Volume 46, Issue 2, Fall 2022

Journal of Child Nutrition & Management

Published by School Nutrition Association

DISRUPTED FOOD SUPPLY CHAIN'S EFFECT ON SCHOOL NUTRITION PROGRAMS' ABILITY TO MEET USDA NUTRITIONAL GUIDELINES DURING THE COVID-19 PANDEMIC

Lily Reisinger, M.S, RD; Sarah Dhillon, PhD, MBA

ABSTRACT

The Coronavirus disease 2019 (COVID-19) pandemic resulted in school closures and required school nutrition directors to shift their methods of executing the School Breakfast Program (SBP) and National School Lunch Program (NSLP). The procurement of items, the composition of meals, and meal delivery were impacted by the COVID-19 pandemic. Responding to these changes, the United States Department of Agriculture (USDA) released several waivers allowing for flexibility in meal patterns and meal delivery, while maintaining federal reimbursements to schools. Although school meals have yet to reach pre-pandemic participation numbers, school districts nationwide have experienced the effects of supply chain disruptions, therein impacting their ability to meet the nutritional standards of the NSLP and SBP. To mitigate supply chain issues and provide consistent, quality meals, School Food Authorities needed to leverage USDA's additional funding and waivers by continuing to innovate, establish, and communicate best practices for effective meal delivery.

KEYWORDS: School Meals, Supply Chain, National School Lunch Program, School Breakfast Program, COVID-19

BACKGROUND

The U.S. Department of Agriculture's (USDA) National School Lunch Program (NSLP) and School Breakfast Programs (SBP) provide many school-aged children with a large portion of their daily dietary needs, protecting their nutritional health and ensuring food security (Cullen & Chen, 2017). The NSLP and SBP are federal programs that provide reimbursement to schools adhering to the nutritional standards outlined for each program (USDA 2017; USDA, 2019b). From a nutrition perspective, school meals are associated with a healthy meal; as such, meals contain fruits, vegetables, protein, low-fat dairy, and whole grains (Dhillon & Arendt, 2021; USDA, 2019b). The Summer Food Service Program (SFSP) provides free meals to school-aged children when school is not in session, also offering USDA reimbursements (USDA, 2019c). Children living in households at or below 185% of the federal poverty level qualified for free or reduced-price meals (FRPM) pre-pandemic (USDA, 2017). The USDA reimbursements are intended to cover the full or partial cost of a meal and slightly offset the costs of meals for children who pay full price and are above the income threshold (USDA, 2017). Annually, 15 million and 30 million youth participated in SBP and NSLP respectively, with approximately 75% of participants qualifying for FRPM (USDA, 2021d). School Food Authorities (SFAs) operate financially separated from school districts with budgets almost entirely reliant on USDA reimbursements (Kenney et al., 2021).

With the onset of COVID-19 in the spring of 2020, school closures disrupted these essential nutrition programs. Abruptly, schools were challenged with changing their meal delivery systems to ensure children received meals. Many school-age children shifted from eating the majority of their dietary intake at school to consuming meals at home (Borger et al., 2021; USDA, 2017; USDA, 2019a; USDA, 2019b). School leaders and policymakers attempted to provide alternative options for students to access free meals during the pandemic (Kinsey, Hecht, Dunn, et al., 2020; McLoughlin et al., 2020). Despite meal distribution efforts, complex logistical challenges with little federal guidance reduced the number of school meals served during the early months of COVID-19 causing food insecurity to rise among vulnerable populations (Kinsey, Kinsey & Rundle, 2020; SNA, 2021b). School districts were also faced with supply chain issues; raising concerns for their ability to serve reimbursable meals (SNA, 2020a).

