported not having a site close enough to attend and 38% of children surveyed reported the convenience of the mobile feeding site as what they liked best. Unanimously, each child surveyed at a mobile feeding site responded that they would like to see the mobile feeding unit continue in coming years. It seems that the mobile feeding unit was effective in reaching District 87's goals, and it is recommended that it continue during future summers and remote learning days. More research is needed on mobile feeding units in upcoming years to determine the best practices regarding site locations, timing, and food accessibility needs of children eating there.

While unable to conclude that increases in meals served is directly related to the creation of the mobile feeding unit, District 87 observed a 21.6% increase in average meals served per day compared to 2017. On average 71% of children eating at a mobile feeding site reported never previously attending a SFSP feeding site. School nutrition directors can use these results to create mobile feeding units to reaching children during summer months and during remote learning days. Similar to District 87, other districts can add mobile feeding units to locations such as apartment complexes to serve lunches to children where they live. Playgrounds during the summer months offer another venue for SFSP service to meet children where they are.

The purpose of this case study was to evaluate the effectiveness of a summer mobile feeding unit in one Midwestern community and its ability to reach a new population of children, thus helping to lessen the impact of food insecurity. Every child that participated requested that the mobile feeding unit return in future summers. SFSP mobile feeding units can be a viable and effective way to increase participation and provide children with the nutrition they need during summer months or on remote learning days.

LIMITATIONS

There were barriers of data collection within this study that limit the results and conclusions. Because each survey was only administered once during the summer, both on Fridays, the data collected and conclusions made cannot be generalized to other summer feeding days or to other feeding sites. Both surveys had high participation rates, however, sample sizes were small. Additionally, no identifying factors were collected from the children, so there is no way of knowing which children participated in one, none, or both surveys.

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BIOGRAPHY

Stephanie Sather, MS, RDN, LDN is a Graduate Assistant, Julie Schumacher, EdD, RDN, LDN is a Professor, Jacqueline Lanier, DrPH, MCHES is an Associate Professor, and Amy Bardwell, PhD is an Assistant Professor at Illinois State University in Normal, Illinois. Julie Fehrenbacher, MS, RDN, LDN is the Former Nutrition Director at District 87 School District in Bloomington, Illinois.