Policy and Supply Chain Effects on Execution of School Nutrition Programs

Lynchpin Food and Nutrition COVID-19 Policy Responses

The policy landscape encompassing school meals evolved substantially since March 2020 and was amended frequently (Lane et al., 2020). The Families First Coronavirus Response Act (FFCRA) was passed on March 18, 2020, and authorized the USDA to issue nationwide waivers for school meal regulations (USDA, 2020b). On March 20, 2020, the Meal Pattern Flexibility Provision and Non-Congregate Feeding Nationwide Waiver gave schools additional support throughout the pandemic through the FFCRA (USDA, 2020c; USDA, 2020d; USDA, 2020e). The National Meal Pattern Flexibility Provision applied to the NSLP and SBP and evolved throughout the pandemic (USDA, 2020d). It permitted flexibility for items school nutrition programs may serve without jeopardizing USDA reimbursements which included the dietary specification for sodium, whole grain-rich offerings, serving a variety of vegetables from the vegetable subgroups, offering at least two different options of fluid milk, and requiring unflavored low-fat milk (USDA, 2020d; USDA, 2021b).

The Non-Congregate Feeding Nationwide Waiver enabled school food service programs to serve meals in settings outside of cafeterias, allowing school districts to offer grab-and-go or delivery meals, distribute meals for multiple days, and permit parents and legal guardians to pick up meals without children present (Jablonski et al., 2020; USDA, 2020a). According to research conducted by the School Nutrition Association (SNA) in May of 2020 surveying school districts across the U.S. (n = 1,981), meals were delivered to students and families by drive-through meal distribution sites (81.3%), walk-up distribution sites (57.9%), directly to student homes (41.9%), along bus routes (31.9%), by partnering with local food banks and organizations to provide meals and food assistance (13.5%), or by other means (2%) (SNA, 2020b). These two waivers enabled schools to continue serving students healthy meals while mitigating COVID-19 transmission and reducing food insecurity (USDA, 2020f).

Eventually, free meals to all youth under 18 years old regardless of their FRPM status became available under the FFCRA (USDA, 2020f). This critical policy development expanded access to free school meals. Before the onset of the pandemic, only SFAs participating in the Community Eligibility Provision could serve universal free meals (Kenney et al., 2021; USDA, 2019a). Although NSLP and SBP received additional funding, policies lacked guidelines on how to effectively utilize USDA allotments, a sentiment that was echoed by SNA industry members who felt unsupported (Jablonski et al., 2020; SNA, 2020a). To mitigate future issues, SNA members' top priority was creating a task force including USDA, state agencies, operators, and industry members to develop best practices for operating in national emergencies (SNA, 2020a).

As meal delivery evolved from the traditional foodservice style to grab-and-go items, the food supply chain needed to adapt to new product offerings and distribution channels (Hobbs, 2021; SNA, 2020a). Despite concerted efforts to distribute meals, numerous issues affecting the execution of the NSLP and SBP remained unresolved by the end of the school year (SY) 2019-2020 (SNA, 2020b). According to SNA's industry members, corporate officials, and consultants, the biggest concerns were canceled orders from suppliers, reduced staff, and fewer meals served (SNA, 2020a). These problems persisted, over 670 million fewer school meals (10.94% loss) were served in SY 2020-2021 compared to SY 2019-2020 (Kinsey et al., 2020; SNA, 2021d). Meals served have yet to reach pre-pandemic participation numbers which can be largely attributed to continued food supply chain disruptions (SNA, 2021d; USDA, 2021d).

Impact of the Food Supply Chain on Meeting SBP and NSLP Standards

The pandemic simultaneously created unprecedented supply and demand challenges which affected the food supply chain with several sharp demand and supply shocks (Anderson et al., 2021; Hobbs, 2021; Lane et al., 2020). Initial disruptions to food supply chains were particularly problematic for schools as closures exacerbated food insecurity in many communities given the reliance of vulnerable populations on school nutrition programs (Hobbs, 2021). New policies were implemented while school districts were understaffed and faced widespread procurement challenges due to the shift from food service to food retail (Hobbs, 2021; Lane et al., 2020). Perishable commodities created additional constraints as milk is generally delivered daily and produce must be harvested when ripe. This created short-run disruptions to food supply chains which resulted in food waste despite efforts made to redirect some of these foods to alternative outlets, such as food banks, when feasible (Hobbs, 2021).

Highly-specialized food producers created supply chain delays – a drawback of their necessary specialization when disruptions in sourcing and labor arise (Anderson et al., 2021). Norwood and

Peel (2021) offered a practical solution to prevent future supply chain disruptions: assess the supply chain's vulnerabilities, identify the root cause, and address and solve them prior to a disruptive event. The researchers present the applicable example of searching for and establishing a relationship with a backup supplier of crucial foodstuffs contingent upon the primary supplier failing (Norwood & Peel, 2021).

In August 2021, the Meal Pattern Flexibility Nationwide Waiver was extended to allow continued meal pattern flexibility for SY 2021-2022 due to persistent supply chain disruptions (USDA, 2021a). Of note, SFAs were permitted to serve low-fat (1%) flavored milk in SBP and NSLP due to reduced regional milk supplies, insufficient packaging, and labor shortages for transportation and delivery (Nuelle, 2021; USDA, 2021c).

Applying Lessons Learned to SY 2021-2022

In April 2021, the USDA introduced several flexibilities available throughout SY 2021-2022 such as the NSLP's Seamless Summer Option to provide higher USDA reimbursements throughout SY 2021-2022 to cover increased operating costs, while still serving millions of children free-nutritious meals (USDA, 2021c). Resources, such as webinars and planning tools, are available for states and schools to navigate the new age of school meal service and understand the available NSLP/SBP flexibilities more effectively (USDA, 2021c). Additionally, the USDA committed to facilitating evolving conversations with stakeholders across all aspects of the school meal programs, including school nutrition professionals, governors, congressional representatives, state agency staff, advocacy organizations, and those involved in the production and distribution of USDA Foods (USDA, 2021c). New educational resources emphasize helping school nutrition directors leverage available flexibilities in meal delivery (USDA, 2021c).

Due to decreased participation in SBP and NSLP during SY 2020-2021, increased food and operating costs, and declined revenues, the Universal School Meals Program Act was introduced in May 2021 (SNA, 2021a). This bill proposed that all public-school districts, education county offices, and charter schools serve K-12 students two free meals (breakfast and lunch) to all students, regardless of FRPM status, to ensure all students continue to receive healthy meals (Universal School Meals Act, 2021). It seeks to eliminate school meal debt and bolster local economies by incentivizing local food procurement; potentially reducing the impact of supply chain disruptions (Universal School Meals Act, 2021).

Given the immense amount of change to school nutrition programs since March 2020, the SNA administered two surveys – Back-to-School 2021 Report and 2021 Supply Chain Survey – to gauge preparedness for SY 2021-2022 (SNA, 2021a). The Back-to-School 2021 survey was completed by 1,368 school nutrition director members. Ninety-seven percent (n = 1,274) of respondents reported continued pandemic supply chain issues as a moderate or serious concern (SNA, 2021a). Sixty-nine percent (n = 1327) of respondents reported the NSLP/SBP serving the mandated whole grain-rich foods was a moderate to significant challenge, attributed largely to pandemic supply chain disruptions (SNA, 2021a). More than 70% of responding programs reported limiting menu variety and options due to pandemic-related financial concerns (SNA, 2021a). In planning for SY 2021-2022, continued pandemic supply chain disruptions (64.7%, n = 852) and staff shortages (62.4%, n = 823) were identified as the most serious concerns by responding programs at the time (SNA, 2021d). The policies implemented through the beginning of SY 2021-2022 failed to provide ample resources to overcome continued supply chain, meal component, and financial concerns (SNA, 2021a).

USDA Offers $1.5 Billion to Support School Nutrition

On December 17, 2021, the Biden-Harris Administration approved $1.5 billion for states and school districts to help mitigate supply chain issues and improve school meal quality and consistency in communities experiencing the greatest disruptions (USDA, 2021e). The USDA provided $1 billion for schools to purchase meals, $300 million for state-level USDA Foods purchases, and $200 million for local food cooperative agreements. The USDA is providing Supply Chain Assistance Funds for school districts to utilize in procuring unprocessed and minimally processed domestic foods including fresh fruit, milk, cheese, frozen vegetables, and ground meat for school nutrition programs. To reinforce local food supply chains, states may opt to use up to 10% of these funds to purchase and distribute local food to nearby schools (USDA, 2021e). Over 85% of respondents reported difficulties obtaining menu items and 97% reported challenges with higher costs according to SNA in December of 2021 (n = 1,212), suggesting continued need for federal assistance (SNA, 2021a; SNA, 2021d). This additional funding could help alleviate some of these concerns.

The USDA will also purchase $300 million of USDA Foods for state distribution to offset supply chain disruptions. The Local Food for Schools Cooperative Agreement Program seeks to improve the school food systems by creating a fair, competitive, and resilient local food chain (USDA, 2021e). The USDA has provided an additional $200 million for food assistance purchases to states for procuring local foods for school distribution to help meet this goal. School nutrition directors will greatly benefit from these two programs, more than seventy percent (70.7%) reported current suppliers are not carrying sufficient menu items needed to meet nutrition standards (SNA, 2021d).

New USDA data found that most SFAs reported challenges procuring meal service supplies, meat/meat alternates, and whole grain-rich products was either unchanged or worsening compared to the beginning of SY 2021-22 (USDA, 2022a, USDA, 2022b). Supply chain issues continue to affect the delivery of school meals. This survey also cited that limited product availability—especially ready-to-eat and packaged foods—and orders arriving with missing or substituted items as the most common challenges to meeting USDA guidelines (USDA, 2022a). However, SFAs reported that substituting products when possible was the best way to address these issues (USDA, 2022b). Several school districts reported working with local distributors, over national ones, to find substitutes proved more reliable and less expensive (Gingerella, 2022). Reaching out to the state's department of agriculture is the most effective way to initiate sourcing local foods (Gingerella, 2022). Although this provides a solution for some districts, many low-income urban districts rely heavily on packaged foods and may not benefit from fresh locally procured foods because they lack the necessary equipment and employee labor and skill to prepare and serve them (Stokes & Spruance, 2020). This issue must continue to be addressed as these schools feed the students who depend on school nutrition programs for the majority of their daily caloric intake.

CONCLUSIONS AND APPLICATIONS

Over two years after the onset of COVID-19, schools still struggled to meet USDA guidelines despite continued innovation and support. Ongoing challenges in the delivery and implementation of the NSLP and SBP demonstrated the importance that multiple sectors must work together to overcome the continued supply chain issues. It appears that sourcing locally, when possible, is currently an effective way to find stability in procurement.

School nutrition directors are most directly burdened by supply chain disruptions as shortages and delivery delays force them to make last-minute menu changes. Utilizing SNA and USDA supply chain resources, such as the Food Buying Guide, and creating menus using substitution-friendly products is imperative while issues persist (USDA, 2022a). Staying current with available flexibilities in school nutrition programs, especially given the increased USDA funding, is crucial. With over 35% of directors reporting insufficient reimbursements to cover meal production costs, this support opens additional avenues for financial reprieve (SNA, 2021d).

In turn, SFAs should frequently communicate with food distributors to identify available products and potential supply chain issues for commercial and USDA foods. Training is available to support forecasting and procurement strategies. This is especially important with the newly increased funding to the Local Food for Schools Cooperative Agreement Program and push to strengthen local food supply chains (USDA, 2021e). Additionally, the USDA offers a variety of online tools ranging from procurement and menu planning strategies to guides for navigating roadblocks in school meal distribution (USDA, 2022a). The Child Nutrition Sharing Site (CNSS) has a live resource hub that is continuously updated by child nutrition program operators and SFAs (CNSS, 2022).

Both the SNA and USDA Supply Chain surveys illuminated the challenges school nutrition programs continue to face and should be repeated. On June 30, 2022, President Biden signed the Keep Kids Fed Act which provides schools and summer meal sites with additional resources to serve children through the 2022-2023 school year (USDA, 2022c). This, in addition to $1 billion from the USD, was an indirect response to high food costs and supply chain disruptions. The Keep Kids Fed Act is working to combat this as it is providing schools with an additionally temporary reimbursement of $0.40 for lunch and $0.10 for breakfast meal served (USDA, 2022c). This information and funding are vital to provide school nutrition professionals with the tools and support they need to continuously improve child nutrition programs and provide students with healthy USDA-compliant meals.

REFERENCES

Anderson, J.D., Mitchell, J.L., & Maples, J.G. (2021). Invited review: Lessons from the COVID-19 pandemic for food supply chains. *Applied Animal Science, 37*, 738-747. https://doi.org/10.15232/aas.2021-02223

Borger, C., Paolicelli, C., Ritchie, L., Whaley, S. E., DeMatteis, J., Sun, B., Zimmerman, T. P., Reat, A., & Dixit-Joshi, S. (2021). Shifts in sources of food but stable nutritional outcomes among children in the early months of the COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, *18*(23), 12626. https://doi.org/10.3390/ijerph182312626

Child Nutrition Sharing Site (CNSS). (2022). *Child Nutrition Resources.* https://theicn.org/cnss/

Cullen, K. W., & Chen, T. A. (2017). The contribution of the USDA school breakfast and lunch program meals to student daily dietary intake. *Preventative Medicine Reports*, *5*, 82–85. https://doi.org/10.1016/j.pmedr.2016.11.016

Dhillon, S., & Arendt, S. (2021). Perceptions held by guardians of elementary school children about the influencers and motivators for purchasing school lunch meals. *Journal of Child Nutrition & Management, 45*(1). https://schoolnutrition.org/uploadedFiles/5_News_and_Publications/4_The_Journal_of_Child_Nutrition_and_Management/Spring_2021/Perceptions-Held-by-Guardians-of-Elementary-School-Children-about-the-Influencers-Spring2021.pdf

Families First Coronavirus Response Act, 116 U.S.C. § 127 (2020). https://www.govinfogov/content/pkg/COMPS-15683/pdf/COMPS-15683.pdf

Gingerella, Benita. (2022). As supply chain challenges persist, school nutrition teams go local. *Foodservice Director.* https://www.foodservicedirector.com/operations/supply-chain-challenges-persist-school-nutrition-teams-go-local

Hobbs, Jill. (2021). Food supply chain resilience and the COVID-19 pandemic: What have we learned? *Canadian Journal of Agricultural Economics, 69,* 189-196. https://doi.org/10.1111/cjag.12279

Jablonski, B., Casnovsky, J., Clark, J. K., Cleary, R., Feingold, B., Freedman, D.,…& Wentworth, C. (2020). Emergency food provision for children and families during the COVID-19 pandemic: Examples from five U.S. cities. *Applied Economic Perspectives and Policy*, *43*(1), e13096. https://doi.org/10.1002/aepp.13096

Kenney, E. L., Dunn, C. G., Mozaffarian, R. S., Dai, J., Wilson, K., West, J., Shen, Y., Fleischhacker, S., & Bleich, S. N. (2021). Feeding children and maintaining food service operations during COVID-19: A mixed methods investigation of implementation and financial challenges. *Nutrients*, *13*(8), 2691. https://doi.org/10.3390/nu13082691

Kinsey, E. W., Hecht, A. A., Dunn, C. G., Levi, R., Read, M. A., Smith, C., Niesen, P.,Seligman, H. K., & Hager, E. R. (2020). School closures during COVID-19: Opportunities for innovation in meal service. *American Journal of Public Health*, *110*(11), 1635–1643. https://doi.org/10.2105/AJPH.2020.305875

Kinsey, E. W., Kinsey, D., & Rundle, A. G. (2020). COVID-19 and food insecurity: An uneven patchwork of responses. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, *97*(3), 332–335. https://doi.org/10.1007/s11524-020-00455-5

Lane, H. G., Turner, L., Dunn, C. G., Hager, E. R., & Fleischhacker, S. (2020). Leveraging implementation science in the public health response to COVID-19: Child food insecurity and federal nutrition assistance programs. *Public Health Reports, 135*(6), 728–736. https://doi.org/10.1177/0033354920959285

McLoughlin, G. M., McCarthy, J. A., McGuirt, J. T., Singleton, C. R., Dunn, C. G., & Gadhoke, P. (2020). Addressing food insecurity through a health equity lens: A case study of large urban school districts during the COVID-19 pandemic. *Journal of Urban Health, 97*(6), 759–775. https://doi.org/10.1007/s11524-020-00476-0

Norwood, F. B., & D. Peel. (2021). Supply chain mapping to prepare for future pandemics. *Applied Economic Perspectives and Policy*, *43*, 412–429. https://doi.org/10.1002/aepp.13125

Nuelle, B. (2021, October 27). School meals suffer due to supply chain disruptions. *Agri-Pulse Communications.* https://www.agri-pulse.com/articles/16682-school-meals-suffer-due-to-supply-chain-disruptions

School Nutrition Association (SNA). (2020a, April 6). *Impact of COVID-19 on the school nutrition industry: A summary of survey results.* School Nutrition Association. https://schoolnutrition.org/uploadedFiles/6_News_Publications_and_Research/8_SNA_Research/COVID19-on-The-School-Nutrition-Industry.pdf

School Nutrition Association (SNA). (2020b, May 18). *Impact of COVID-19 on school nutrition programs: Part 2.* School Nutrition Association. https://schoolnutrition.org/uploadedFiles/11COVID- 19/3_Webinar_Series_and_Other_Resources/COVID-19-Impact-on-School-Nutriction-Programs-Part2.pdf

School Nutrition Association (SNA). (2021a, July 8). *Back to school 2021 report: A summary of survey results.* School Nutrition Association. https://schoolnutrition.org/uploadedFiles/Newsand_Publications/Press_Releases/Press_Releases/Back-to-School-Report-2021.pdf

School Nutrition Association (SNA). (2021b, September 24). *School nutrition meals served and reimbursements during the COVID-19 pandemic.* School Nutrition Association. https://schoolnutrition.org/uploadedFiles/6_News_Publications_and_Research/8_SNA_Research/School-Nutrition-Meals-Served-and-Reimbursements-During-the-Pandemic-June2021-Data.pdf

School Nutrition Association (SNA). (2021c, October 1). *2021 State legislative report (January-September).* School Nutrition Association. https://schoolnutrition.org/uploadedFiles/Legislation_and_Policy/State_and_Local_Legislation_and_Regulations/SNA-2021-Third-Quarter-State-Legislative-Report.pdf

School Nutrition Association (SNA). (2021d, December 8). *2021 Supply chain survey report: A summary of survey results.* School Nutrition Association. https://schoolnutrition.org/uploadedFiles/News_and_Publications/Press_Releases/Press_Releases/2021-Supply-Chain-Survey-Report.pdf

Stokes, & Spruance, L. (2020). Processing and Promoting Local Produce as Part of Farm to School Programs: Perspectives of School Nutrition Staff. *Journal of Hunger & Environmental Nutrition*, *15*(6), 778–793. https://doi.org/10.1080/19320248.2020.1778592

Universal School Meals Program Act of 2021, S.1530, 117th Cong. (2021). https://www.congress.gov/bill/117th-congress/senate-bill/1530/text

USDA. (2017). *SBP fact sheet*. USDA Food and Nutrition Services. https://www.fns.usda.gov/sbp/sbp-fact-sheet

USDA. (2019a). *Community eligibility provision*. USDA Food and Nutrition Services. https://www.fns.usda.gov/cn/community-eligibility-provision.

USDA. (2019b, March 20). *The National School Lunch Program fact sheet*. USDA Food and Nutrition Services. https://fns-prod.azureedge.net/sites/default/files/resource-files/NSLPFactSheet.pdf

USDA. (2019c, March 30). *Summer Food Service Program (SFSP) fact sheet*. USDA Food and Nutrition Services. https://www.fns.usda.gov/sfsp/sfsp-fact-sheets

USDA. (2020a). *FNS responds to COVID-19*. USDA Food and Nutrition Services. https://www.fns.usda.gov/disaster/pandemic/COVID-19.

USDA. (2020b, March 18). *Families First Coronavirus Response Act.* USDA Food and Nutrition Services. https://www.fns.usda.gov/resource/families-first-coronavirus-response-act

USDA. (2020c, March 20), *CN COVID-19 Non-Congregate Feeding Nationwide Waiver.* USDA Food and Nutrition Services. https://www.fns.usda.gov/cn/covid-19-child-nutrition-response-2

USDA. (2020d, March 25). *COVID-19 nationwide waiver to allow meal pattern flexibility in the child nutrition programs.* USDA Food and Nutrition Services. https://www.fns.usda.gov/cn/covid-19-child-nutrition-response-4

USDA. (2020e, April 4). *COVID-19 congregate meal waivers & Q&As on summer meal delivery using existing authority.* USDA Food and Nutrition Services. https://www.fns.usda.gov/sfsp/COVID-19/COVID-19-meal-delivery

USDA. (2020f, August 20). *Child nutrition programs: COVID-19 waivers by State*. USDA Food and Nutrition Services. https://www.fns.usda.gov/disaster/pandemic/covid-19/cn-waivers-flexibilities

USDA. (2021a, May 14). *Consolidated Appropriations Act, 2021: Effect on child nutrition programs- REVISED*. USDA Food and Nutrition Services. https://www.fns.usda.gov/cn/sp11-cacfp10-sfsp06-2021

USDA. (2021b, August 6). *School meals supply chain issues during school year 2021-2022: Supply chain issues*. USDA Food and Nutrition Services. https://www.fns.usda.gov/tn/dynamic-school-environment-supply-chain-issues

USDA. (2021c, September 29). *FACT SHEET: USDA provides broad support to ensure school meal programs succeed.* USDA Food and Nutrition Services. https://www.fns.usda.gov/fact-sheet/fns-0006.21

USDA. (2021d, December 10). *Child nutrition tables.* USDA Food and Nutrition Services. https://www.fns.usda.gov/pd/child-nutrition-tables

USDA. (2021e, December 17), *USDA Distributes $1.5 billion to strengthen school meal program.* USDA Food and Nutrition Services. https://www.usda.gov/media/press-releases/2021/12/17/usda-distributes-15-billion-strengthen-school-meal-program

USDA. (2022a, March 3). *FNS Actions to Address COVID-19 Related Supply*. USDA Food and Nutrition Services. https://www.fns.usda.gov/supply-chain

USDA. (2022b, July 7). *Food Buying Guide for Child Nutrition Programs*. USDA Food and Nutrition Services. https://www.fns.usda.gov/tn/food-buying-guide-for-child-nutrition-programs

USDA. (2022c, June 30). *Biden Administration Takes Additional Steps to Strengthen Child Nutrition Programs.* USDA Food and Nutrition Services. https://www.usda.gov/media/press-releases/2022/06/30/biden-administration-takes-additional-steps-strengthen child#:~:text=The%20department%20also%20applauds%20the,through%20school%20year%202022%2D2023

BIOGRAPHY

Lily Reisinger, is a Registered Dietitian at the Center For Discovery in Los Angeles, California. Sarah Dhillon PhD, MBA, is Instructional Assistant Professor of Gerontology at at the Leonard David School of Gerontology. Both researchers are affiliated to the University of Southern California in Los Angeles California.